

A Study on AIS Quality in the use of the ERPS

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Abstract

The use of the Enterprise Resource Planning Systems (hereafter, ERPS) in India showed a significant growth. This growth has led to the need to have an empirical evidence about the accounting benefits from using that systems. The existences of accounting research on ERPS has created an opportunity for further research on the Accounting Information Systems (AIS) quality and effectiveness in the decision making process related to the level of the use of the ERPS. This research is using alternative methods of Partial Least Square (PLS). The result suggest that the manager's perceptions of the AIS quality affect the effectiveness of the decision making process. The breadth of the use of the ERPS can be a moderating factor in the relationship between manager's perception of the AIS quality and the effectiveness of the decision-making process. Finally, there was no difference between the perceptions of the different department managers regarding the AIS quality and the effectiveness of the decision making process on the breadth of the use of the ERPS.

Key Words: ERPS capabilities, AIS quality, Decision Making Process Effectiveness, manager perceptions

1. Introduction

According to market research of reportbuyer for information technology (IT), the use of the ERPS in India in 2018, showed a significant growth rate compared to other ASEAN countries. There are more than 10 companies that have implemented SAP, and more than 100 companies have implemented Microsoft Dynamics AX in India in 2018. In the same year Metrodata has recorded a market growth of 20-30% per year for the ERPS. This growth has led to the need to have an empirical evidence about the accounting benefits from using that systems. Besides the large investment, the use of such system has opened a great opportunity for reseach in the accounting field.

- Is the manager's perception of the AIS quality affects the effectiveness of the decision making process in the use of ERPS?

- Is the breadth of the use of ERPS becomes a moderating factors in relation to the manager's perception of the AIS quality with the effectiveness of the decision making process?
- Are there differences in the managers perceptions of the different departments regarding the AIS quality and the effectiveness of the decision making process and in the breadth of the use of the ERPS?

2. Theoretical Background

2.1 Theory of Information Systems Success

This study will apply the information system (IS) success model by DeLone and McLean (1992) and the model that is proposed by Doll and Torkzadeh (1988) to measure the end user's satisfaction. The measurement consists of five dimensions, namely 1) content, indicates that the systems has provided the information in accordance with the user requirements; 2) accuracy, indicates that the systems has provided accurate information; 3) format, indicates that the system has provided information in the appropriate display format; 4) ease of use, indicate that the system is easy to use; 5) timeliness, indicates that the system has provided information in a timely manner.

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2.2 *The Extent of the Use of The Enterprise Resource Planning System*

The extent of the use of the ERPS will vary between companies. This depends on the urgency or the level of the company needs and the availability of funds for implementation. This research will use the capability concept that is proposed by Karimi *et al.*(2007). The capability implies the extent of the use of the ERPS in such company. The difference in the breadth of the use is expected to give a different impact to the company. Further, according to Karimi *et al.* (2007), the extent of the use of the ERPS can be viewed through 1) the number of the functions in the company that is using the ERPS, 2) the number of the divisions or departments that are using the ERPS, and 3) the number of offices that are geographically dispersed in various regions that are using the ERPS.

With the more extensive use of the ERPS the more widely the information is disseminated to all functions of the company. This is important because the information is the key for the decision making process. The wider the use of the ERPS, the more integrated the data that will help the manager in solving the problem and making decisions. Besides, the integrated system is expected to provide a rapid analysis reporting in a timely maner (Gupta, 2000; Shebab *et al.*, 2004).

2.3 *The Effectiveness of the Accounting Information Systems and the Decision Making Management*

The effectiveness of an information system can be described through a number of different perspectives. Evaluation of an effective systems can be shown through the output produced as required, increased productivity, improve performance, and increased control over the decision related to the information that is produced by the AIS. Thus, the information generated expected can make the decision making process more effective. The information delivered is easier to interpret and understand, as well as that the dissemination of information to all functional departments could be improved (Ugboma, 2004). According to Kim (1999) the assessment of the effectiveness of AIS relies on the use of AIS as perceived by the user regarding the quality of the information produced. The quality of

information depends on the reliability, report forms, timeliness and relevance for the decision maker. Nicolao (2000) defined effectiveness of AIS as a decision, the decision maker perceives about the information output generated by the transaction processing system, the management reporting, and the whether the budgeting systems meets their needs in the coordination and the control of tasks.

Nicolaou (2000) and Yeunyoung (2007) stated that there is a relationship between the use of an integrated system and the effectiveness of AIS. Alzoubi (2012) found that the use of the ERPS has effected the effectiveness of AIS. The effectiveness of AIS can be described through quality of the accounting information output and the firm's internal control. Other studies have been conducted by Spathis and Constantinides (2004), Spathis (2006), and Spathis and Ananiadis (2005). They examine the reasons why companies convert their conventional information system to ERPS, and how the use of ERPS has brought changes, especially in the accounting process. They found that most benefits perceived from adopting ERPS is for the accounting application integration, increasing flexibility in generating information and improving the quality of financial reporting and decisions with respect to timelines and the reliable accounting information produced. Brazel and Dang (2005) examine the ERPS adoption to the relevance of the information and reliability of the information in financial reporting for external users. They found that after the implementation of ERPS, the company will decreased the reporting lag simultaneously. Whereas Poston and Grabski (2001) have shown that the use of ERPS can reduce costs by increasing efficiency through the computerized system, and improved decision making by providing accurate and timely informations.

However it is not the company's main goal in using the ERPS. Other researcher, Xu *et al.* (2012) has conducted a case study in an Australian company about the quality of the data related to the implementation of the ERPS. They have found out that the quality of the data is important and the main reason for implementing the system.

Sajady et al. (2014) stated that the effectiveness of the AIS depends also on the perception of the decision maker about the usefulness of the information generated by the system. How the information satisfies their needs about the operational processes, managerial reporting, budgeting, and control of the organization. The results of Sajady et al. (2014) indicated that the implementation of AIS will lead to improvements in the process of decision making by managers, internal control and financial reporting quality, and facilitation of the transaction processing companies. Therefore in this study, assessment of the effectiveness of the AIS is based on the user perceptions about the usefulness of the information. Measurements were performed by assessing user's satisfaction for the quality of information, including the form, content, and appearance.

The Perceive of the AIS Quality and the Decision Making Management Differences

The Previous studies on differences in the manager's perspectives from various departments related to ERPS, showed inconclusive results. Chang (2006), Ifinedo and Nahar (2007), Esteves (2009), have found that there is no differences in the perception of the managers of the various departments in terms of the benefits of information system's implementation. However Holsapple et al. (2006) suggested that user satisfaction was higher in the system-level managers than in the non-managers level. Similarly Longinidis and Gotzamani (2009), have found differences in the user's perception of the network departments within the sales and supporting department. Kanellou and Spathis (2011) have also suggested that there is a difference on perception on system performance between IT professional and accountants, but no differences in perceptions regarding the benefits of accounting of the use of ERPS.

Based on the theoretical framework discussed above, the hypotheses are formulated as follows:

H1: AIS quality has positive direct effect on effectiveness of decision making process

H2: More extensive the use of the ERPS mediates the positive direct effect of Manager's perception of the

AIS quality on effectiveness of decision making process

H3: There are no differences on manager of different department perceptions regarding the AIS quality and effectiveness of decision making process in the breadth of the use of the ERPS.

3. Methodology

The data was collected by sending questionnaires by mail or e-mail and sent directly to the companies. This research is using alternative methods of Partial Least Square (PLS). The reason underlying the use of PLS is the small sample size. In addition to estimating the complex models with small samples, PLS does not assume the data should be normally distributed. Moreover, the use of PLS is also very appropriate when the conceptual and measurement models are either well undeveloped or it's still in the exploratory stage of the development of the theory, PLS is specifically useful in analyzing and modeling for a minimal measurement scale and small sample size. The program used is Visual PLS. Meanwhile, for the purposes of testing the differences perception the SPSS is used.

Testing hypotheses using PLS will be conducted in three phases. The first step is done to ensure the validity of the model. The criteria used is that any indicator has a factor loading greater than or equal to 0.50 with a significance level of 0.05. Thus, the indicators with the factor loading of less than 0.50 were excluded from the analysis. The second stage, re-estimate the model after removing the indicators with the factor loading of less than 0.50 from the analysis. The third stage is to read the results of the outer model (measurement model) and analyze the inner model (structural model).

Because the indicators used in this study is entirely reflexive, the measurement model was evaluated by the convergent validity and discriminant validity of the indicators and the composite reliability for the block indicator. Further, to assess the discriminant validity it also used comparison of square root of average variance extracted (AVE) of each construct with the correlations between the constructs in the model.

The model has good discriminant validity. Recommended value of AVE is greater than 0.50. The

next is the reliability test, which measures the internal consistency of the indicators of a construct that indicates the degree to what extent each of the indicators indicates a common construct. Minimum reliability values of variables forming latent dimensions that can be received is equal to 0.70.

The second stage is to assess the Inner model (structural model) describing the relationship between latent variables was evaluated by looking at the percentage of variance explained by the value of R-square for the dependent latent constructs and the amount of structural path coefficients. Changes in the value of R square can be used to assess whether the effect of certain independent latent variables on the dependent latent variable does have a substantive effect or not. Furthermore hypothesis testing is done by taking into account the significant value of the estimated structural paths. Cut of Point used in this study, is the value of the Critical Ratio (CR) and to calculate the probability value (p-value). If the probability value of the Critical Ratio is less than 5% ($t > 1.96$), the hypothesis is accepted. If the probability of the Critical Ratio values are greater than 5% ($t < 1.96$), the hypothesis is rejected.

4. Result and Discussion

From 100 companies as ERPS users, only 64 companies agreed to be surveyed. Data collection was carried out for four months, starting in October 2017 until February 2018. Up to the time limit, the rate of return via mail and e-mail has collected 12 copies, while visits directly collected 38 copies. It is still far from the expected. Therefore, the researchers extended the time of data collection until April 2018..

The profile of the respondents can be seen in ERPS users consist of various types of industries, but most were firms in the Miscellaneous Industry. Based on the position of the respondents in the company, the position of the department managers varies. Managers who are in the Non IT/Accounting field are 41% and 30% are in the IT, while in the accounting field 29%. This indicates that the ERPS users do not only exist in one department, but are also in different departments that have already been acquainted with

the use of ERPS. Furthermore, most respondents have used ERPS vendors of SAP, as many as 43%. Based on the description of the respondents, it can be concluded that the sample is fairly representative of the kind of industry, the department's managers who have filled the questionnaires, and the type of vendors used.

Non-response bias testing is done to detect the possibility of individual differences in the responses between individuals who have participated and who did not participate in this study. Testing is done by comparing the characteristics of the subjects who participated with a subject that is not willing to participate. Because the data of the subjects who are not willing to participate can not be known, respondents who replied late are used as proxy respondents for those who are not willing to participate.

Testing is done by t-test with SPSS 16.0, to compare the scores of respondents within each group on each of the study variables. If the significance of the average scores indicates $p\text{-value} > 0.05$, then the inferred average scores did not differ between the groups tested. As presented in., the results of the non-response bias, using the t-test on a nonparametric test with SPSS 16.0, have shown a score of the $p\text{-value} > 0.05$. Thus, it can be concluded that there was no significant difference between an early respond and a late respond. Therefore the data of this study can be used to explain the conclusions of the study.

The Construct of AIS quality (AISQ) was measured with six items of the question, "is the output displayed in a useful format?" (FOR), "an accurate accounting information system" (AKUR), "to obtain the information needed in a timely manner" (TIME), "the content information needs" (ISI), "information systems are easy to use" (EASE), "overall, the system provides useful information for the ongoing monitoring of the decisions and actions" (PEM).

The Square root of AVE values to construct ERPC was 0.830, AISQ constructs 0.840, constructs EDM 0.858. Furthermore, a comparison between the values of the square root of AVE and correlations between the construct is presented in Table 6. On the whole it

can be seen that the value of the square root of the AVE of each construct was greater than the correlation between the construct. Thus it can be said that the model has a good value for a discriminant validity.

Conclusions

This research was conducted with three objectives: (1) assess whether the manager perception of the accounting information systems quality affects the effectiveness of the decision making process, (2) assess whether the breadth of the use of ERPS can be a moderating factor in the relationship between manager's perception of the accounting information systems quality and the effectiveness of the decision-making process, (3) assess whether there are differences in perception between managers of different departments about the accounting information systems quality and the effectiveness of the decision-making process in the breadth of the use of ERPS.

Based on the above objective hypothesis testing has been performed and obtained the following results;

- The manager's perceptions of the accounting information system's quality affect the effectiveness of the decision making process.
- The breadth of the use of the ERPS can be a moderating factor in the relationship between manager's perception of the accounting information system quality and the effectiveness of the decision-making process.
- There was no difference between the perceptions of the different department managers regarding the accounting information systems quality and the effectiveness of the decision making process on the breadth of the use of the ERPS.
- As the results of testing the outer model, the

breadth of the use of the ERPS, can be measured with the capability concept proposed by Karimi et al. (2007) The level of usage can be seen from the wide range of systems using either functional or geographic systems. Therefore, the concept of information system capabilities can be used in future studies related to information systems.

- Measurement of the accounting information system's quality in this study followed the theory of Information Systems (IS) Success. The effectiveness of the accounting information system can be assessed by user satisfaction in processing task, storing, and disseminating information that can be used for decision making. Therefore the theory of Information Systems (IS) Success can be used in the literature related to accounting information systems especially in data processing and the utilization of information due to the information system implementation.
- This study has not used the random sampling data because there is no information indicating the number and names of companies that have officially used the ERPS. To overcome the difficulties experienced in the data collection with the company as unit of analysis, further research can be performed with the user ERPS as the unit of analysis. This is done to get an breadth idea of the benefits from the end user to the intended use of the system.
- This study has used a survey method, so that more in-depth information about the perceptions of the respondents have not been not obtained. For future research it is necessary to use other methods to explore a more detailed picture of the overall benefits from the level of the use of the ERPS.

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