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Understanding influence System Quality, Information Quality and Service Quality Toward User Satisfaction ERP system

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Abstract: *The purpose of this research is to test system quality, information quality, and service quality to user satisfaction. This study is a study of perception and causality. The design of this study is quantitative using descriptive analysis and regression. The research was conducted at an Indonesian manufacturing company. The questionnaire is used to collect the data. The population of this study are employees of ERP system users. There were 61 respondents, the census method was chosen to determine the population. The findings of this research are quality of ERP system, Information Quality of ERP system and Quality of service technician have an effect on system user satisfaction. The quality of service from the technicians can better satisfy the users of ERP system compared to system quality and information quality.*

Keywords: *system quality, information quality, service quality, and user satisfaction*

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I. Introduction

Information Technology (IT) has now shown rapid growth. Extraordinary developments such as electronics, information rates, and telecommunications (such as computers, the Internet, satellites, and other means of communication). These developments have led to rapid advances in traffic of goods, services and information, until the world becomes boundless (borderless world) or known as globalization (Dudi, 2014). Increasing business competition requires companies to continue to improve the performance of various elements within the organization or company. One way that is now growing to realize the success can be done by integrating information systems, where there is increased efficiency of information systems to produce more efficient management in all lines of business process lines (Arief, 2012).

Wijaya and Darudiato (2009: 27) state that Enterprise Resources Planning (ERP) is a concept to plan and manage enterprise resources, in the form of integrated and multi-module application program packages designed to serve and support various functions in the company (to serve and support Multiple business functions), so that the work becomes more efficient and can provide more services for consumers, which ultimately can generate added value and provide maximum benefits for all stakeholders (stakeholders) over the company. The use of ERP is equipped with hardware and software to coordinate and integrate data information in every area of business processes to produce quick decision making. ERP provides fast financial analysis and reports, on-time sales reports, production reports and inventory. ERP programs are helpful to corporate managers who have extensive business processes. ERP is based on database and reporting management tools (Yasin, 2013).

However please note that the success of a system such as ERP should be able to create user satisfaction. Researchers adopted the information system success model developed by DeLone and McLean (2003) which was updated from the previous version in 1992. In DeLone and McLean (2003) model shows there are three factors that influence system user satisfaction, that is : information quality, system quality, and service quality.

The model of system success according to the expert mentioned (DeLone and McLean 1992) identified six variables that can be used as measurement of information system success, ie system quality, information quality, usage, user satisfaction, individual impact and organizational impact. In 2003 DeLone and McLean made updates by adding service quality variables and changing individual impact variables and organizational impact variables into net benefit variables (DeLone and McLean, 2003). Delone system success model is very effective applied in various information systems research. Examples of existing information systems are accounting information systems, financial information systems, manufacturing information systems, human resource information systems, marketing information systems, academic information systems.

Researchers found a strengthening of previous research results using the DeLone & McLean information model. The results of Iranto (2012) study found a positive influence between service quality and user satisfaction. This is inconsistent with the results of the Istianingsih (2009), Purwaningsih (2010), and Septianita et al., (2014) studies that found a positive and significant influence between service quality and user satisfaction. A study conducted by Gorla et al., (2010) found that there was a positive influence on service quality despite being faced with different dependent variables of organizational impact, but when compared with the other two variables, the quality of information and the quality of the system, the service quality variables had an influence significant. This is certainly strongly reinforced by the results of Luqman et al., (2014). Companies spend large amounts and a long time to run ERP systems to achieve better performance. Azevedo *et al.*, (2012) states that the main problem of information fragmentation is the difficulty of obtaining consolidated information and redundant data stored on more than one system. ERP system solves the problem as a whole and in one integrated system. Some of the above research results motivate researchers to test DeLone and McLean (2003) theory on ERP systems in a manufacturing company in Indonesia.

II. Study Of Literature

a. Quality System

Description of Quality System measurements by Delone and Mclean (2003):

1) Ease to Use
   Information system quality is a system that is able to meet the satisfaction of users, such as facilitating the use of the system compared with the manual method.
2) Ease to learn
   A good information system is expected to be easy to learn, easy to understand and does not take long to learn. Good system that is easy to learn system especially for novice user.
3) Access Speed
   Information system access speed is a top priority for the quality of information systems. If the speed of access to information systems quickly, then the information system has a good quality.
4) System Reliability
   It is an information system resistance from damage and error. Reliability of information systems can be measured from the ability of information systems to serve the needs of users without causing new problems.
5) Flexibility
   Is the ability of information systems to make changes to meet the needs of users, so users feel more satisfied.
6) Usefulness of Features System and Functions
   Usefulness and availability of features and functions of information systems is one indicator to measure the quality of information systems. Users will be satisfied if the information system can meet the needs of users with the features and functions provided.
7) System Security
   The system is able to ensure that the information obtained or presented is guaranteed security. System security can be known through user data stored by the system, and the system's ability to manage one user's access with other users.

b. Information quality

According to Mc. Leod and Schell (2007) describes the of information quality as follows: "Information quality is said if it has the characteristics that is like: Accurate, timeliness, relevant, and complete".

1) Accurate
   This means information should reflect the actual state. Testing of this is usually done through tests conducted by two or more different persons and if the test results produce the same results then considered the data is accurate.
2) Timeliness
   This means that the information must be available when the information is needed, not tomorrow or several hours.
3) Relevant
   This means that the information provided should be in accordance with the required. The information presented is able to answer user concerns.
4) Complete
   This means that information must be provided in full, so that users gain information.

c. Service quality

The concept of information system service quality gives concrete perception about the service provided by information system application software provider. According to Yong et al., (2003) gives an understanding that: the concept of service is a suitability for use (fitness for your) which aims to find a clear idea of the thought process that gave birth to an understanding that is not difficult to understand, because the goal is clear and the process is continue quality improvement.

Parasuraman (2001) says that the service quality features are as follows:

1) Tangibles
   Is a form of actual realization physically visible or used by the employee in accordance with the use and utilization of the person who wants the service to be satisfied with the service.
   2) Reliability
   Reliability is every employee has a reliable ability. Knowing the ins and outs of working procedures, working mechanisms, correcting deficiencies or irregularities that are not in accordance with work procedures.
3) Responsiveness
   Responsiveness requires thoughtful explanation, detailed, nurture, guide and persuaded to follow procedures and working mechanisms that apply in an organization.
4) Assurance
   Each service requires a certainty of the services provided.
5) Emphaty
   Parties with an interest in the service have a sense of empathy (empathy) in completing or managing or having the same commitment to the service.

d. User Satisfaction

User satisfaction with an information system is how the user sees the information system in real, but not on the technical quality of the system (Guimaraes *et al.,* 2003). Meanwhile, According Jogiyanto (2007: 23) "User satisfaction is the user response to the use of information systems output". Doll and Torkzadeh (2005) define "End-User Satisfaction (EUS) as an affective attitude toward certain application software by someone who interacts directly with a computer". This means that the satisfaction arises because the system used can be utilized optimally by way of direct interaction between the people who operate the system with the computer. The Description of variable measurement indicator adopted according to Delone and Mclean (2003):

1) Efficiency
   User satisfaction can be achieved when the information system can help users work efficiently. This can be observed from how information systems can provide solutions to job and user tasks efficiently. An information system can be said to be efficient if the purpose of the user can be achieved.
2) Effectiveness System
   Effective system is an information system that can meet the needs of users to feel satisfied. The effectiveness of information systems can be observed from meeting the needs or achievement of user goals in accordance with expectations or work targets that have been determined.
3) Satisfaction
   User satisfaction can be measured through a sense of satisfaction felt by users in using information systems. The sense of satisfaction that the user feels indicates that the information system has been successfully meet the needs of users.

III. Research Methods

a. Research design

This study uses questionnaires to collect data. The research design is quantitative research and causality. The answer of the questionnaire is presented according to Likert scale with choice of point 5. The highest point (5) states the perception strongly agree to the lowest point (1) states strongly disagree, point 3 is neutral. Data collected, performed tabulation and for further validity and reliability test. The analysis technique uses description and regression analysis. Interviews are needed to confirm the results of statistical tests.

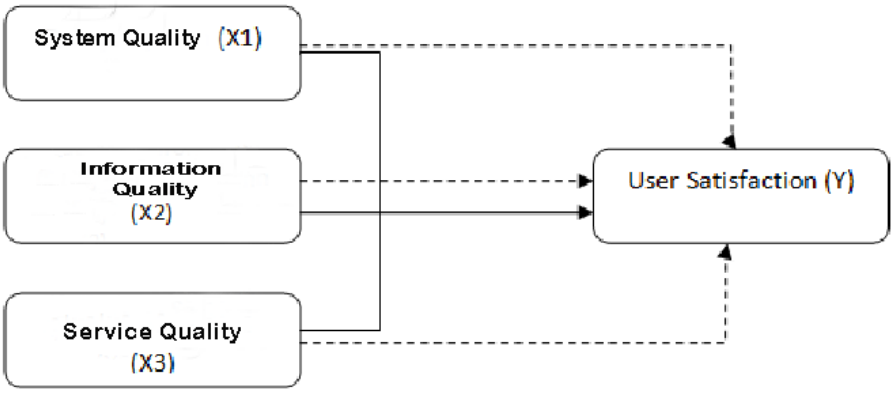
b. Population

The research population is employees of PT.Aica Indria, Indonesia a number of 61 employees who work using ERP system ie employees who work in the warehouse, accounting, production planning, and finance. The sampling technique is a census.

c . Conceptual framework

The independent variable quality of the system is reflected by the six indicators, namely ease to use, easy to learn, access speed, system speed, flexibility, system usability and function of the system, and security systems. Independent variable of information quality is reflected by 4 indicators: accurate, timeliness, relevant and complete. The independent variable of service quality is reflected by 5 indicators namely Tangible, reliability of responsiveness, assurance and empathy. And the dependent variable of user satisfaction is defined by 3 indicators namely efficiency, system effectiveness, satisfaction. Based on the model of Delone and Mclean (2003), the research hypothesis and determined the concept of research model shown in Figure 1.

Figure 1. Conceptual framework research



Research hypothesis
H1: System Quality has a significant effect on user satisfaction
H2: Information Quality significantly affects user satisfaction
H3: Service Quality significantly affects user satisfaction

IV. Research Results

a. Characteristics of respondents

Characteristics of respondents by age, gender, level of education. Obtained that the average age of 31-40 years, the average gender of men with education level of 82% is postgraduate, the working period of 11-20 years is 51%. These findings suggest that respondents understand about duty and responsibility for employment associated with the ERP system.

b. Testing instruments

The test results of all the questionnaires declared valid and reliable. Each statistic r value is greater than r table (0.259) as well as the chronbach's Alpha value is greater than r table (0.6). There is no doubt that the data collected can be analyzed.

c. Results Descriptive analysis

These are presented in Table 1 below:

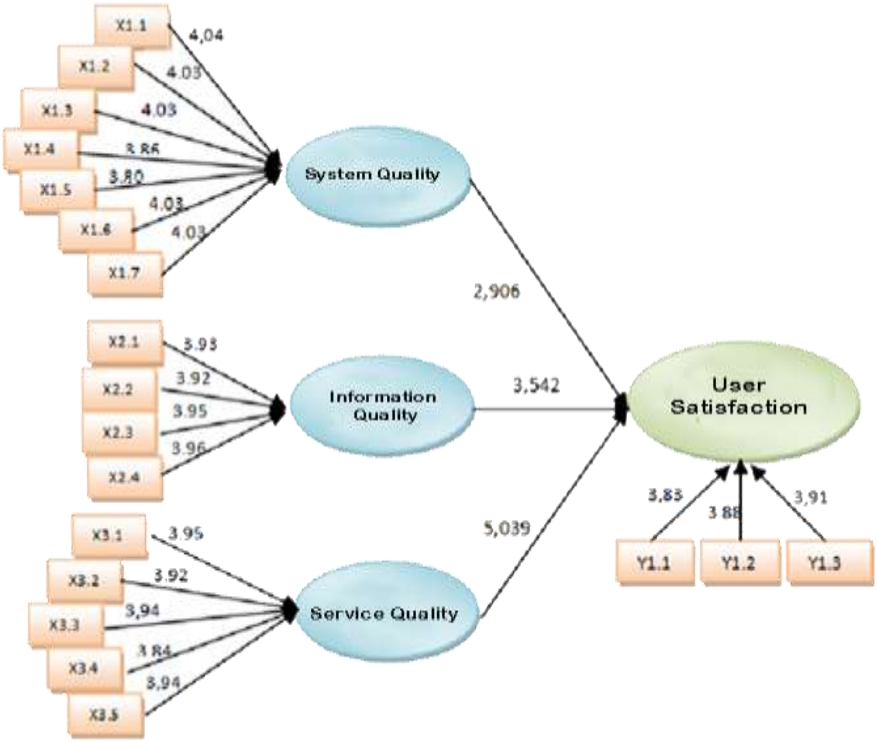
Table 1. Descriptive Indicators Research and notation

System Quality	Mean	information Quality	Mean	Servise Quality	Mean	User Satisfaction	Mean
Ease to Use	4,04	Accurate	3,93	Tangible	3,95	Efficiency	3,83
Easy to learn	4,03	Timeliness	3,92	Reliability	3,92	Effectiveness System	3,88
access speed	4,03	Relevant	3,95	Responsiveness	3,94	Satisfaction	3,91
System reliability	3,86	Complete	3,96	Warranty	3,84		
Flexibility	3,80			Empathy	3,98		
Usability features and functions of the system	4,03						
System Security	4,03						

The findings related to the research variables show that there is the highest mean for each indicator. Quality Corporate ERP system according to the perception of respondents / users shows that they are easier in running the company's ERP system. The quality of ERP system information according to the respondents shows

that the ERP system has a complete information that greatly helps the user's work. The quality of services provided by the information technology department according to respondents' perceptions indicates that resources that provide services such as explanations and briefings have a high sense of empathy towards the users of ERP systems. For ERP user satisfaction, according to the perception of respondents shows that the user is satisfied in running the ERP system and ERP system can help the user in doing the work planning process.
The results of causality analysis are described in Figure 2.

Figure 2. Causality of research variables



The results showed that the quality system, the information quality and service quality significantly influence user satisfaction. The statistical results also show that the observed data is normal, the relationship between independent variables is very low so there is no multicollinearity problem and the data distribution shows there is no problem of heteroscedasticity. Statistical results and hypotheses are presented in Table 2.

Table 2. Recapitulation of results of research hypotheses

Variable	$t_{statistic}$ User Satisfaction (Y)	$F_{statistic}$	t_{table}	Chronbach's Alpha	VIF	DW	Result
System Quality (X1)	2,906*	89,104	1,67	0,917	1,266	1,68	H1 accepted
Information Quality (X2)	3,542*			0,911	3,582		H2 accepted
Service Quality (X3)	5,039*			0,945	2,398		H3 accepted

Note: *) probability level less than 0.05; Xi = independent variables; Y = dependent variable

Table 2. indicates that the system quality obtained t statistical value of 2.906 and t table of 1.67 so t statistics > t table and significance value (0.005) <α (0.05) so H0 rejected and H1 accepted. It was tested that the variable of System Quality (X1) had significant effect on User Satisfaction (Y), the quality of information was obtained t statistic value of 3,542 and t table equal to 1.67 so t statistic> t table and significance value (0.001) <α (0.05) So H0 is rejected and H1 accepted. It shows that the variable of Information Quality (X2) has a significant effect on User Satisfaction, the service quality is obtained by statistical t value equal to 5.039 and t table equal to 1.67 so t statistic> t table and significance value (0,000) <α (0,05) H0 is rejected and H1 accepted. Tested that service quality variables (X3) affect the user satisfaction. This comparison shows three proven research hypotheses (see table 2).

V. Discussion

1. System Quality

System quality of the employee ERP is measured by ease of use, ease of learning, access speed, system reliability, flexibility, usability features, and system security. The results show that the PT.Aica Indria ERP system is ease to use or operationalize. Company employees find it difficult to use ERP systems and ERP systems to save employees time. The results of this study of ease of use in accordance with the theory Livari (2005) said that a quality information should have kemudahaan to operationalized.

The test results also show that the quality of the company's ERP system is able to satisfy the user / employee. Most employees are satisfied with the system used primarily in terms of assisting the work, and the ERP system has backup data so that employees feel secure about the information / data being processed and the feature of the ERP system is very easy to recognize employees. The results of this study support previous research conducted by

Prasojo and Pranoto (2015) who found that system quality had a positive effect on user satisfaction. The findings of this study also confirm and expand DeLone and McLean's (2003) opinion that good system quality and information quality, represented by the ease of users of the system output obtained, can affect the level of use of the system (Intended to use) and user satisfaction. Thus the measurement proposed by Livari (2005) can be tested in this study, that the results indicate that the use of ERP system will feel satisfied if the ERP system provided by the company has a good system quality. This indicates that the user is satisfied if the provided ERP system can be used easily.

2. Information Quality

Information system of ERP is measured by the accuracy of the system, the timeliness of the system, the relevance of the system, and the completeness of the system. This study is consistent with Mc's theory. Leod and Schell (2007) The effectiveness of an information presented as a basis for decision-making is determined by the quality of the presentation. The information presented should be accurate, timeliness, relevant, and complete. The results of this study indicate that the company's ERP system is able to present complete information and data. ERP users are able to process data and information as needed. Mc. Leod and Schell (2007) describes the information quality is said to be qualified if it has characteristics such as: accurate, relevant, timely, and complete. The findings of this study support Mc's statement. Leod and Schell (2007).

The test results show that the information quality on the company's ERP system can satisfy the user. Complete data is needed by users of ERP systems, this is what makes users feel satisfied.

The findings of this study are relevant to the DeLone and McLean statements (1992), as well as the results of empirical studies conducted by Rai et al., (2002), McGill et al., (2003), Almutairi and Subramanian (2005), and Livari (2005) Which shows that the quality of information systems have a positive impact on user satisfaction.

3. Service Quality

Service quality of ERP system is measured by tangibel, reliability, responsiveness, assurance, empathy. Research shows that empathy has an important role for technicians to help users of ERP systems at PT.Aica Indria Statement Susanto (2001: 32) which explains that a quality information must have physical evidence, reliability, responsiveness, assurance, in this research.

The test results show that the quality of service, especially the empathy of the technicians can create a sense of satisfaction for users of ERP systems in the company. The findings of this study support the research of Kursehi et al., (2013) where the quality of Service has a positive effect on user satisfaction. A user will feel satisfied using the ERP system if the system provides services with a high sense of empathy. Conversely, when the quality of information provided is worse or lower it will also lower the user satisfaction of the ERP system in the company.

VI. Conclusions And Suggestions

a. System Quality ERP is easy to use, ERP system information quality is presented completely, the service quality of the technicians show good empathy and ERP system users feel satisfied. System Quality ERP , Information Quality ERP and Service Quality technicians are able to satisfy the users of ERP system in PT.Aica Indria, Indonesia. These findings reinforce the theory of DeLone and McLean (2003) applied to manufacturing ERP systems in Indonesia.

b. IT technician, in order to continuously improve the System Quality, Information Quality and Service Quality in order to give satisfaction to the users PT.Aica Indria ERP system. The system quality needs to be improved in terms of system reliability the ERP system can be accessed via online not through the local server line or can be accessed with smart phones in accordance with the current emerging technologies. In terms of information quality need to be added more features to see which is easier to use (user friendly) that

can be easily used by all employees who interact with the system. In terms of services need to be added more human resources available for faster if one day there is a problem.

c. This training can provide benefits and knowledge in the science of information system about the variables System Quality, Information Quality, Service Quality, User Satisfaction. This research can be a reference and reference for the development of information systems science in the future. Need for further research to know the influence of user satisfaction on performance, or using other variables in order to improve user satisfaction.

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