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The Effect of System Quality and Information Quality on Financial Information System Effectiveness through Top Management Support as Moderating Variable

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ABSTRACT

Information system quality is the quality of a product or service which is generally measured based on suitability of user with information system. Information quality can affect accounting information system effectiveness of a company. This study aims to determine: 1) the effect of System Quality and Information Quality on Financial Information System Effectiveness, either directly or through Actual Use; and 2) the effect of System Quality and Information Quality on Financial Information System Effectiveness through Top Management Support as moderating variable. This is a quantitative research with a causal approach. Final sample size used in this study was 225 respondents. Data collection method used was a questionnaire. Data were analyzed using Moderated Regression Analysis (MRA). Results of this study indicated that: 1) System Quality had an effect on Financial Information System Effectiveness through Actual Use; 2) Information Quality had an effect on Financial Information System Effectiveness through Actual Use; 3) Top management support could not strengthen the effect of System Quality on Financial Information System Effectiveness; and 4) Top management support could strengthen the effect of information quality on financial information system effectiveness.

Keywords: system quality, information quality, information system effectiveness

1. INTRODUCTION

Rapid development of business ventures in Indonesia encourages medium-sized companies to develop following advances in information technology which are also growing rapidly so that they can remain competitive with other companies. Information is an important and valuable part, especially in business and work sectors. Accurate and timely information helps managers make decisions and determine what needs to be taken to maintain and develop organization and its business. Information also supports operational and managerial activities of organization.

The most important point in implementing an information system for realization of company activities is whether the company gets the success or failure in implementing the system. Many studies have been conducted to identify factors leading to the success of information system such as studies conducted by [1]–[3]. An information system can be defined as a system within an organization that is basically a combination of people, facilities, technology, media, procedures and controls aimed at acquiring important lines of communication, processing certain types of routines, alerting management and others to important internal and external events and providing an information base for intelligent decision making [4].

Tananjaya (2012) strongly advocates that information system quality is the quality of a product or service which is generally measured based on suitability of user with the information system; in this case, the information system can be applied according to what the user wants. According to DeLone & McLean, (1992), system quality signifies focus on performance of information system consisting of hardware, software, policies and procedures that can provide information needed by users which cover ease to use, ease of access (flexibility), system reliability.

Fundamentally, system quality can be measured by looking at its functional part, namely usability. Usability is part of principle of interaction between humans and computers that provides a set of important clues about instructional design. Nielsen (2000) affirms that usability consists of four basic principles in online activities: navigation, timelines, credibility, and content. Palmer (2002), in this case, highlighted some important elements in the use of a website are consistency, ease of use, clarity of interaction, ease of reading, arrangement of information, speed, and layout/website design. Accordingly, level of use of e-learning system is better so that students can be more motivated to utilize it.

Actual use is a variable that is also widely used to measure the success of an information system [9]. Actual use is a direct user of something that is assessed from appropriate behavior to measure the success of an information system implemented by an organization [10]. This information system user shows decision to use information system by the user in completing user tasks [11].

Davis (1989) defines actual use as a condition that is actual and tangible for the use of a system. Someone tends to feel satisfied using the system if he/she believes that it is easy to use the system which will certainly increase his/her productivity. This is reflected in the real conditions in its use. The form of measurement of actual use is frequency and duration of use of information technology. Actual technology use is measured by amount of time spent interacting with the technology and the frequency of use.

More importantly, Fitrios (2016) asserts that top management support is an important factor to help operational managers succeed in implementing accounting information systems, otherwise information system implementation will fail. It is in line with a theory by Bodnar & Hopwood (2010) stating that one of the factors affecting the implementation of accounting information system is top management support. The more top management supports and participates in the planning process of developing an Accounting Information System (AIS), the more it shows the seriousness of management in assisting and supporting their subordinates in operating AIS.

2. RESEARCH METHODS

2.1 Research Design

This is a quantitative study using a causal approach, considering that it intends to explain causal relationship between variables by testing the previously formulated hypotheses. Referring to theoretical framework, notions of experts, understanding of researchers, as well as results of several previous studies, this study aims to examine the Effect of System Quality and Information Quality on Financial Information System Effectiveness, with Actual Use as an intervening variable and mediated by Top Management Support.

This study used 5 variables: 2 independent variables, 1 dependent variable, and 2 moderating variables. Dependent variable in this study was Financial Information System Effectiveness. Moreover, independent variables in this study were System Quality and Information Quality, while moderating variables used were Actual Use and Top Management Support.

2.2 Population and Sample

Population in this study were employees of PT. Fajar Indonesia Holding Corporindo with a

total of 633 people. This study was carried out December 2019 until February 2020. Sampling was done using purposive sampling; taking the subject is not based on strata, random, or area but based on specific goal [14]. In addition, the criteria for selecting samples were employees who interacted directly with the company's financial information system. This study obtained a sample of 225 people.

2.3 Types and Sources of Data

This study is a quantitative study using self-report data. Self-report data is a type of research data in the form of opinions, attitudes, experiences or characteristics of a person or group of people who become research subjects. Data source used in this study was primary data. Primary data, according to [15], is basically the first data source where data is generated. In this study, primary data were obtained directly from sources in the field from the results of questionnaires distributed to respondents determined by the researchers based on sampling method.

2.4 Research Instruments

This study used instrument in the form of a questionnaire. It was considering that in a study, questionnaire is used to uncover factual variables, dig up information relevant to research objectives, and obtain data or information with the highest possible validity and reliability [16]. Data collected through a questionnaire utilized a Likert scale.

2.5 Data Analysis Technique

Data analysis technique in this study was carried out with descriptive statistical analysis to provide an overview of demographics of the research respondents (name, age, sex, marital status, education level, and position) and a description of research variables. It was then continued with validity test, reliability test, and classical assumption test.

2.5 Data Analysis Method

Path analysis was used to test the effect of intervening variables. Data analysis method applied for moderating variables was Moderated Regression Analysis. There are essentially three regression testing models with moderating variables: interaction test (MRA), test of absolute difference value, and residual test. Researchers decided to utilize MRA that is a special application of linear multiple regression test in which the regression equation contains elements of interaction (multiplication of two or more independent variables). Moderating variable, also called moderator variable, specifies the shape and/or strength of the relationship between independent variable (predictor) and dependent variable (criteria); therefore, it is also called specification variable [17].

3. RESEARCH RESULTS

3.1 Description of Data

Respondents in this study were employees of PT Fajar Holding Corporindo especially those in finance and production/operations department. Questionnaires were distributed from January 2020 to March 2020 directly to respondents. There were 245 questionnaires distributed, while there were 225 questionnaires returned and filled in completely. It indicates that there were 20 questionnaires that were not returned since there were employees who were on leave and were on duty out of town when the researchers took completed questionnaires. Description of respondent data in this study consisted of sex, age, education level and status. There were 107 male respondents and the remaining 118 were female, with respective percentages of 52.4% and 47.6%. Moreover, there were a total of 46 respondents with a percentage of 20.4% aged 20-30 years; 90 respondents with a percentage of 40% aged 31-40 years; 58 respondents with a percentage of 25.8% aged 41-50 years; and 31 respondents with a percentage of 13.8% aged >50 years. Importantly, 56 respondents with a percentage of 24.9% had completed Diploma II (DII); 109 respondents with a percentage of 48.4% had completed Bachelor's Degree (S1); and 60 respondents with a percentage of 26.7% had received Master's Degree (S2). Additionally, 27 respondents with a percentage of 12% have worked for <1 year; 120 respondents with a percentage of 53.3% have worked for 1-5 years; 43 respondents with a percentage of 19.1% have worked for 5-10 years; and 35 respondents with a percentage of 15.6% have worked for > 10 years

3.2 Multiple Regression Analysis Model 1

Results of data processing in this study using SPSS Version 20.0 for Windows program are summarized and illustrated in the following table:

Table 1. Results of Multiple Regression Analysis

Model		Unstandardized Coefficients		Sig.
		B	Std. Error	
1	(Constant)	4.582	.872	.000
	system quality	.186	.029	.000
	information quality	.097	.045	.033

a. Dependent Variable: actual use

Referring to the linear regression equation above, it can be explained that:

a. Coefficient of system quality is 0.186. This implies that when system quality increases by one-unit, actual use variable will increase by 0.186 with the assumption that the other independent variables from regression are constant.
b. Coefficient of information quality is 0.097. This implies that when information system quality increases by one-unit, actual use variable will increase by 0.097 with the assumption that the other independent variables from regression are constant.

3.3 Multiple Regression Analysis Model 2

Results of data processing in this study using SPSS Version 20.0 for Windows program are summarized and illustrated in the following table:

Table 2. Results of Multiple Regression Analysis

Model		Unstandardized Coefficients		Sig.
		B	Std. Error	
1	(Constant)	11.992	2.385	.000
	system quality	.386	.082	.000
	information quality	.554	.118	.000
	actual use	.923	.173	.000

a. Dependent Variable: financial information system effectiveness

Referring to the linear regression equation above, it can be explained that:

a. Coefficient of system quality is 0.386. This implies that when system quality increases by one-unit, financial information system effectiveness variable will increase by 0.386 with the assumption that the other independent variables from regression are constant.
b. Coefficient of information quality is 0.554. This implies that when information quality increases by one-unit, financial information system effectiveness variable will increase by 0.554 with the assumption that the other independent variables from regression are constant.
c. Coefficient of actual use is 0.923. This implies that when actual use increases by one-unit, financial information system effectiveness variable will increase by 0.923 with the assumption that the other independent variables from regression are constant.

3.4 Indirect Effects Testing

Indirect effects testing was carried out to determine the effect of independent variables (System Quality and Information Quality) on dependent variable (Financial Information System Effectiveness) through intervening variable (Actual Use). Path coefficient for indirect effects of System Quality on Financial Information System Effectiveness through Actual Use was 0.069 obtained from path coefficient X1-->Z multiplied by Z-->Y or 0.402 x 0.310 = 0.124. Path coefficient for indirect effects of Information Quality on Financial Information System Effectiveness through Actual Use was

0.119 obtained from path coefficient X2-->Z multiplied by Z-->Y or 0.136 x 0.310= 0.042. Indirect effects testing was carried out using Sobel Test which is presented in the following table:

Table 3. Results of Intervening Variable Effect Testing (Indirect Effects)

Independent Variable		*Dependent Variable*	Intervening Variable	*Indirect Effect*	T count	Sig.	Note
System Quality	→	Financial Information System Effectiveness	Actual Use	0.124	4.079	0.000	significant
Information Quality	→	Financial Information System Effectiveness	Actual Use	0.042	1.987	0.046	significant

Based on the table above, results of hypothesis testing can be explained as follows:

a. **Hypothesis 1 Testing**. The table above demonstrates that results of Actual Use intervening variable testing on the relationship between System Quality and Financial Information System Effectiveness obtained t value=4.079 dan p=0.000 or p<0.05. Thus, it can be concluded that Actual Use mediates the effect of System Quality on Financial Information System Effectiveness. It means that System Quality has an effect on Financial Information System Effectiveness through Actual Use. Therefore, the first hypothesis **is accepted**.

b. **Hypothesis 2 Testing**. The table above demonstrates that results of Actual Use intervening variable testing on the relationship between Information Quality and Financial Information System Effectiveness obtained t value=1.987 and p=0.046 or p<0.05. Thus, it can be concluded that Actual Use mediates the effect of Information Quality on Financial Information System Effectiveness. It means that Information Quality has an effect on Financial Information System Effectiveness through Actual Use. Therefore, the second hypothesis **is accepted**.

3.4 Moderating Effects Testing

Moderating effects testing was conducted to determine the effect of moderating variable (M), namely top management support on the relationship between independent variables (System Quality and Information Quality) and dependent variable (Financial Information System Effectiveness). Moderating effects testing can be seen from results of regression analysis model 3 as follows:

Table 4. Results of Multiple Regression Analysis Model 3

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.617	4.220		1.805	.072
	system quality (X1)	.257	.160	.186	1.602	.111
	information quality (X2)	-.551	.318	-.260	-1.733	.084
	Top management support (M)	1.102	.178	.696	6.206	.000
	X1_M	-.005	.006	-.146	-.904	.367
	X2_M	.025	.012	.461	2.131	.034

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	Top management support (M)	1.102	.178	.696	6.206	.000
	X1_M	-.005	.006	-.146	-.904	.367
	X2_M	.025	.012	.461	2.131	.034

a. Dependent Variable: financial information system effectiveness

Based on the table above, results of hypothesis testing on moderating effects can be explained as follows:

1. **Hypothesis 3 Testing**. The table above demonstrates that results of moderating testing of top management support (M) on the relationship between System Quality and Financial Information System Effectiveness obtained t value=-0.904 and p=0.367 or p<0.05. Thus, it can be concluded that top management support (M) does not moderate the effect of System Quality on Financial Information System Effectiveness. It means that top management support cannot strengthen the effect of System Quality on Financial Information System Effectiveness. Therefore, the third hypothesis **is rejected**.
2. **Hypothesis 4 Testing**. The table above demonstrates that results of moderating testing of top management support (M) on the relationship between Information Quality and Financial Information System Effectiveness obtained t value=2.131 and p=0.034 or p<0.05. Thus, it can be concluded that top management support (M) moderates the effect of Information Quality on Financial Information System Effectiveness. It means that Top management support can strengthen the effect of Information Quality on Financial Information System Effectiveness. Therefore, the fourth hypothesis **is accepted**.

3.5 Coefficient of Determination

Changes in contribution of independent variables on Financial Information System Effectiveness can be seen in R-squared value.

Table 5. Coefficient of Determination

Model	R squared
Model 2 (Intervening)	0,417
Model 3 (Moderating)	0,861

Model 2 shows that R-squared value is 0.417, indicating that the effect of system quality, information quality and actual use on Financial Information System effectiveness is 41.7%. Furthermore, model 3 shows that the effect of system quality, information quality and top management support reaches 0.861 or 86.1%. This implies that top management support has a major effect in supporting system quality and information quality to achieve a good level of financial information system effectiveness.

4. DISCUSSION

4.1 Relationship of System Quality on Financial Information System Effectiveness through Actual Use as an Intervening Variable

Contingency theory purposed by Nicolaou (2000) claims that accounting information system effectiveness occurs on effects of technology. Effects of technology is related to the technology used. In fact, matters relating to information technology will increase accounting information

system effectiveness. Results of this study are supported by a study conducted by Hidayat (2018) entitled *Perceived Usefulness as Intervening Variable on Information System Quality and User Satisfaction*. The results proved that perceived usefulness was an intervening variable affecting the relationship between Information System Quality and User Satisfaction that had never been studied before. Role of accounting software is very important to know company's financial flow clearly. In this case, company leaders certainly need reports as a means of control.

More importantly, implementation of a system within an organization is to support information needed by all levels of management in order to make decisions. Accordingly, computerized accounting information system allows users to view financial reports at any time more quickly and accurately. Theoretically and practically, Technological Acceptance Model (TAM) is a framework that is considered accurate in explaining how users perceive a system. The use of technology determines attitude to using technology, especially if someone feels that technology system is useful (usefulness) and easy to use (ease of use). He/she certainly tends to use it in a sustainable manner.

4.2 Relationship of Information Quality on Financial Information System Effectiveness through Actual Use as an Intervening Variable

Holsapple & Lee-Post (2006) conducted a study on E-Learning success, showing that information quality had an effect on its use and individual performance. Concept of use is a person's behavior or interest in using an information technology system. Results of this study are in line with a study conducted by Tumarni (2015) entitled *the Effect of System Quality, Information Quality and Real Use on User Satisfaction of Financial Statements*. Results of this study proved empirically the effect of system quality and information quality on real use. These findings indicated that every user of the system was not only technically aware of the use of the system but also considered system quality being implemented.

Along with advancement of technology, companies are now starting to leave manual systems and switch to computer systems, which are better known as Computer-Based Information Systems. A system is considered to run effectively if it is able to meet needs and desires of various users in particular organization, either individually or as a group. It is necessary to have a system that processes data into valuable information to obtain quality information, which demands fast, precise and accurate information, resulting in increasingly competitive competition.

4.3 Relationship of System Quality on Financial Information System Effectiveness through Top Management Support as a Moderating Variable

Increasing accounting information system effectiveness requires the role and participation of management in development and implementation of accounting information system. According to Arfan & Ishak, (2005), top management support was an important factor that determined accounting information system effectiveness in organizations. It supports a study by Aditya and Widhiyani (2018) entitled *the Effect of Technological Sophistication on AIS Effectiveness with Top Management Support and Ability of Personal Techniques as Moderating Variables*. Results showed that there was no significant effect of top management support on accounting information system effectiveness and technological sophistication. It indicates that top management support is not able to affect technological sophistication on accounting information system effectiveness. These findings show that top management support variable is not a moderating variable.

4.4 Relationship of Information Quality on Financial Information System Effectiveness through Top Management Support as Moderating Variable

Lau (2004) found that top management support was an important factor in information technology investment and affected success of information system development, and more specifically on information system planning. This study is in accordance with a study conducted by Dewi & Dwirandra (2013) entitled *the Effect of Top Management Support, System Quality, Information Quality, Actual Users and User Satisfaction on the Implementation of Regional Financial Information System in Denpasar City*. The results showed that top management support, information quality and user satisfaction had an effect on the

implementation of regional financial information system. Top management support can motivate individuals to use the system because of attention and support of financial and non-financial resources as well as training so that individuals can understand the use of the system. Implementation of accounting information quality can support improvement of optimal strategy formulation and targeted decision making, which can achieve organizational goals. Strong quality information will guide the future of the business due to the fact that good quality information can lead to success, while poor quality information can lead to business failure.

5. CONCLUSIONS

System Quality has an effect on Financial Information System Effectiveness through Actual Use. It is necessary to study this topic as an attempt to make improvement in case a company does not have top management support which can result in an ineffective accounting information system. Information Quality has an effect on Financial Information System Effectiveness through Actual Use. Competitive advantage that a company can create can be achieved with an information system that is capable of concurrently creating and manipulating internal and external information effectively and efficiently. Top management support cannot strengthen the effect of System Quality on Financial Information System Effectiveness. Low top management support in every stage of system development cycle and direct involvement in the progress of company determine information system effectiveness. Top management support can strengthen the effect of information quality on financial information system effectiveness. Direct or indirect communication from top management to employees is indirectly able to encourage employees to be better in the process of operating AIS.

This study is expected to be a reference for the development of accounting science and a reference for students in conducting studies with similar themes. In addition, PT Fajar Indonesia Holding Corporindo is suggested to better understand how to maximize financial information system. Importantly, this study can be used as information and learning materials as an attempt to enrich knowledge and insight for future researchers.

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