The Empirical Testing How the Quality of Accounting Information Systems Affected by Organizational Structure Research Atuniversities in Bandung

Azhar Susanto

Departement of Accounting, Padjadjaran University, Bandung, Indonesia

Abstract: Accounting information system is one of the most important parts in an organization. Accounting Information System produces accounting information which is needed by managers and non-managers of an organization as a basis for decision-making processes in running their functions or duties. The function and task of managers or non-managers in an organization will vary depending on the type of organization, the parts and levels which exist in the organization. The function and task of managers or non-managers are different because of the different levels and parts that cause the information requirements of managers and non-managers is to support the different functions and duties. The differences in information requirements will lead to different data that must be entered and the format of accounting information system that is used. Reality stated many accounting information systems in various institutions both public and private which have variety problems including the problem of integration, ease of use, ease of access, ease of adapting to changing conditions and the ability to generate accounting information as needed.The purpose of this study is to determine how much the effectof organizational structure on the quality of accounting information system. The method is verification method and the analysis tool is Structural Equation Modeling (SEM).The results show that organizational structure significantly affects the quality of accounting information system.

Key words: Organizational structure, quality of accounting Information system, empirical testing, bandung, integration

INTRODUCTION

Background Research: Globalization and economic changes of the industries-based economic to the information-based economy requires the management of the business to be able to operate more effectively, efficiently and under control by promoting a competitive advantage both locally and globally by improving the quality of human resources, goods and services produced and the use of information technology through information system (Susanto, 2015a-c). The application of accounting information system is used to help company managers and professionals in solving various problems when doing business by providing quality accounting information so that managers performance is better (O'Brien and Marakas, 2014; Susanto, 2015).

Accounting information system is an integration of various transaction processing system (Susanto, 2015). Bodnar and Hapwood (2014) stated that accounting information system is a set of resources such as human and supported equipment designed to convert accounting data into accounting information which is needed by both managers and non-users managers in decision-making process. In an organization, accounting information systems is one of the most important information system

(Wilkinson *et al.*, 1999), it is supported by Bockholdt statement who stated that accounting information systems are in the entire organization, any form of organization (Boockholdt, 1996). Within a company organization, accounting information system is used by the company to support various activities related to financial transaction whether the transaction took place inside or outside the company (Susanto, 2015a-c).

The support given by accounting information system is to process any financial or accounting data sourced from various events to produce accounting information (Boockholdt, 1996). While the most important challenge faced by accounting information system is how the accounting information system can produce quality accounting information based on the user needs (Gelinas and Dull, 2008).

Post and Anderson (2003) measure the quality of information systems by examining the ability of the information systems in providing information required when it is needed. Next, Stair and Reynold (2011) states that an information system is said qualified if in general it has characteristic features: flexible, efficient, accessible and timely in providing information. Furthermore, Boockholdt (1996) states that accounting information system is said to be qualified if the accounting

information system can provide the information that is accurate and timely, development period which is rational (efficient), suitable to the organization's needs and it can provide satisfaction to its users.

However, in reality the quality of accounting information system is difficult to be owned by an organization. The accounting information which has not qualified at various organizations in Indonesia occurred because the accounting information system is not integrated yet.

Information system and organizationaffect each other, company is not going to succeed designing a new information system or to understand the existing system without understanding an ongoing business activity of the organization (Laudon and Laudon, 2014). An understanding of the processes flow, responsibilities, authority and accountability are important in assessing what information which is needed by the users (Hall, 2011).

Every manager at various levels and parts of an organization has different roles with each other, because of that the management of an organization at various levels and sections will require different information. Accounting information system is built to drain the information based on the information which is needed by users at each hierarchy level in the organizational structure of the company to help them in making decisions when performing their duties (Susanto, 2015). The greater the level of hierarchy within the organizational structure of the company, the more extensive and complex the activities of the company then accounting information systemis built will be more complex (Scott, 2001).

Organizational structure contributes to the implementation of accounting information system in order to extend the distribution of information to the lowest level of the organization with the purpose to be used by employees at lower levels in decision making processes (Laudon and Laudon, 2014). Organizational structure determines the amount of accounting information flow which is resulted from an accounting information system within an organization (Wilkinson *et al.*, 1999). Organizational Structure describes the reporting hierarchy and formal communication networks among employees within an organization (Olson, 2003).

The influence of organizational structure to the quality of accounting information system has been widely studied earlier by researchers, as it had been done by Claver *et al.* (2001),Wanyama and Zheng (2010) and Peyman *et al.* (2011). The research results which are conducted in a variety of different units provide empirical evidence that organizational structure is proved to give a significant effect on the effectiveness of accounting information system.

Indentification of Problems: The other accounting information system issue which is faced in Indonesia is the accounting information system is still not safe to use. Furthermore, even they have been using a computer, the human factor also determines that they are still met inaccurate transaction log records.

Aside from the findings in the field, it was also obtained the information which states that the accounting information systems that exist in the various organizations in Indonesia are generally inflexible and inefficient.

Litelature review

Organizational structure: Organizational structure as proposed by Gibson *et al.* (2009) is the arrangement of grouping tasks within an organization. Furthermore, Ivancevich *et al.* (2011) states that organizational structure shows different forms of formal activities and describes the relation between the various subunits that exist within the organization. Similarly, according to Robbins and Judge (2014) states that organizational structure illustrates how job tasks in an organization are formally divided, grouped and coordinated. In line with the opinion of Gibson *et al.* (2009) and Ivancevich *et al.* (2011), Glinow and McShane (2010) states that organizational structure is basically drawing the division of labor, the pattern of coordination, communication, workflow and rule formally which decisive the course of the organization activities.

Robbins and Judge (2014) states there are six main components that must be considered by managers when designing an organizational structure, they are: the division of labor and carried out by an expertin running (Division of Labour or work Specialization), departmentalization (departementalization), command chain (chain of command), control range (span of control), Centralization and decentralization (centralization and decentralization) and the formalization or enforcement (formalization) of organization. Furthermore, Lussier (2008) considers the structure of organization as the division of labor (division of labor), departmentalization (departementalization), limited in control (Span Of Control) as well as authority granting (Authority).

Similarly, Gibson *et al.* (2009) divides organizational structure into the dimensions of labor division or work specialization (Division of Labor or Work Specialization), departmentalization (Departementalization), the chain of

command (Chain of Command), the limitations of management (Span of Management), centralization and decentralization of authority (centralized and decentralized authority) and coordination (Coordination). Furthermore, the concept of organizational structure used in this study uses the dimensions and indicators: the division of labor (division of Labour), departementalization (Departementalization), Range Command (Chain of Command), formalization (formalization) Robbins and Judge (2014), Lussier (2008) and Gibson *et al.* (2009).

Accounting information system: Barganof *et al.* (2010) states that accounting information system is a data collection and processing procedures that result necessary information for its users. Accounting information system is a set of components that collects accounting data, stores it for future use and processes for the user. Furthermore, Romney and Steinbart (2012) states that accounting information system is a system to collect, record and process data to generate information which is used for decision makers. Similarly, according to Bodnar and Hopwood (2014) states that Accounting Information System is a collection of resources, such as human and equipment designed to alter financial data and other data to produce financial information that can be used as a basis for decision making.

Quality of accounting information system: The terms of quality, effectiveness and successof accounting information system has been proposed by the experts. Gelinas and Dull (2008) used the term "effectiveness" of information system as a measure of information systemsuccess in achieving the goals set. Effectiveness of Information System as stated by Nicolaou (2000) is a condition or perception of information systems user satisfaction to the information it generates. DeLone and McLean (2003) states that user satisfaction, individual effect and organizational effect measure the effectiveness of information system.

The term "quality" of accounting information system proposed by Sacer *et al.* (2006) is used to demonstrate the integration of various components of accounting information system are: hardware, software, brainware, telecommunication network and data base quality and quality of work and satisfaction of users. Furthermore, Seddon and Yip (1992) developed a model of the effectiveness of information system by using five dimensions: quality of information system, quality of information produced, perceptions
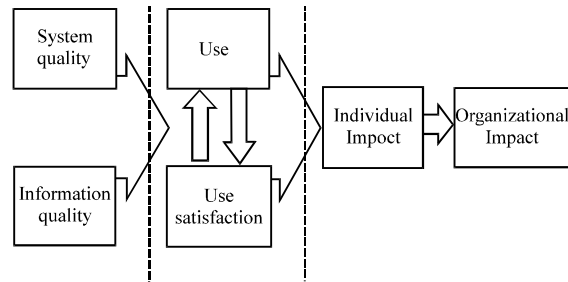

Fig. 1: ISS success model (DeLone and McLean 1992)

of the ease of use of information system, information system user satisfaction and level of use of information system.

Stair and Reynold (2011) states that to measure effective information system is an information system that gives satisfaction to the users (user satisfaction) as well as the system can be received and used (system use) by an organization. Differentopinions with the earlier statements Kieso *et al.* (2010) state that the basic principle for measuring the effectiveness and efficiency of accounting information systems is through: effectiveness of the cost use (cost efectivity), the usefulness of the system (usefullness) and flexibility (flexibility). Furthermore, Boockholdt (1996) argues that an accounting information system is successful if the accounting information system can produce information that is accurate and timely, a reasonable development time (efficient) can meet the needs of the organization in helping the operation and give satisfaction to the users. In this study, according to the concern phenomenon, the dimension of the quality of accounting information systems are limited to the dimensions of the use of information systems as well as the system users satisfaction to the information system (Fig. 1).

The influence of organizational structure toward quality of accounting information systems: Laudon and Laudon (2014) argue that organizational structure affect accounting information system. Organizational structure specifies the information that must be generated by accounting information system. The width of range between upper-levels management to lower levels of management, the number and complexity of the activity (business process) which company should undertake determine what kind of accounting information system should be built and what information should be produced to assist management in the decision making process. Scott (2001) also states that organizational structure affects accounting information system.
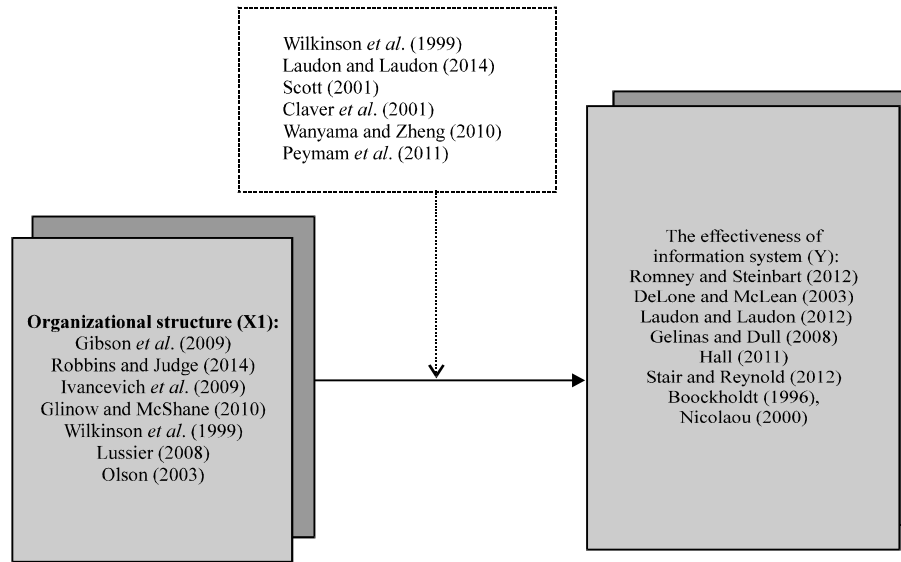
Fig. 2: Framework scheme

A similar opinion was also expressed by Wilkinson *et al.* (1999) that organizational structure significantly affects information systems and their components. Furthermore, Wilkinson *et al.* (1999) explains the reasons for the emergence of an important effect between organizational structure and Information System that must be understood by the system developers are:

- Organizational structure determines the amount of important information flow that should be generated by accounting information system
- Organizational structure determine how horizontally transaction data is commonly entered by users of accounting information systems at the lower level organizations can be processed and forwarded to the next process both in the level within the organization as well as to the higher level
- Formal organizational structure in a company interacts with social partners and closely resembles the informal information systems

Based on a variety of theories which have been put forward before, it can be said that organizational structure affects accounting information system whether it is wide or not the information distribution both vertically up to the level/degree of organization at the bottom with the purpose to be used by employees at lower levels in the decisions process or horizontally depends on the extent of the company's activities.

Various empirical evidences related to the effect of organizational structure to accounting information system havebeen a lot generated from different results of studies conducted by researchers around the world. The research result conducted by Claver *et al.* (2001) produced evidence that the levels of organizational structure affect the implementation of accounting information systems. Further, the research conducted by Wanyama and Zheng (2010) showed empirical evidence that illustrates that organizational structure affects the implementation of accounting information System. Similarly, the study conducted by Peyman *et al.* (2011) which proved that all dimensions of organizational structure give positive and significant effect on accounting information system. For more details on this conceptual framework will be presented in the form of schematic framework in Fig. 2:

Research hypothesis: Based on the framework which has been described previously, the hypothesis proposed in this study is:

- H_1: Organizational structure can affects the quality of accounting information systems

MATERIALS AND METHODS

The method used in this study is descriptive and explanatory research. The population in this study is public and private universities in Bandung Region as many as 60 universities. About 37 samples were obtained through simple random sampling technique using Slovin formula as follows:

$$n = \frac{N}{1 + N(e)^2}$$

So, that it is obtained a sample as follows:

$$37.5 \text{ rounding to } 37 = \frac{60}{1 + 60(0.1)^2}$$

Where:

n = Sample size

N = Population size

e = Inaccuracy leeway percent due to sampling which can still be tolerated or desirable for example 5 and 10% and more

The unit of observation in this study is the people who work in accounting department as an organizer of accounting information systems at universities. This study uses primary data while the data collection method used was a questionnaire.

Validity test is done which is used to determine the feasibility of the items in a list of questions to define a variable and reliability test to measure the reliability of the measured object.

The data analysis was conducted with descriptive and verification analysis. Descriptive analysis was done with a balanced categorization by using inter quartile range (Blumberg *et al.*, 2014). Verification analysis used to test the hypothesis in this study is by using Structural Equation Modeling (SEM) component or variance based which is known as Partial Least Square (PLS).

RESULTS

The validity and reliability testing: All measuring items both organizational structure variable and the effectiveness of accounting information systems variable are declared valid because it has r_{count} value >0.30, so it can be concluded that the measuring instrument in the form of a questionnaire statement has had a good level of validity (attachment). Based on the research data, the reliability test results is good for the Effectiveness of Accounting Information Systems variable (Y) and for Organizational structures variable (X), it indicates that the r_{count} value is >0.7, it can be summed that questionnaire statement as a measuring tool variables used in this study is reliable (recapitulation in the annex).
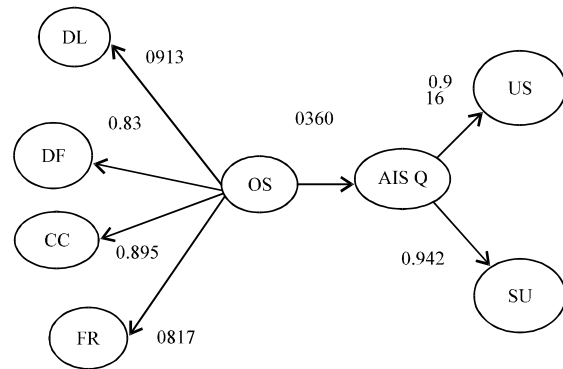

Fig. 3: PLS model; OS: Organizational Structure; DL: division of labour; DF: Departementalization; CC: chain of command; FR: Formalization; AIS: Quality Of Accounting Information Systems; US: User Satisfaction; SU: System Use

Structural Equation Model: Structural equation model for the effect of organizational structure to the quality of Accounting Information Systems is obtained based on research data and is calculated using the SEM approach Partial Least Square (PLS) as follows (Fig. 3):

$$\eta = 0.360\xi_1 + 0.435$$

Measurement Model Testing (outer model)

Convergent validity: Based on Table 1 it can be said that the dimension of division of labor, departmentalization, chain of command and formalization has been appropriately used to describe the organizational structure variables (loading factor value over 0.6).

Furthermore, based on Table 2 it can be concluded that the indicators used were appropriate represent the dimensions of the measurement model of organizational structure variables used in this study (t_{count} value >1.96).

Likewise with user satisfaction and system usage dimensions, they have been appropriately used as a model for the measurement of the effectiveness of accounting information system variable (Table 3 loading factor value >0.6)

Furthermore, based on Table 4, it can be concluded that the 8th indicator used was appropriate to represent the dimensions of the measurement model of the effectiveness of accounting information systems variables (t_{count} value >1.96).

Discriminantvalidity: Discriminant validity results (Table 5) shows the construct has met the good construct minimum value because AVE is >0.5.

Table 1: Measurement model of organizational structure variable (X_1)

Variabel Manifest	Loading factor	Measurement model	t_{count}
Division Of Labour/ Work Specialization (X_{11})	0.913	$X_{11}= 0.913\ X_1+0.167$	41.803
Departementalization $_{12}$)	0.831	$X_{12}= 0.831\ X_1+0.310$	22.480
Chain Of Command($X_{\ 13}$)	0.895	$X_{13}= 0.895\ X_1+0.199$	24.191
Formalization (X_{14})	0.817	$X_{14}= 0.817\ X_1+0.332$	18.696

Table 2: The indicator measurement models to organizational structure variable dimension (X_1)

Variabel Manifest	Loading Factor	MeasurementModel	t_{count}
X1.1.1 <- X1.1	0.8999	$X_{111}= 0.8999X_{1.1}+0.190$	41.8678
X1.1.2 <- X1.1	0.8849	$X_{112}= 0.8849X_{1.1}+0.217$	25.4077
X1.2.1 <- X1.2	0.8691	$X_{121}= 0.8691X_{1.2}+0.245$	17.3831
X1.2.2 <- X1.2	0.8760	$X_{122}= 0.8760X_{1.2}+0.233$	29.8968
X1.3.1 <- X1.3	0.8384	$X_{131}= 0.8384X_{1.3}+0.297$	19.0934
X1.3.2 <- X1.3	0.8734	$X_{132}= 0.8734X_{1.3}+0.237$	24.4038
X1.4.1 <- X1.4	0.9216	$X_{131}=0.9216X_{1.4}+0.151$	57.7405
X1.4.2 <- X1.4	0.9113	$X_{142}= 0.9113X_{1.4}+0.170$	21.3146

Table 3: Measurement Model of the Effectiveness of Accounting Information Systems variable (Y)

Variabel Manifest	Loading factor	MeasurementModel	t_{count}
User satisfaction (Y1)	0.916	$Y1= 0.916\ Y+0.162$	49.807
System usage (Y2)	0.942	$Y2= 0.942\ Y+0.112$	65.868

Table 4: The indicator measurement models to thequality of accounting information system variable dimension (Y)

Variabel manifest	Loading factor	Measurement model	t_{count}
Y1.1 <- Y1	0.7679	$Y_{11}= 0.7679\ Y_1+0.410$	13.1839
Y1.2 <- Y1	0.7707	$Y_{12}= 0.7707\ Y_1+0.406$	11.5414
Y1.3 <- Y1	0.7990	$Y_{13}= 0.7990\ Y_1+0.362$	14.3516
Y1.4 <- Y1	0.7008	$Y_{14}= 0.7008Y_1+0.509$	12.3391
Y2.1 <- Y2	0.8422	$Y_{21}= 0.8422Y_2+0.291$	17.9928
Y2.2 <- Y2	0.8164	$Y_{22}= 0.8164Y_2+0.333$	14.6540
Y2.3 <- Y2	0.7895	$Y_{23}= 0.7895Y_2+0.377$	10.5291
Y2.4 <- Y2	0.7545	$Y_{24}= 0.7545Y_2+0.431$	11.2357

Table 5: Average Variance Extracted Value (AVE) latent variables

Latent variabels	AVE
Organizational structure (X_1)	0.5838
Division of labour/ work specialization (X_{11})	0.7965
Departementalization (X_{12})	0.7613
Chain of command (X_{13})	0.7328
Formalization (X_{14})	0.8399
The quality of accounting information systems (Y)	0.5236
User satisfaction (Y_1)	0.5783
System usage (Y_2)	0.6421

Table 6: Composite reliability value of latent variables

Latent Variables	Composite
Reliability organizational structure (X_1)	0.9179
Division of labour/work specialization (X_{11})	0.8867
Departementalization (X_{12})	0.8645
Chain of command(X_{13})	0.8457
Formalization (X_{14})	0.9130
The quality of accounting information systems (Y)	0.8974
User satisfaction (Y_1)	0.8455
System usage (Y_2)	0.8775

Table 7: Significance Test on the Effect of Organizational Structure to the Quality of Accounting Information Systems

Path Coefficient	t_{count}	$t_{critical}$	Conclusion
0.360	2.032	1.96	Significant

Composite reliability: Based on Table 6, it can be concluded that all constructs meet reliable criteria (composite reliability value above 0.70). This means that latent variables of Organizational Structure (X) and latent variable of the Quality of Accounting Information Systems (Y) has high consistency.

Hypothesis testing: The first hypothesis testing results show that the variable relation of the oganizational srcucture with the quality of accounting information system indicated by the path coefficient of 0.360 with t_{count} of 2.032. The t-$_{statistic}$ value is greater than $t_{critical}$ (1.960), it means that oganizational srructure affects the quality of Accounting Information Systems (Table 7).

The amount of direct effect on the Organizational Structure to theEffectiveness ofAccounting Information Systems is (0.360×0.360×100%) = 12.96%. This means that Organizational Structure affects 12.96% to the Effectiveness of Accounting Information Systems if there is no other variables which are considered.

DISCUSSION

Based on the research results, it can be known the causes of accounting information system which is not qualified because of several factors such as accounting information system which is available on the company is not flexible yet, not easy to use, difficult to access, not safe, well integrated yet and often has errors/interference.

Based on the research results conducted may be noted that the implementation of organizational structure at the universities in Bandung city have not been optimal because there are still universities that put their employees who are not relevant to their expertise, hire

employees with various different types of work, there are sections/departments which do not have clear function, there are employees who are not placed on the part of whom should have been, there are employees who accept the task which are not from his immediate superior, there is still a lack of clarity of instructions from the boss, there are universities in Bandung city that do not have standard operating procedures/SOP and for the universities that already have SOP there are employees who do not carry out the work in accordance with his SOP.

Based on the study results showed the big effect of organizational structure to the quality of information systems by 12.96%, the meaning is the increasing on the quality of organizational structure will also improve the quality of accounting information systems. From the above results it can be said that the results of hypothesis testing shows that the hypothesis that shows the organizational structure affects the quality of accounting information system is unacceptable.

The accepted research hypothesis of this study corroborates previous research that has been studied by: Claver *et al.* (2001), Wanyama and Zheng (2010) and Peyman *et al.* (2011) as well as strengthen the theory proposed by Laudon and Laudon (2014), Scott (2001) and Wilkinson *et al.* (1999).

CONCLUSION

Based on the research results and discussion it can be summarized as follows: Organizational structure affects the quality of Accounting Information Systems. The accounting information systems at universities in Bandung city is not qualified due to the accounting information system which is not flexible, difficult to use, difficult to access, not safe, well integrated yet and often has an error/interference.

Based on the research results it is known organizational structure at the universities in Bandung city is not optimal because there is still division of tasks (division of labor), grouping of tasks (departementalization) and giving instruction tasks (authority of command) which are not clear yet as well as the formalization job that has not been good. This study results has addressed the issues that have been raised previously in the study background, but there are some things that need to be suggested in respect of the study results that showed little effect .

SUGGESTIONS

The value among the variables studied. The advice given is as follows: To anticipate the re-emergence of the

same problems associated with the Accounting information systems which is not qualified, universities are recommended to be able to: Increase user satisfaction (user satisfaction) and use of accounting information systems (system usage) by designing an accounting information system tailored to the needs of users that are changing.

To anticipate the unoptimal organizational structure it is suggested that company should hire employees according to their competence, classify the works on appropriate sections/divisions, cut red tape and the availability of an adequate standard operating procedure.

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