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The Effect of Clarity of Business Vision and Top Management Support on the Quality of Business Intelligence Systems: Evidence from Indonesia

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Abstract: This study aims to examine the effect of clarity of business vision and top management support on the quality of business intelligence systems at financial institutions in Medan City, North Sumatra, Indonesia. Survey conducted on 54 operational managers to gather information and to test the hypothesis of a study. Data was collected using questionnaires. The data analyzed with multiple regression analysis while hypothesis testing used was t-test. Results of this study shown that clarity of business vision and top management support have significant effects on the quality of business intelligence systems. However, the top management support has negative relationship with quality of business intelligence systems. The implication of this study is, in order to get better quality of business intelligence system top management should give socialization about business vision to subordinates and they should have a good technical skill on business intelligence systems.

Key words: Business vision, top management support, business intelligence systems, North Sumatra, quality of business

INTRODUCTION

Business intelligence systems are the subject of an extensive discussion in the literature (Olszak and Ziemba, 2012). The implementation of a Business Intelligence systems (BI) system is a complex undertaking requiring considerable resources (Yeoh and Koronios, 2010). Furthermore, the main purpose of business intelligence systems is to provide knowledge workers with tools and methodologies that allow them to make effective and timely decisions (Carlos, 2009). Moreover, Business Intelligence helps a company to create knowledge from that information to enable better decision-making and to convert those decisions into action. Whereas, benefits of business intelligence systems: improving business efficiency and productivity, enhancing business relationships, increasing business value and the reduction of costs (Deepak, 2007). This study aimed to examine the effect of clarity of business vision and top management support on quality of business intelligence systems at financial institutions in Medan City, North Sumatera, Indonesia. Hence, the research question for this study is "do the clarity of business vision and top management support have an impact on quality of business intelligence systems?"

Literature review

Clarity of business vision: According to Carpenter and Gerard (2007), vision is a simple statement or understanding of what the firm will be in the future. A vision for a firm is regarded as the ideal future state of the total entity. It is a mental image of a possible and desirable state of the firm (Fitzroy and Hulbert, 2005). Furthermore, Hoque stated that an organization's vision statement provides the vision of what top management sees as the reason for the firm's existence. That is, it describes what the firm would like become. It is a description of ideal and as such is a picture of the potential future which it is hoped employee, perhaps scattered around the world, can really round, understand, be committed to and be motivated to help attain. Furthermore, Carpenter and Gerard (2007) state, statement of vision is forward looking and identifies the firm's desired long-term.

Based on some previous statement it can be concluded that business vision is a simple statement about the picture of the ideal state of the desired company in the future, be understood by all people in the company as well as their commitment and their motivation to achieve it.

Goal or vision clarity refers to the precision and detail of the objective (Lynn *et al*., 2000). A clear vision provides the foundation for developing a comprehensive mission statement (David, 2011). Collin and Porras (1996) stated the critical point is that a vision articulates a view of a realistic, credible, attractive future for the organization, a condition that is better in some important ways than what now exists. According to Stacey (2007),

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the word 'vision' is usually taken to mean a picture of a future state for an organization, a mental image of a possible and desirable future that is realistic, credible and attractive. Fitzroy and Hulbert (2005) stated that a vision needs to be realistic, credible and attractive and should provide a bridge from the present to the future. Furthermore, Madu (2013) explained that a realistic vision means should be relevant to organizational goal and achievable, credible vision mean having believed could lead to a better future while attractive vision to inspire and motivate everyone in the organization to implement that vision.

Dimensions of business vision used in this study are: realistic, credible and attractive (Collin and Porras, 1996; Stacey, 2007; Fitzroy and Hulbert, 2005). Furthermore, indicators used to measure clarity of business vision in this study is relevant to organizational goal and achievable, having believed could lead to a better future, inspire and motivate everyone in the organization to implement that vision (Madu, 2013). However, Fitriani and Mulyani (2015) suggested that not only clarity of business vision but also strong leadership is needed in influencing and directing the organization's members.

Top management support: According to Hussein *et al.* (2007), top management support is conceptualized as the involvement and participation of executive or level management of the organization in Information Technology (IT)/Information Systems (IS) activities. Kanter (1984) stated that management participation and involvement are the objectives; evidence supports the need to convince them why they should want MIS. Moreover, Zaied (2012) stated that management support refers to management approval and continuous support not only during the IS project implementation but also throughout the operational phase of the system.

Based on some previous statement it can be concluded that top management support is continuous support in the form participation and involvement of top management during information system activity. Dimensions of top management support used in this study are: participation and involvement (Hussein *et al.*, 2007; Zaied, 2012).

According to Compeau and Higgins (1995), the management support is the extent to which assistance was available in terms of equipment selection, hardware difficulties, software difficulties and specialized instruction. Gottschalk (1999) stated top management support measured by knowledge, expectation, participation, the time needed, enthusiasm, monitoring for the implementation. Nathan *et al.* (2004) stated that top management support of information system refers to the degree to which top management understand the importance of the IS function and the extent to which it is involved in IS activities. Ifinedo (2008) stated that top management support is the extent to which top managers in the organization provide direction, authority and resources during and after the acquisitions of IT system. Weill (1992) stated that support from top management facilitates many of the operational and strategic IT management activities. The activities include negotiation, IS planning, project management and similar tasks. Zaied (2012) operated measurement of management support such as management encouragement, providing all necessary resources, discussing problems associated with the system, appreciating the optimal use of the system and having sufficient knowledge of the system. Ifinedo (2008) stated top management support refers to the extent to which top managers in the organization provide direction, authority and resources during and after the acquisitions of IT system. Khan *et al.* (2013) use 7 indicators to measure the top management support: top management involvement with IS function is strong, top management is interested in IS function, top management understands the importance of IS, top management supports the IS function, top management considers IS as a strategic resource, top management understands IS opportunities and top management keeps the pressure on operating units to work with IS.

Indicators used to measure of management support in this study is: understand the importance of the IS function (Nathan *et al.*, 2004; Khan *et al.*, 2013), interested in IS function (Khan *et al.*, 2013), providing all necessary resources (Zaied, 2012) and (Ifinedo, 2008) provide direction (Ifinedo, 2008), involvement with IS function (Khan *et al.*, 2013) and monitoring of the implementation (Gottschalk, 1999).

Quality of business intelligence systems: Sadikun *et al.* (2016) stated that systems consist of many components, namely: hardware brainwave, procedure, database and software, the infrastructure of information technology, internal control and security measures and performance of system developer. Those things are interacted to build a synergy related one to each other. The Interactions among those arrangements are intended to support the organization. According to Gelinas and Dull (2008), business intelligence systems is the integration of statistical and analytical tools with decision support technologies to facilitate complex analyzes of the data warehouse by managers and decision makers. Laudon and Laudon (2012) stated that business intelligence systems is a contemporary term for data and software tools for organizing, analyzing and providing access to data to help

managers and other enterprises user makes more informed decision. ISs whose purpose is to glean from raw data relationships and trends that might help organizations compete better are called Business Intelligence systems (BI) systems (Effy, 2009). Turban and Linda (2011) stated that business intelligence systems refer to a collection of Iss and technologies that support managerial decision-making or operational control by providing information on internal and external operations. Valacich *et al.* (2012) stated business intelligence systems can provide business decision makers with a wide variety of analyzes to support decision-making

Based on some previous statement it can be concluded that business intelligence systems system is a collection of ISs and technologies that support managerial decision-making or operational control by providing information on internal and external operations and help organizations compete better.

Adamala and Cidrin (2011) mentioned the most obvious first choice when trying to discover BI success factors is to look at Information Systems (IS) in general. Bailey and Pearson (1983) use dimensions: system access time, system flexibility, system integration and system response time. Srinivasan (1985) use dimensions: response time, system reliability and ease of access. Wixom and Todd (2005) stated, characteristics of a quality information system is reliability, flexibility, integration, accessibility and timeless. DeLone and McLean (2003) stated system quality refer to adaptability, availability, reliability, response time and usability. DeLone and McLean (2003) explained that system quality the desirable characteristics of an information system. For instance: ease of use, system flexibility, system reliability and ease of learning as well as system features of intuitiveness, sophistication, flexibility and response time. Fitriati and Mulyani (2015) claimed that accounting information system has an effect on accounting information quality. Gorla *et al.* (2010) stated the indicators of system quality are flexibility and sophistication. Zaied (2012) explained that measures of system quality typically focus on the performance characteristic of the system under study. In this research, the selected system quality elements are reliability, usability, adaptability, trust and maintainability. Petter *et al.* (2013) stated that system quality considers the technical aspect of the system including the convenience of access, system functionality, reliability, response time, sophistication, navigation ease and flexibility among other. In this study, four indicators were used to measure of the quality of business intelligence systems system: flexibility, reliability, accessibility and integration.

Theoretical framework and hypotheses development

The clarity of business vision and quality of business intelligence systems: Clarity of vision or purpose refers to the accuracy and the detailed objectives (Lynn *et al.*, 2000). A clear vision provides the basis for developing a comprehensive mission statement (David, 2011). It is difficult to execute the strategy if the vision and mission are unclear or can not be understood, a company with a clear vision and mission and widely understood find it easier to make strategic decisions (Carpenter and Gerard, 2007).

Business intelligence systems are an information system that processes data about the internal and external operations are complex into useful information for managers in decision-making managerial or operational control more precisely so as to help organizations better compete. Adamala and Cidrin (2011) stated business intelligence systems are very closely tied to the strategic vision of the company. Yeoh and Koronois (2010) explained if the business vision is not fully understood, it will eventually affect the use and the results of business intelligence systems. As a business intelligence systems, initiatives drive business, so the business strategy vision is needed immediately for the implementation of business intelligence systems.

Some researchers have tested the effect of business vision on information systems or business intelligence systems. Yeoh *et al.* (2008) found evidence that business vision is an important factor that affects on the implementation of business intelligence systems. Ifinedo (2008) obtained evidence that when the implementation of enterprise resource planning system in accordance with the business vision, then the system success is high too. Yeoh and Koronios (2010) found evidence that the clarity of the business vision is an important factor that affects the implementation of business intelligence systems. Adamala and Cidrin (2011) stated that the business intelligence systems are closely linked to the company's strategic vision. Al-Busaidi and Lorne (2005) found evidence that the clarity of business vision associated with knowledge management system. Dawson and Belle (2013) found evidence that business vision is an important factor affecting the success of business intelligence systems.

Top management support and quality of business intelligence systems: The supports provided by the top management in the organization of information systems are very important in determining the success of all information system activities (Lucas, 1998; Raghunathan *et al.*, 2004). Experience of successful organizations reveals that managerial involvement and

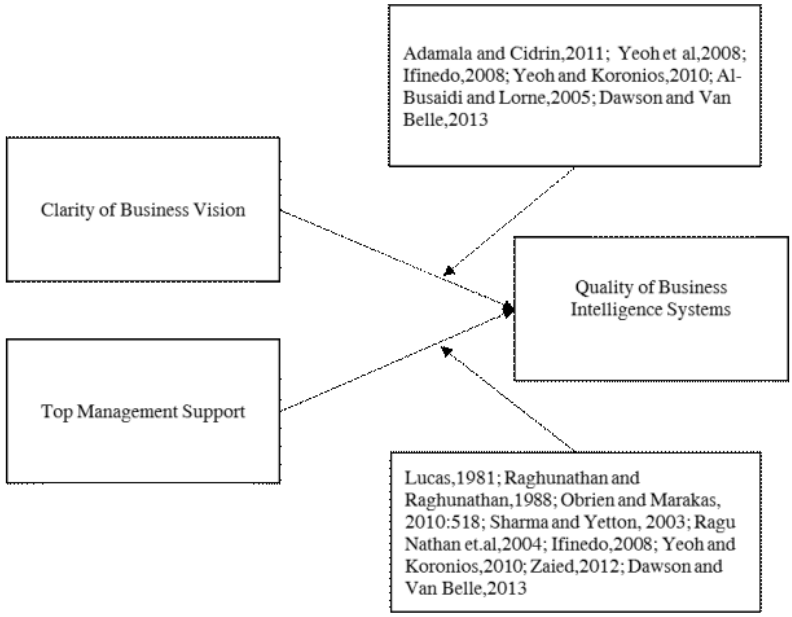

Fig. 1: Theoretical framework

broad and meaningful users are the main ingredients to improve the quality of information system performance (Obrien and Marakas, 2010).

Some researchers have tested the effect of top management support on information systems or business intelligence systems. Ladewi and Sri (2015) and Nurhayati and Mulyani (2015) found that top management commitment as a part of top management support does not give any influence on implementation of information systems, otherwise, Sharma and Yetton (2003) found evidence that top management support through task interdependence affects the successful implementation of information systems. Ragu-Nathan *et al.* (2004) found results that there is a relationship directly or indirectly between top management supports with information system performance. Yeoh *et al.* (2008) found evidence that top management support is an important factor that affects the successful implementation of business intelligence systems. Ifinedo (2008) obtained evidence that when top management support is high, the rate of successful implementation of enterprise resource planning system too high. Yeoh and Koronios (2010) found evidence that top management support is an important factor that affects the successful implementation of business intelligence systems. Zaied (2012) stated that top management support plays an important role in improving the quality of information systems. Dawson and Belle (2013) found evidence that management support is a critical factor affecting the success of business intelligence systems.

However, the level of skills from top management is needed to use Business Intelligence tools were highlighted as key factor in hindering its use in organizations (Hartley and Saymour, 2015). Based on the description before, the framework of this study can be seen as follows. Furthermore, the hypotheses proposed in this study are as follows:

- Clarity of business vision have effects on quality of business intelligence systems.
- Top management support have effects on quality of business intelligence system.

MATERIALS AND METHODS

This study uses explanatory survey method. The population in this study was financial institutions at Medan City, North Sumatera, Indonesia. The companies chosen in this study have been implementing business intelligence systems application. The participants of the study were operational managers. Eighty questionnaires were distributed to the numbers of the sample, 54 questionnaires were returned and used in the statistical analysis by using Statistical Product and Service Solutions. The instrument used for the collection data was a questionnaire. The questionnaire included 3 dimensions: clarity of business vision, top management support and quality of business intelligence systems system. This study used a Likert five-point scale ranges from “strongly disagree” to “strongly agree” to examine

Table 1: Multiple regressions analysis

Model	Unstandardized coefficients		Standardized coefficients		
	B	SE	β	t	Sig.
1 (constant)	8.409	2.267	-	3.709	0.001
Clarity of business vision	1.361	0.310	1.518	4.394	0.000
Top management support	-1.654	0.393	-1.455	-4.212	0.000

Dependent variable: quality of business intelligence systems

participants responses to questionnaire statements. The questionnaires to be used previously tested for validity and reliability. Furthermore, the analysis method used multiple regression analysis while hypothesis testing used t-test. All analyzes were performed using the program statistical product and service solutions.

RESULTS AND DISCUSSION

Before the data will be analyzed, all indicators in this study had been through test and the results were valid and reliable as it meets the criteria. Furthermore, the results of multiple regression analysis using as seen in the following Table.

$$QBIS = 8{,}409 + 1{,}361\ CBV - 1{,}654\ TMS + e$$

Based on the Table 1, we can concluded that multiple regressions equation as follow. The multiple regression equations above can explain the role of clarity of business vision and top management support on quality of business intelligence systems as seen from the magnitude of the regression coefficients. The above equation shows that the regression coefficient clarity of business vision is 1.361 and top management support is -1.654.

The result explained that more clear the business vision, the better quality of Intelligence systems. The impact from clarity of business vision on the quality of the business intelligence systems depends on how far management can realize the vision of the strategy in accordance with the conditions of the company. This supported by Adamala and Cidrin (2011) that stated business intelligence systems are very closely tied to the strategic vision of the company. As business intelligence systems are business driven, the vision of the business strategy is compulsory for the implementation of business intelligence systems (Yeoh and Koronois, 2010). Hence, results of this study supporting previous studies that stated clear business vision has an effect on implementation business intelligence systems, for instance research from Yeoh *et al.* (2008), Ifinedo (2008), Yeoh and Koronios (2010), Adamala and Cidrin (2011) and Dawson and Belle (2013).

On the other hand, the result of this study for top management support variable is contrary with most of previous research. Although, the result is statistically significance, the sign showed negative value. It means that the less top management support, the better quality of business intelligence systems. Top management can demonstrate its support by providing the necessary resources and leadership by setting goals and policies for Business Intelligence systems and showing interest by participating in business intelligence system design and development. Internal support including the availability of experienced Business Intelligence system staff, training opportunities and a network of supportive colleagues. Due to insufficient internal technical expertise, especially in developing countries, the availability and quality of top management support might be an important determinant of business intelligence system effectiveness (Elbeltagi *et al*., 2005). This may explain this negative relationship between top management support and quality of business intelligence systems. When top management have a lack of knowledge in systems, it is better for them to less involve in implementing business intelligence system due to the might be make the process of implementation more complicated. As mentioned by Elbeltagi *et al*. (2005) the developing countries including Indonesia the internal support have insufficient technical expertise.

Table 2: Summary of results

Model	R	R^2	Adjusted R^2	SE of the estimate
1	0.525	0.275	0.247	323.551

Furthermore, to measure ability of model to explain effects of independent variables on dependent variable seen from the magnitude of the coefficient of determination as shown in the following table.

Table 2 above shows the value of R^2 is 0.275 means ability of independent variables in explaining dependent variable is 27.5%, on the other hand, 72.5% of independent variables described other variables that are not included in this study.

CONCLUSION

Generally, the current study has aided to develop groundwork for the study of Business Intelligence System implementation. More or less, the developed basis has generated some knowledge and arguments to organization stakeholders such as top management and Business Intelligence user to understand the factors that affecting Business Intelligence systems. From the findings of this research, it has found that factors such as top management support and clarity of business vision have significant relationship with Business Intelligence implementation. From employer's point of view, the significant effect of clarity business vision indicates that

socialization from top management about business vision to subordinate is a crucial issue to successful of business intelligence system implementation.

In term of top management support that should provide some indications to organization stakeholders who wish to expect the high quality business intelligence. The findings from this study indicate that the top management supports is negatively related to quality of business intelligence systems. That means top management support is a barricade to those potential business intelligence systems adopters. If that is the case, the result of this study suggested that when the technical skills from top management about business intelligence is low, more less their involve (giving support) on business intelligence systems implementation, the better quality of business intelligence systems. Vis-α-vis the organization intend to get better quality of business intelligence systems, it should make sure that top management has good technical skills on business intelligence systems.

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