

## How the Clarity of Business Vision Affect the Quality of Business Intelligence Systems and It's Impact on the Quality of Decision Making (Evidence from North Sumatera-Indonesia)

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**Abstract:** Previous researchers conducting research on business intelligence systems and decision-making. This study aimed to examine the effect of clarity of business vision on quality of business intelligence systems and its impact on quality of decision making at financial institutions in North Sumatera-Indonesia. The survey was conducted on 54 operational managers of financial institutions to collect information and to test the hypothesis of the study. Data was collected using questionnaires. The analysis method used single regression analysis while hypothesis testing used t-test. Results of this study shown the clarity of business vision have significant effect on the quality of business intelligence system. Besides, the quality of business intelligence system have significant effect on the quality of decision making.

**Key words:** Clarity, business vision, quality, business intelligence system, decision making

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### INTRODUCTION

Business Intelligence is the subject of an extensive discussion in the literature. The implementation of a Business Intelligence (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, BI helps a company create knowledge from that information to enable better decision making and to convert those decisions into action (Chuck *et al.*, 2006). Whereas, benefits of business intelligence: improved business efficiency and productivity, business relationships are enhanced, increased business value is generated and reduction of costs (Deepak, 2006). The previous researchers have tested the critical factors affecting the business intelligence systems and its impact on decision making. This study aimed to examine the effect of clarity of business vision on quality of business intelligence systems and its impact on quality of decision making at financial institutions in North Sumatera-Indonesia.

#### Literature review

**Clarity of business vision:** According to Jones and Gomes a vision is a picture of the future. Wijk (2005) state that company's business vision is a statement that describes the company as it wishes to be in the future. Further, Culp state that vision defines the desired

or intended future state of organization. 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. 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 a 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). According to Stacey (2011) state the word "vision" is usually taken to mean a picture of a future state for an organisation, a mental image of a possible and desirable future that is realistic, credible and attractive. Fitzroy and Hulbert (2005) state that a vision needs to be realistic, credible and attractive and should provide a bridge from the present to the future.

Collins and Porras (1996) state the critical point is that a vision articulates a view of a realistic, credible, attractive future for organization, a condition that is better in some important ways than what now exists. Furthermore, Madu (2013) explained that a realistic vision means should be relevant to organizational goal and achievable, credible vision means 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 is: realistic, credible and attractive (Stacey, 2011; Fitzroy and Hulbert, 2005; Collin and Porras, 1996). 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).

**Quality of business intelligence system:** According to Gelinas and Dull (2008) business intelligence is the integration of statistical and analytical tools with decision support technologies to facilitate complex analyses of data warehouse by managers and decision makers. Laudon dan Laudon (2012) state business intelligence is a contemporary term for data and software tools for organizing, analyzing and providing access to data to help managers and other enterprises user make 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 (BI) systems (Effy, 2009). Turban and Linda (2011) state, business intelligence refers to a collection of ISs and technologies that support managerial decision making or operational control by providing information on internal and external operations. Schneider state business intelligence systems can provide business decision makers with a wide variety of analyses to support decision making.

Based on some previous statement, it can be concluded that business intelligence 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 Linus (2011) state 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: respon time, system reliabiity and ease to access. Todd state characteristics of quality information system is reliability, flexibility, integration, accesibility and timelines. DeLone and McLean (2003) state system quality: adaptability, availability, reliability, response time and usability. Petter *et al.* (2008) explained that system quality-the desirable characteristics of an information system. For example: ease to use system flexibility, system reliability and ease to learning as well as system features of intuitiveness, sophistication, flexibility and respon time. Gorla *et al.* (2010) state, indicator of system quality:

flexibility and sophistication. Zaied explained that measures of system quality typically focus on performance characteristic of the system under study. In this research, the selected system quality element are: reliability, usability, adaptability, trust and maintainability. Petter *et al.* (2013) state system quality considers the technical aspect of system, including convenience of access, system functionality, reliability, response time, sophistication, navigation ease and flexibility among other. This study use four indicators to measure of quality of business intelligence system: flexibility, reliability, accessibility dan integration.

**Quality of decision making:** According to Haag the decision is one of the most important business activities. Moreover, McShane and Glinow, stated that decision making is the conscious process of making choise among alternatives with the intention of moving toward some desired state of affairs. Furthermore, Turban and Linda (2011) stated that decision making is a process of choosing among two or more alternative courses of action for the purpose of attaining one or more goals. Whereas, Carlos (2009) stated that the decision-making process is part of a broader subject usually referred to as problem solving which refers to the process through which individuals try to bridge the gap between the current operating conditions of a system (as is) and the supposedly better conditions to be achieved in the future (to be).

Based on the statements of the above, it can be concluded that the decision making is a conscious process that is carried out by someone in determining choice of a wide range of alternative actions to achieve the goal of moving from the present into the future conditions better.

Decision quality refers to the technical aspects of a decision. A decision is considered to be of high quality to the extent that its consistent with the organizational goals to be attained and with potentially available information stated that the quality of decision making construct is composed of items such as: a perceived increase in the quality of decisions and reduction of the time required for decision making.

Based on the statements of the above it, this study use three indicators to measure of quality of decision making, namely: consistent with the organizational goals, a perceived increase is in the quality of decisions and the reduction of the time required for decision making.

#### **Theoretical framework and hypotheses development**

**The effect of clarity of business vision on quality of business intelligence systems:** Clarity of vision or

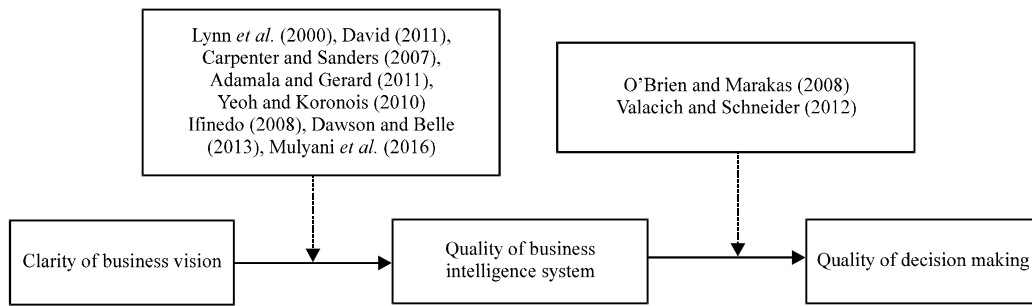


Fig. 1: The study model

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 system is 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 Linus (2011) state business intelligence systems are very closely tied to the strategic vision of the company. Yeoh and Koronios (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 initiatives drive business so the business strategy vision is needed immediately for the implementation of business intelligence systems.

Some researchers have found affect of vision or business vision on information systems or business intelligence systems such as Yeoh *et al.* (2008), Ifinedo (2008), Yeoh and Koronios (2010), Adamala and Linus (2011), Al-Busaidi and Olfman (2005), Dawson and Belle (2013) and Mulyani *et al.* (2016).

**The effect of quality of business intelligence systems on quality of decision making:** O'Brien and Marakas (2008) stated that information system also help store managers and other business professionals make better decisions.

Valacich and Christoph (2012) stated that business intelligence systems can provide business decision makers with a wide variety of analyses to support decision making. Negash stated that a business intelligence system can improve the timelines and quality of the input to the decision making process. Some

previous researchers have found affect of quality of business intelligence systems on the quality of decision making such as Darma. Based on the description in the above framework, the model of this study can be seen as follows (Fig. 1): furthermore, the hypothesis proposed in this study are as:

- The clarity of business vision have effects on the quality of business intelligence system
- The quality of business intelligence systems have effects on the quality of decision making

## MATERIALS AND METHODS

This study use explanatory survey method. The population in this study include operational managers of financial insitution at North Sumatera Indonesia. The companies chosen in this study have been implementing business intelligence system application. The participants of the study were operational managers. Eighty questionares were distributed to the numbers of the sample, 54 questionares were returned and used in the statistical analysis. The instrument used for the collection data was a questionare. The questionare included 3 dimensions: clarity of business vision, quality of business intelligence systems and quality od decision making. This study used a Likert five point scale ranges from "strongly disagree" to "strongly agree" to examine participants responses to questionnaire statements. The questionnaires to be used previously tested for validity and reliability. Furthermore, the analysis method used simple regression analysis while hypothesis testing used t-test. All analyzes were performed using the program statistical product and service solutions.

## RESULTS AND DISCUSSION

Recapitulation validity test results on research instrument (questionnaire) can be seen in Table 1. From Table 1 shows coefficient values for all variables the

Tabel 1: Recapitulation validity of test results

Variabels/Items	Corrected item total correlation	Validity	
		Critical R	Explanation
<b>Clarity of business vision</b>			
CBV1	0.561	0.2681	Valid
CBV2	0.815	0.2681	Valid
CBV3	0.549	0.2681	Valid
CBV4	0.661	0.2681	Valid
CBV5	0.762	0.2681	Valid
CBV6	0.685	0.2681	Valid
CBV7	0.325	0.2681	Valid
<b>Quality of business intelligence system</b>			
QBIS1	0.683	0.2681	Valid
QBIS2	0.749	0.2681	Valid
QBIS3	0.524	0.2681	Valid
QBIS4	0.697	0.2681	Valid
QBIS5	0.317	0.2681	Valid
QBIS6	0.641	0.2681	Valid
<b>Quality of decision making</b>			
QDM1	0.928	0.2007	Valid
QDM2	0.787	0.2007	Valid
QDM3	0.928	0.2007	Valid
QDM4	0.563	0.2007	Valid
QDM5	0.928	0.2007	Valid

Tabel 2: Recapitulation reliability of test results

Variabels	Cronbach's alpha	Critical point	Explanation
Clarity of business vision	0.854	0.700	Reliable
Quality of business of intelligence system	0.820	0.700	Reliable
Quality of decision making	0.927	0.700	Reliable

Tabel 3: Coefficients

Model	Unstandardized		Standardized		
	coefficients (B)	SE	coefficients (β)	t-values	Sig.
Constant	8.409	2.267	-	3.709	0.001
Clarity of business vision	1.361	0.310	1.518	4.394	0.000

Dependent variable: quality of business intelligence system

overall study is greater than the value of r (table = 0.2681). This means that the whole point statement has good validity so that the data collected can be analyzed at a later stage. Recapitulation reliability test results with Cronbach's alpha on research instrument (questionnaire) can be seen in Table 2. From Table 2 above shows the value of the coefficient of reliability for the entire variabel tested also above the critical point of 0.70. This means that the questionnaire used to have good reliability so that it can be concluded that the data collected in this study is reliable and can be used for analysis stage. The result of simple regression analysis between business vision with information systems can be seen in Table 3. Based on Table 3 can be composed of multiple regression equation as:

$$QBIS = 8.409 + 1.361 \text{ CBV} + e$$

The simple regression equation above can explain the role of clarity of business vision on quality of business

Table 4: Model summary

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	SE of the estimate
1	0.525	0.275	0.247	3.23551

intelligence systems as seen from the magnitude of the regression coefficients. The above equation shows that the regression coefficient clarity of business vision of 1.361. Furthermore to measure ability of model to explain effects of clarity of business vision on quality of business intelligence systems seen from the magnitude of the coefficient of determination (R<sup>2</sup>) as shown in Table 4. The Table 4 shows the value of R<sup>2</sup> of 0.275 means ability of clarity of business vision in explaining quality of business intelligence systems of 27.5% while 72.5% of independent variables described other variables that are not included in this study.

The hypothesis testing of effect the clarity of business vision on quality of business intelligence systems can be seen from the significance values. Table 4 shows the significant value of clarity of the business vision of 0.000 < 0.05, so that it can be concluded H<sub>0</sub> rejected or H<sub>1</sub> accepted. This conclusion means that the clarity of business vision have significant effect on the quality of business intelligence systems. If the clarity of business vision increases, it will improve the quality of business intelligence systems. In other words, improving the clarity of business vision lead to improved the quality of business intelligence systems.

The effect of the clarity of business vision on the quality of the business intelligence system depends on the extent to which management can realize the vision of the strategy in accordance with the conditions of the company. Business intelligence systems are very closely tied to the strategic vision of the company (Adamala and Linus, 2011). As business intelligence initiatives for business driven so that the vision of the business strategy is needed immediately for the implementation of business intelligence systems (Yeoh and Koronios, 2010). Based on the vision strategy will then be designed business intelligence system that fits the needs of companies.

Results of this study support previous studies that stated there clear business vision effect on business intelligence systems such as research by Yeoh *et al.* (2008), Ifinedo (2008) Yeoh and Koronios (2010), Adamala and Linus (2011), Dawson and Belle (2013). Furthermore, the results of simple regression analysis between quality of business intelligenc systems and quality of decision making can be seen in Table 5. Based on Table 5 can be composed of simple regression equation as:

$$QBIS = 8.477 + 0.290 \text{ QDM} + e$$

Table 5: Coefficients

Model	Unstandardized coefficients (B)	SE	Standardized coefficients (β)	t-values	Sig.
Constant	9.477	1.591		5.327	0.001
Clarity of business vision	0.290	0.106	0.355	2.741	0.000

Dependent variable: quality of decision making

Table 6: Model summary

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	SE of the estimate
1	0.355	0.126	0.109	2.87412

The simple regression equation above can explain the role of quality of business intelligence systems on quality of decision making as seen from the magnitude of the regression coefficients. The above equation shows that the regression coefficient of quality of business intelligence system of 0.290. Furthermore to measure ability of model to explain effects of quality of business intelligence systems on quality of decision making seen from the magnitude of the coefficient of determination (R<sup>2</sup>) as shown in Table 6.

Table 6 shows the value of R<sup>2</sup> of 0.126 means ability of quality of business intelligence systems in explaining quality of decision making of 12.6% while 87.4% of independent variables described other variables that are not included in this study. The hypothesis testing of effect the quality of business intelligence systems on the quality of decision making can be seen from the significance values. Table 6 shows the significant value of the quality of business intelligence system of 0.008 < 0.05 so that, it can be concluded H<sub>0</sub> rejected or H<sub>1</sub> accepted. This conclusion means that the quality of business intelligence systems have a significant impact on the quality of decision making. If the quality of business intelligence systems increases, it will improve the quality of decision-making.

In other words, improving the quality of business intelligence systems lead to improved quality of decision-making. Carlos explained if decision makers can rely on a business intelligence system facilitating their activity we can expect that the overall quality of the decision-making process will be greatly improved. Results of this study support previous studies that stated quality of business intelligence system effect on quality of decision making such as research Wieder.

### CONCLUSION

This study aimed to examine the effect of clarity of business vision on the quality of business intelligence systems and its impact on the quality of decision making at financial institutions in North Sumatera Indonesia. The results this study shown the clarity of business vision

have significant effect on the quality of business intelligence systems. Besides, the quality of business intelligence system have significant effect on the quality of decision making.

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