

# Correlation Between Information Technology And Management Information Systems Quality

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**Abstract:** The aim of this research is to find out the correlation between Information Technology and Management Information System Quality. This research applies literature review from various theories and previously conducted research, where controversies between Information Technology and Management Information Systems. The result of this research shows that Information Technology is a part of Management Information System and supports the performance of Management Information Systems.

**Index Terms:** Information Technology, The Quality of Management Information Systems

## 1 INTRODUCTION

Processing data into information is the main activity of every individual (Davis and Olson, 1985:4). Information becomes essential and crucial either for individuals or organizations/management. (Wilkinson, et al, 2000:4). Information provided to management is called management information, whereas information systems producing management information system is called Management Information System-a group of interconnected sub-systems and work harmoniously together to achieve one goal, processing data to become information needed by management in implementing its function of making decisions (Azhar Susanto, 2013:68). Management in an organization auses information to make decisions (Wilkinson et al (2000:4)). Similar claim stated by Romney and Steinbart (2015:31) that in making a decision, management must be able to process data into useful information. Useful information relies on the quality of the information (Wilkinson, et al, 2000:18). Qualified information is the output of a qualified information system (Bocij, et al, 2014:588). Without qualified information system, data is difficult to transform into qualified information (Valacich, et al, 2016:48). Qualified information system has the following characteristics: (1) Integration ((Azhar Susanto, 2013:16); (Heidmann, 2008:87-90); (Khosrow, 2011:963)) (2) Accessibility ((Heidmann, 2008:87-90); (Bocij, et al, 2014:392-393)); (3) Reliability ((Khosrow, 2011:1351 and 1451); (Duggan and Reichgelt, 2006:312)); (4) Flexibility ((Heidmann, 2008: 87-90); (Bocij, et al, 2014: 392-393); (Khosrow, 2011: 963 and 1351)). The real condition shows that information system in Indonesia is not yet qualified, as stated by Bambang Dwi Anggono (2015), the Director of e-Government, Indonesian Ministry of Communication and Information that, all this time e-Government applied by Indonesian Government still runs individually.

In line with his statement, Enrico Vermy (2012) as Head of Parking Division of DKI Jakarta Transportation Department, says that the leak in parking tax payment is caused by the difficulties in monitoring due to inaccessible system. Furthermore, Muhammad Nasir (2015), Minister of Research, Technology and Higher Education states that the financial system of State Universities as Legal Entities (PTN-BH) is still less flexible all this time and predicted to hamper available development. Engkan Iskandar, (2015) as Head of Health Division in Ciamis District, claims that Health Information System (HIS) available now has not yet been able to provide reliable data and information. Qualified or troubled information system is caused by several factors, one of which is information technology as it is the framework of information system in an organization (O'brien dan Marakas, 2010:7). Laudon and Laudon (2016:51) also claim that an important dimension in an information system is an organization as a whole, management and information technology. As stated by Oz (2009:14), that information system runs well with the support of information technology. Information technology refers to a Technological Side of an information system (Turban, et al, 2008:17).

## 2 REVIEW OF LITERATURE

### 2.1 Definition of Information Technology

Information Technology is a set of computer and other appliances used to store, receive, and process data (Romney and Steinbart, 2015:30). Similarly, explained by Haag, et al, (2005:4) that is a set of computer-based device used by users to process information and support organisation. Information Technology contains a set of hardware, software, and network used to send information to related costumers (Chaffey and Wood, 2005:116). It is also supported by the statement from Shelly and Rossenblatt, (2011:4) saying that Information Technology refers to a set of combination of hardware, software and network used by users to process, communicate, and share information. From the explanation above, it can be concluded that Information Technology is a set of hardware, software, and telecommunication network used to support information sharing and processing.

### 2.2 Components of Information Technology

Information Technology considered as a device to help information processing, consists of several components, namely: (1) hardware in the form of mainframe computers, server, laptop and PDAs; (2) software containing operation software and application software with some functions; (3)

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communication network such as modem and routers (Reynolds, 2009: 4). In favor with Reynold, Laudon and Laudon (2016: 201) state that information technology contains hardware, software and telecommunication network in the entire units of an organization. Furthermore, Shelly and Rossenblatt (2011:4), explain that Information Technology comprises of hardware, software and communication network providing benefits for individuals as well as business environment.

### 2.3 Characteristics of Information Technology

Thompson and Baril (2002:34-36) explain that the characteristic of information technology is divided into four types, they are:

1. Functionally which indicators are: (1) Capacity; (2) Speed; (3) Price Performance; (4) Reliability; (5) Operating Conditions
2. Ease of Use which indicators are: (1) Quality of User Interface; (2) Ease of Becoming Proficient; (3) Portability
3. Compatibility which indicators are: (1) Conformance to Standards; (2) Interoperability
4. Maintainability which indicators are: (1) Modularity; (2) Scalability; (3) Flexibility.

Agree with Thompson and Baril, Laudon and Laudon (2012:74) state that information technology's specification is to build products Comparability and enhance communication in a network (Ease of Use). Also, stated by Baltzan and Phillips (2013:184) that there are 7 capabilities of a qualified Information Technology, they are:

- (1) Accessibility, where there are various possibilities for users to see or do operational function.
- (2) Availability, where it can be used in different period of time
- (3) Maintainability, where it can change quickly to support environment changes.
- (4) Portability, where it is available to operate on different wares or software platform
- (5) Reliability, where it can function correctly and provide accurate information
- (6) Scalability, where it can adapt enhancement or development demand
- (7) Usability, where it can be easily learned and be efficient and satisfying to use

Similar opinion comes from Baltzan and Phillips, Turban and Volonino (2012:46) that there are four characteristics of Information Technology that should be known, namely:

- a. Dependable, which means that IT should meet availability, liability, scalability of application and information system of a company;
- b. Manageable, which explains its complexity in managing hardware and software needed to provide reliable application;
- c. Adaptable, means that when additional application capacity is needed by an organization, IT can enhance it as much as the organization needs.
- d. Affordable, where old IT may need quite expensive redundancy system.

From the discussion above, it can be concluded that qualified Information Technology has the following characteristic: (1) Maintainability; (2) Ease of Use; (3) Compatibility.

### 2.4 Definition of Information System

Information System is a computer or manual-based system used to store and process data into information or knowledge (Chaffey and Wood, 2004:21). Agreeing with what Chaffey and Wood state, Gelinas and Dull (2008:13) state that is a system generally consist of a set of integrated component, either computer-based or manual to gather, store, and process data into information for users. O'Brien and Marakas (2010:4) also explains that Information System can be defined as a combination of individuals, hardware, software, telecommunication network, data, and policy procedures used to store and receive data to be subsequently transformed into information in an organization. This is in line with the opinion of O'Brien and Marakas, Valacich and Schneider (2016:46) who claim that Information System uses Information Technology including hardware, software and telecommunication network used to gather data and distribute processed data that is useful information. Furthermore, Stair and Reynolds (2010: 10) say that Information System is a group of elements or components interconnected to gather and process data to produce information providing feedback to achieve goals. Thus, it can be said that Information System is related and interconnected components/elements to gather, change and spread processed data result useful for an organization in decision-making.

### 2.5 Components of Information System

O'Brien and Marakas (2010:31) explain that an Information System depends on human resources (system users and system developers), hardware (machinery and media), software (programs and procedures), data (data and knowledge base) and network (telecommunication and network support). As stated by Valacich and Schneider (2016: 48) that Information System has components, such as hardware, software, users and telecommunication network. Similar with Valacich and Schneider's statement, Stair and Reynolds' (2010: 11) opinion state that components of Information System include a set of hardware, software, database, telecommunication network, individuals and procedures. Shelly and Rossenblatt (2011:8) explain that Information System has five main components, they are, hardware, software, data, procedures and individuals.

### 2.6 Management Information System

Management Information System is a group of users, procedure, software, database and devices that provide information for managers and decision makers (Stair and Reynolds, 2012:20). Similar opinion comes from Stair and Reynolds, (2010: 399) that Management Information System is a group of users, procedure, database and integrated devices to assist managers and decision makers in achieving their organization's goals. Then, Bocij, et al, (2015:46) says that Management Information System provides feedback to an organization and support management's decision making. Management Information System refers to a system that changes data into useful information for managers and other users (Turban and Volonino, 2012:31). Management Information System is a system providing feedback on organisations activities and supporting managerial decision-making (Baltzan dan Phillips, 2013:4). From the experts' opinion, it is concluded that Management Information System is a set of Hardware, Software, database, procedures, user and interconnected and integrated telecommunication network

in processing data into useful information to support managerial decision-making process.

## 2.7 The Quality of Management Information System

The Quality of Information System, either Management Information System or Accounting Information System should be integrated (Azhar Susanto, (2013:16)). Heidmann (2008:87-90) says that qualified information system has some dimensions like Integration, Flexibility, Accessibility, Formalization and Media Richness. Similar opinion is from Barrier (2002:263) stating qualified Information System has some perspectives including Easy to Use, Easy of Learning, Flexibility in Use and Security. Then, confirmed by Bocij, et al (2014:392-393). Similarly, Qualified information system is commonly Flexible, Efficient, Accessible and Timely (Stair and Reynolds, (2012:32). Duggan and Reichgelt, (2006:312) state that qualified information system should also be Reliable, Cost Effective Hardware, and Software which fully document assigned tasks without involving obstacles and failures. Khosrow (2011:963, 1351 and 1451) explains that qualified system's characteristics are Easy of Use, Functionality, Reliability, Flexibility, Data Quality, Portability, Integration, Easy to Learning, User Requirement, Customization, and Performance. From the experts' explanation, it is comprehensible that the characteristics of a qualified system are: (1) Integration; (2) Accessibility; (3) Reliability; (4) Flexibility.

## 3 DISCUSSION

### 3.1 Theoretical Framework

Information Technology serves a foundation and framework for companies to build information system needed (Laudon and Laudon, 2016:54). Information Technology used by a company explains how the company's information system works (Turban and Volonino, 2012:46). Similar opinion stated by Reynolds (2009:5) that information technology used by an organization should be integrated so that it can provide support to information system. In line with what has been stated by Valacich and Scheinder (2016: 46) that Information System uses information technology to process data and distribute information. The use of information technology gives impacts to the success of information system implementation in an organization (Rapina, 2015:78-86). This is as claimed by Nelsi Wina (2013: 69-76) saying that the enhancement of information technology quality can improve the quality of information system in universities. Information system with sophisticated technology and the implementation of sustainable information technology increase the efficiency of information system (Abadi, et al, 2013:2408-2414).

### 3.2 Critical Review of The Theoretical Framework

Various opinions stated lead to controversy between Information Technology and Management Information System, where Romney and Steinbart (2015:30) say that the developer of Information system uses Information Technology in order to assist decision makers to be more effective in screening and compacting information. This is also similarly stated by Ward and Preppard (2002:3), that Information System has been available in organizations prior to the emergence of Information Technology, even nowadays there are many Information system in organizations using invisible technology as the term frequently used is Information Technology in

application Information system. Basically, the application refers to the use of Information Technology in supporting activities and business processes in organizations (Ward and Preppard (2002:3)). The result of the research conducted by Sacer and Oluic (2013:117-126) is in line with this, stating that Information Technology influences how Accounting Information System processes, serves, and delivers accounting information. The research of Sacer and Oluic is supported by similar research conducted by Chi-Hung Yeh, et al (2012:197-218) finding that every organization expects to increase competitiveness of a company and the company's transformation through the effective implementation of Information Technology Strategy in measuring how information system capability can influence the implementation of Information Technology Strategy. That is in contrast with Piccoli (2012:12) who claims that information system is fully supported by the application of sustainable Information Technology in its business process. Managers of an organization is obliged to comprehend driver and trend in creating evolution in Information Technology since sophisticated technology continuously adopts new strategy, initiative, and effective management in its application as well as in its increasing number of use to process data into information (Piccoli ((2012:12)). The opinion from Thompson and Baril as well as Piccoli is supported by the result of Allen's research (2000:210-221) that explains the approach of an information technology innovation adoption dominant in creating, implementing, and using Information System. Smith (1999:326-400) also states in his research that it is important for companies to apply Information Technology, as (Management) Information System can be built by Information Technology in order to increase the companies' performance. The argument on Information Technology and Information System creates a polemic in an organization. However, this research refers to the opinion stated by Hart and Gregor (2011:9) that the use of Information Technology is influential to the increase of the use of Information System. Agreeing with Hart and Gregor, Azhar Susanto (2013) explains that Information Technology is a part of Information System as seen in its following components: (1) Hardware; (2) Software; (3) Brainware; (4) Database; (5) Procedure; and (6) Telecommunications Networks and Information Technology refers to technology especially owned by Hardware, Software and Telecommunications Network facilitating users to process data, storing and conveying information. (Ward and Peppard, 2002:3).

## 4 CONCLUSION

From the discussion above, researcher has concluded that Information Technology and Management Information System is related in which Information Technology is a part of (Management/Accounting) Information System. Information Technology is used to support the performance of the (Management/Accounting) Information System. This research is a literature review in which literatures related with Information Technology and Management Information System can be found. Therefore, other researchers are expected to be able to make perfection on this research so that it can provide empirical evidence to make more concrete conclusion about the correlation between Information Technology and Management Information System Quality.

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