

**THE STUDY OF THE INFLUENCE OF INFORMATION TECHNOLOGY
SOPHISTICATION ON THE QUALITY OF ACCOUNTING
INFORMATION SYSTEM IN BANK BRANCHES AT AMAPARA
DISTRICT, SRI LANKA**

Athambawa Haleem¹ & Ismail Raisal²

¹Department of Accountancy and Finance,

²Department of Management

Faculty of Management and Commerce,
South Eastern Eastern university of Sri Lanka.
ahaleem@seu.ac.lk, ismarais@seu.ac.lk

ABSTRACT: This study aims to study the influence of information technology Sophistication (IT Usage Sophistication, IT management Sophistication,) on the quality of accounting information system in bank branches at Amapara District. The bank branches done from a perspective of a leading commercial bank in Sri Lanka. Most of the banks in Sri Lanka are geared for comprehensive banking solutions with extensive branch networks. A total of 228 questionnaires were distributed on random basis to 57 selected banking Branches that are located within the area. A total of 192 completed questionnaires were returned, however, only 134 questionnaires were usable. The population of the study was first divided into sub-population based on sections which comprises of ; i. Accounts opening ii. Cash / Counter iii. Loan / Credit and Recovery iv. Pawning Management functional area at each branch. The questionnaire was distributed to the staff at the four functional areas of the each branch. Data analysis was done using bivariate correlation and linear regression. Pearson's correlation coefficient was used to measure the linear relationship between variables. The analysis revealed that both IT Usage Sophistication, IT management Sophistication has a positive linear relationship with AISQ at bank branches.

Keywords: Information Technology Sophistication, IT Usage Sophistication, IT management Sophistication, Quality of Accounting Information system.

1. INTRODUCTION

The information technology plays a vital role in growing business. IT consists of methods, tools, techniques, sharing data and information (Mohamed, 2003). Moreover, IT is focused as a technique to increase competitive advantage and business value (Barbosa, Rodello, & Padua, 2014; Bin-Abbas & Bakry, 2014). IT mainly focused on producing information which should be accurate, comprehensive and timely available for decision making. Azhar Susanto, (2008) stated that information provides meaning and benefits. Moreover O'Brien & Marakas (2011) posited that information will be used by decision makers.

In the current era, IT radically changes the live, work and knowledge toward the need of the world. As the rapid changes continue in IT, the banking industries moved from paper to the digitalized banking system. As a result of this, bankers have to think and change the perception to invest and run integrated information system to sustain the global competitive market. With the advance new technology, banks are able to deliver new products and services quickly and conveniently and effectively than ever before and also this will effectively distinguishes the success in future. IT has strengthen the financial sector specially banks with the reliable and speed of financial operations. And also new technology has significantly impacted on cost reductions and easy fund transfer too. Banking sectors have taken more advantageous using technology in the following area especially in global financial market such as mobile bank, net banking, electronic fund transfer, online payments, phone banking etc (Dangolani, 2011).

The development of IT and IS has expanded the importance and role of AIS in modern IS globally and nationally (Al-Eqab & Ismail, 2011). The emerging new technology has changed the way the business people's concern on AIS (Ismail and King, 2005). The traditional and legacy of Accounting Information System were incapable to adopt any transform on business process. But the modern AIS with adoption of new technology can produce various type of financial and nonfinancial information to take decisions making and integrates different functionalities with future strategic direction (Mitchell et al., 2000). Review of IT in connection with AIS literatures show that the IT concerned issues is the main attention on AIS researchers. Many researchers have attempted to analyze contingency approach on the organization as well on AIS. Chang, (2001) stated that contingency factors have significant effect on firm performance. Moreover contingency factors were categorized as organizational structure, business strategy, and strategic IT management. Rom and Rohde, (2006) examined the AIS study on the impact IS sophisticated on the role of accountants. Moreover, Ismail, (2004) some studies, focused on the relationship between AIS and IT. Related to this, IT researchers considered IT as technological point of view only, but haven't attempted to research further detailed focus on IT sophistication. The IT sophistication was measured in many research as informational, technological, functional and managerial. Furthermore, the researcher suggested that many research related to IT and AIS were studied in developed nations (Ismail and King, 2005). Very limited scientific of such researches have been conducted in developing nations especially in Sri Lanka.

The aim of this research is to develop a model to find out evidences based on the following question

What is the effect of information technology sophistication on accounting information system (AIS) quality?

Objectives

- To measure the relationship between IT sophistication and AIS quality
- To measure impact of IT sophistication on AIS quality

2. REVIEW OF LITERATURE

1.1 INFORMATION TECHNOLOGY SOPHISTICATION

Turban et al, (2008) stated that IT includes hardware, software, databases, networks, and other electronic devices. Bagranof et al., (2010) stated that information technology (IT) refers to the hardware, software, and system which are used to create an information system for the purpose of organizational needs. In an attempt to explain an integrated view of the diverse approaches to characterizing IT sophistication Raymond and Pare (1992) develop a multi-dimensional construct which includes all aspects related to technological support, information content, functional support, and management practices.

The sophistication term is closely associated with the field of IT. The Oxford Advanced Learner's Dictionary (2005) defined sophistication as the quality of being sophisticated of machinery, technology or computer-based system. The word "technologies" embedded in the AIS term is sufficient to reflect how close computer-based accounting system and IT sophistication are. In fact, Ismail (2009) interchangeably used the AIS sophistication to represent IT sophistication in his study. The author focused on technological sophistication and found that AIS sophistication has a positive relationship towards AIS effectiveness.

Raymond and Pare (1992) define "IT sophistication as a construct which refers to the nature, complexity and interdependence of IT usage and management in an organization". The concept integrates both IT usage and IT management. The concept of IT sophistication and its measurement were first defined and validated by Raymond, Paré and Bergeron (1995), to be subsequently used by other researchers (Chwelos et al., 2001); Henderso & Venkatraman,

1999); Pflughoeft, 2003); Rai et al., 2006). Raymond and Pare (1992) emphasized on four IT sophistication dimensions, namely technological sophistication, informational sophistication, functional sophistication, and managerial sophistication

Raymond et al., (2011) stated that IT sophistication refers the way IT is managed and used by the company. IT sophistication refers to the nature, complexity, and interdependence of the management and use of IT within an organization. IT usage includes informational and technological sophistication; on the other hand IT management includes managerial and functional sophistication.

2.2 Quality of Accounting Information System

AzharSusanto (2013) defined the term AIS that it is a integrated system with each other to process the transactions to produce financial information. Gelinas (2012) defined that AIS is a subsystem of MIS. According to Romney and Steinbart (2006) AIS can be defined as follows: is a system to collect, record, process the data to produce information to take decision by management. Based on the above concepts it can be summarized that AIS is the integrated system that can be used to process the data into information for decision making by the different users (AzharSusanto, 2008; Romney & Steinbart 2012). The term "quality" can mean success (Dellon and McLean, 2003; Seddon, 1997) or effectiveness (Gelinas, 2012), The term "quality" of AIS proposed by Sacer et al (2006) is used to demonstrate the integration of the various components of the AIS. Pornpandejwittaya and Pairat (2012) uses the term "success" to describe the successful application of accounting information systems in areas which are of central concern to the organization, is used extensively by one or more users are satisfied and improve the quality of its performance.

According Weygant et al., (2010) that the AIS quality is dimensioned based on: cost effectiveness; usefulness; flexibility. Unlike Zaied (2012) categorized to measure AIS quality: reliability; usability; adaptability; a trust; maintainability. On the other hand De Lone and McLean (2003) mentioned that the dimensions of the quality of the information system is adaptability, availability, reliability, and usability response time. Based on the description of the dimensions of the quality of accounting information systems above, the dimensions of the quality of accounting information systems in this study are: adaptability, availability, reliability, and usability response time.

3. METHODOLOGY

3.1 Relationship between IT sophistication and AIS Quality

From the foregoing arguments of the literature, a research model (Figure 1) and a set of hypotheses are developed. From the information system perspective, IT can be used to increase organizational information processing capabilities (El Louadi, 1998; Bolon, 1998, Ismail & King, 2006). More recently, Ismail and King (2007) found a significant relationship between IT sophistication and AIS alignment. Wisna (2013) found the effect of information technology on accounting information system (AIS). In line with Ismail and king, Ismail (2009), interchangeably used the AIS sophistication to represent IT sophistication in his study. The author focused on technological sophistication and found that AIS sophistication has a positive relationship towards AIS effectiveness Therefore, it is expected that firms with more sophisticated IT are more likely to have more sophisticated AIS design than those that are not.

In developed economies, Xiao, Savage, and Zhuang (2014) and Hart (2006) consistently found functional, technical, informational and managerial aspects influenced IT sophistication. Moreover, Aleqab and Ismail (2011) confirmed that there is a significant and positive relationship between contingency factors and AIS. Thereby Al-eqab and adel (2013) found a significant and positive relationships between IT sophistication and accounting

information characteristics, Therefore, it is expected that firms with more sophisticated IT are more likely to have influence on AIS quality than those that are not.

H1: There is a positive relationship between IT sophistication and the AIS quality

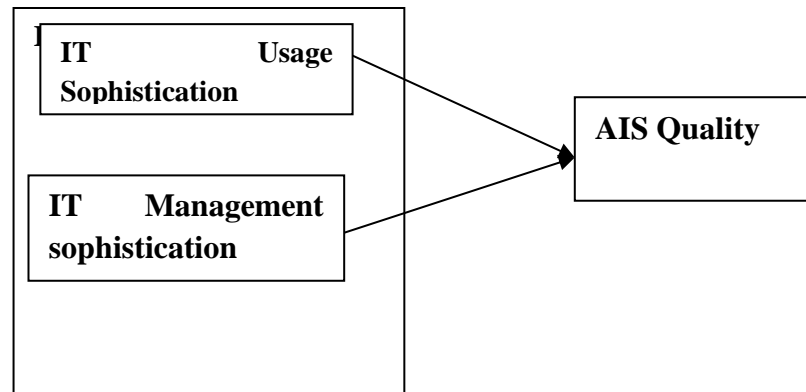


Figure 1: Proposed Model of the IT Sophistication on AIS quality

Since IT sophistication is a multidimensional variable as suggested by Raymond and Pare (1992), the IT sophistication was mainly categorized into two dimensions namely IT usage and IT management. These two dimensions was validated further by (Raymond et al., 2011).The study measure the impact of the strategic role of IT upon the IT management sophistication, the IT usage sophistication and the IT performance of manufacturing. Moreover, the two main dimensions were subcategorized as IT usage sophistication includes technological and informational sophistication, while IT management sophistication includes functional and managerial sophistication on the one hand on the other hand. The general hypothesis above is divided into two sub hypotheses relating each of two dimensions of IT sophistication to AIS quality as follows.

3.2 Relationship between IT usage sophistication, and AIS quality

The IT usage sophistication dimension of IT sophistication was sub categorized technological and informational sophistication. The Technological sophistication which has been used in the literature in various ways such as variety of IT used, hardware characteristics, development tools, man-machine interface, processing mode, and type of operation (Lehman, 1985; Raymond & Pare, 1992). As mentioned before, very few studies investigated the specific relationship between technological sophistication and AIS Quality, whilst these studies found significant and positive relationships between technological sophistication and AISQ. Recently, Ismail and King (2005) stated that many studies have been conducted to understand how IT has been used to support information requirements. Because it is a core assumption in accounting research that sophisticated technologies will provide a sufficient quantity of information for accountants, it follows that such information can be used when designing AIS so that more relevant information can be supplied to managers (Boulianne, 2007). For example, when companies have different types of technologies such as Office Support System (OSS), Decision Support System (DSS), Database System (DS), Enterprise Resources Planning (ERP), Supply Chain Management (SCM), Customer Relationship Management (CRM), Local Area Network (LAN), AISQ

will be taken into consideration these various technologies at hand to achieve enhanced information that will be relevant to end users which will lead to better organizational effectiveness (Devaraj & Kohli, 2000; Gartner Group, 2002). Moreover, as the use of technology in accounting is able to enhance information processing capabilities, thus, affect the quality of accounting information system, Al-Eqab and Azizi (2011) empirically found that technological, informational, functional, and managerial sophistication has a positive relationship to AIS design. In fact, Ismail (2009) interchangeably used the AIS sophistication to represent IT sophistication in his study. The author focused on technological sophistication and found that AIS sophistication has a positive relationship towards AIS effectiveness.

The second sub category named informational sophistication of IT usage sophistication dimension of IT sophistication refers to the type of applications portfolio and integration of these applications (Raymond & Pare, 1992). Targowski and Tarn (2007) concluded that the benefits of the IS implementation has something to do with a concept of the application portfolio. Use of advanced applications such as order entry, budget variances, production variances, budgeting, production planning and control, Just in Time, and activity-based accounting leads to more available and more quickly retrieved information. Hence, it is expected that firms with more sophisticated informational applications will have a higher degree of AIS quality. In the case of AIS Quality, it can be postulated that the more sophisticated the applications adopted by the organization and system, the more sophisticated AIS quality will be. In fact, Ismail (2009) interchangeably used the AIS sophistication to represent IT sophistication in his study. The author focused on technological sophistication and found that AIS sophistication has a positive relationship towards AIS effectiveness. AIS effectiveness is measured based on Delone and MacLean Model of IS success which was developed in 1992. The Delone and MacLean model mainly used information system quality and information quality to measure information success. Therefore, it is expected that companies with IT usage sophistication will improve AIS quality. Thus, the following hypothesizes can be stated as follows.

Hypothesis1a: There is a positive relationship between IT usage sophistication and AIS Quality

3.3 Relationship between IT Management sophistication and AIS quality

IT management was categorized as functional and managerial sophistication. Researchers have used various dimensions such as decisional level and user participation to represent functional sophistication (see for example, Conarth & Mignen, 1990; Tait & Vessey, 1988). Choe (1996) found a significant positive relationship between user participation and AIS design. User participation in IS development, such as participation in programming, participation in system maintenance and problem solving, elaboration of the development schedule, elaboration of development budget, and training of new users on available system can help in the design of AIS by providing ways on how to improve and produce accounting systems that can avoid incorrect administration transactions. At the end, user participation can improve the performance of system design quality by aligning the system to fit the various needs of the organization (Tait & Vessey, 1988).

The term managerial sophistication has been employed in the literature in various ways such as top management support, IT investment, IT adoption process, control of IT, and evaluation of IT (Raymond & Pare, 1992). In addition, nowadays, top management can determine the success or failure of computerization projects because they play a dominant role in IS planning such as financial resource planning, human resource planning, information requirement planning, implementation planning, and post implementation planning (Kanungo & Chouthoy, Cheng & Lin, 2007).

In other words, the extent of planning by top management in IS development is very important because they can decide which kind of IS is able to provide the required information. Therefore, it is expected that in companies where the top management highly participate in IS development and planning more sophistication in accounting information will be accomplished. Hence, the hypothesis can be stated as follows. In fact, Ismail (2009) interchangeably used the AIS sophistication to represent IT sophistication in his study. The author focused on functional and managerial sophistication and found that AIS sophistication has a positive relationship towards AIS effectiveness. AIS effectiveness is measured based on Delone and MacLean Model of IS success which was developed in 1992. The Delone and MacLean model mainly used information system quality and information quality to measure information success. Therefore, it is expected that companies with IT management sophistication will improve AIS quality and Accounting information Quality in ERP environment. Thus, the following hypothesizes can be stated as follows.

Hypothesis2a: There is a positive relationship between IT management sophistication and AISQ.

3.4 Research method

3.4.1 Data collection and sample

Data were collected from banking executives who are attached in banks in Ampara District using a self-administered survey questionnaire. Survey provides a basis for establishing generalisability, allows replicability, and has statistical power. The unit of sampling included all banking institutions in Ampara, Sri Lanka. The names and the addresses of the branches of these financial services institutions were obtained from the web site of each respective institution. A total of 228 questionnaires were distributed to 57 selected banking Branches that are located within the area. A total of 192 completed questionnaires were returned, however, only 134 questionnaires were usable.

The population of the study was first divided into sub-population based on sections which comprises of ; i. Accounts opening ii. Cash / Counter iii. Loan / Credit and Recovery iv. Pawning Management

The design of the questionnaire was based on multiple-item measurement scale. For purpose of this research, the components of IT sophistication and AIS Quality were placed on a five-point Likert scale ranging from strongly agree (5), Agree (4), Neutral (3), Disagree (2), and strongly disagree (1) in form of statement. The respondents were asked to indicate their level of agreement with each statement in relation to IT sophistication and AIS Quality.

4. ANALYSIS

In general the Cronbach's alpha reliability coefficient value expected to be 0.7 or higher is considered as "acceptable" in most social science research. In this research the entire Cronbach's alpha coefficient for IT usage Sophistication (0.900), IT management Sophistication (0.939), and AIS quality (0.930) were more than 0.7 implying that the scales used to measure the influence of IT sophistication on Accounting information System quality were suggesting that the items have relatively high internal consistency (Note that a reliability coefficient of .70 or higher is considered "acceptable" in most social science research situations.)

The KMO measures the sampling adequacy (which determines if the responses given with the sample are adequate or not) which should be close than 0.5 for a satisfactory factor analysis to proceed. Kaiser (1974) recommend 0.5 (value for KMO) as minimum (barely accepted), values between 0.7-0.8 acceptable, and values above 0.9 are superb. Looking at the output, the KMO measure for IT usage sophistication (0.890), IT Management

Sophistication (0.819), and AIS quality (0.817) are more than 0.7. Therefore it has validity and acceptable.

Table 01: Correlation between variables

		Correlations		
		IT USAGE	IT MGT	AISQ
IT USAGE	Pearson Correlation	1	.807**	.797**
	Sig. (2-tailed)		.000	.000
	N	134	134	134
IT MGT	Pearson Correlation	.807**	1	.868**
	Sig. (2-tailed)	.000		.000
	N	134	134	134
AISQ	Pearson Correlation	.797**	.868**	1
	Sig. (2-tailed)	.000	.000	
	N	134	134	134

** . Correlation is significant at the 0.01 level (2-tailed).

This section deals with objective number one which was establishing the relationship between IT Sophistication and AISQ. This research shows that there was a significant and a positive relationship between IT usage sophistication and AIS quality ($r = 0.797$, $P\text{-value} = 0.000 < 0.05$). Moreover, this research revealed that there was a significant and positive correlation exists between IT management Sophistication and AIS quality ($r = 0.868$, $P\text{-value} = 0.000 < 0.05$). And also the multicorlinarity rules ($r > 0.900$) was applied to accept the two independent variables: IT usage sophistication and IT management Sophistication.

Table 2: Model Summary of Multiple Regression Analysis

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.880 ^a	.774	.770	.47924047

a. Predictors: (Constant), IT MGT, IT USAGE

According to the Table 02, the R is the multiple correlation coefficients which show the relationship between the study variables. R can be considered to be one measure of the quality of the prediction of the dependent variable. There was a positive relationship between study variables as shown by $R = 0.880$. R square (R^2) is the coefficient of determination which tells us the variation in the dependent variable due to the changes in the independent variables. R^2 is the proportion of variance in the dependent variable that can be explained by the independent variables. The value R square was of 0.774, an indication that there was variation of 77.4% on AIS Quality at banks located in Ampara district due to the changes in IT usage sophistication, and IT Management Sophistication. The remaining 28.6% was not explained, because the remaining part of the variance in AIS Quality is related to other factors which are not depicted in the model. "Adjusted R Square" takes into account the number of explanatory variables (Xs) and the sample size, i.e., it is adjusted based on the df. Adjusted R Square becomes more relevant as a diagnostic tool when used in multiple regressions.

Table 3: ANOVA table of Regression Analysis

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	102.913	2	51.457	224.044	.000 ^b
	Residual	30.087	131	.230		
	Total	133.000	133			

a. Dependent Variable: AISQ

b. Predictors: (Constant), IT MGT, IT USAGE

The ANOVA table indicates that the mathematical model (regression equation) can accurately explain variation in the dependent variable. The value of p is 0.000 (less than 0.05) provide evidence that there is a low probability that the variation explained by the model is due to chance. We conclude that changes in the dependent variable result from changes in independent variables. In this table, changes in IT Usage Sophistication and IT management sophistication resulted in significant changes in AIS Quality at Banks.

Table 4: Coefficients of Regression Analysis

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients		
		Beta				
	(Constant)	.038	.041		.921	.359
1	IT USAGE	.243	.072	.250	3.385	.001
	IT MGT	.636	.071	.662	8.982	.000

a. Dependent Variable: AISQ

In the above table the Coefficients having p-values less than alpha are statistically significant. Thus P values for IT Usage Sophistication and IT management sophistication is less than 0.05, therefore they are statistically significant. The regression statistical models can be established in this way:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + e$$

Multiple regression equation for this study is given follow;

$$Y (\text{AISQ}) = 0.038 + (0.243* \text{ for IT Usage Sophistication}) + (0.636* \text{ IT management sophistication}) + e$$

As shown in the regression equation it was found out that a unit increase in IT Usage Sophistication would cause an increase in AISQ by 0.243. A unit increase in IT management sophistication would cause an increase in AISQ by 0.636. This shows that there is a positive relationship between AISQ and IT Usage Sophistication, and IT management sophistication in banks in Sri Lanka.

Hypothesis testing

As shown in the multiple regression equation, the intercept (the value for β_0 in the above equation) is located in the “(Constant)” row and is 0.038. the significant value for IT usage sophistication is less than 0.05 ($0.01 < 0.05$). Hence, the Hypothesis I is accepted that there is a positive relationship between for IT usage sophistication and AISQ. And also the

significant value for IT Management sophistication is less than 0.05 ($0.00 < 0.05$). Hence, the Hypothesis 2 is accepted that there is a positive relationship between for IT Management sophistication and AISQ

5. CONCLUSION

The model developed in this study may explain the effect of information technology Sophistication on the quality of accounting information system. This model is able to predict whether the possible dimensions and indicators of adequate information technology Sophistication have been applied in accounting information system. The results are then in particular will show the dimensions of any accounting information system which are major causes of strength information technology in Banks. Thus, based on these research findings, the researcher will propose some suggestions to improve further the information technology Sophistication, so that the quality of accounting information system can be better. Thus, accounting information in Banks can be used in the decision-making required by the internal and external parties of the banks at Ampara District.

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