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Building A Framework For Improving Information Quality In Accounting Information Systems Adoption

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Abstract

Information Quality (IQ) has become a critical, strategic issue in Accounting Information Systems (AIS) adoption. In order to implement AIS adoption successfully, it is important to consider the quality of information use throughout the adoption process, which seriously impacts the effectiveness of AIS adoption practice and the optimization of AIS adoption decisions. There is a growing need for research to provide insights into issues and solutions related to IQ in AIS adoption. The need for an integrated approach to improve IQ in AIS adoption, as well as the unique characteristics of accounting data, demands an AIS adoption specific IQ framework. Thus, this research will investigate the IQ issues emerging during the adoption of AIS systems with the aim of developing a framework to guide organisations on implementing an adequate IQ management approach during the system adoption process. This framework will be developed from case studies by collecting qualitative data (interviews).

Keywords: Information Quality, Accounting Information Systems, Accounting Information Systems Adoption, Information Quality Dimensions.

Introduction

Nowadays, information is one of the main resources used and applied in organisations. Information development is essential for improving or developing new contexts to support management, strategy, and decision making [13, 15, 23]. Furthermore, management information is important in organisations as it requires quality information, to improve the efficiency and effectiveness of their operations for higher profitability and increase productivity. For significant business decision-making, IQ has become an important consideration for any organisation that wants to perform a variety of tasks well. Information Quality (IQ) is the capability of data to be fit for use.

There is strong evidence that IQ issues have become a critical concern for organisations [13, 15]. Salaun and Flores (2001) indicate that, currently, customers require good quality information which is basic to the requirements of business activity and lead to high quality work performance in the partnership between supplier and consumer [23]. According to Lee, Strong et al (2002), the growth of data warehouses has increased the need for quality data in organisations to perform well, obtain competitive advantage, and survive in today's global economy [13]. Thus, data management is important in organisations, in order to support and develop different departments in corporations by enabling work processes of all sorts as well as decision-making.

In particular, accounting is essential in making economic decisions. Furthermore, accounting and management decision-making is dependent on the fit of the accounting information system with the organisation's requirements. Therefore, organisations must pay attention to the efficiency of their accounting information systems. In order to implement AIS successfully, it is important to address the quality of information adoption, to manage all the processes of accounting systems. Thus, this research intends to study this perspective of IQ management in AIS adoption.

Research Questions

The goal of this research is to develop a framework for information quality management to provide guidance for AIS adoption. In terms of achieving this objective, the following questions will be investigated:

1. What are the appropriate IQ criteria for AIS adoption?

2. How do you choose and use (adopt) an accounting information system that best achieves these criteria?

This research will be conducted in accounting firms in Thailand which have, or intend to, adopt and implement accounting information systems. The focus of this research is not on the design of AIS systems, but on helping organisations to choose / acquire better AIS systems to match their IQ requirements. However, it is anticipated that the research results will also be useful to AIS developers for better system design.

Manirath Wongsim, Jing Gao

Research Objective

This research addresses various case studies from different organisations related to IQ management in AIS adoption. Outcomes of this research will contribute to providing an IQ framework specifically for AIS adoption, for guidelines on how to ensure information quality in AIS adoption. The framework encapsulates the critical IQ factors derived from internal as well as external organisations.

Preliminary literature reviews

Information quality problems can impact on operations, increase costs and lower worker job satisfaction, while increasing customer dissatisfaction [19]. In a modern world, information quality is potent in that it directs the business's future. This is because good information quality can lead to success while poor information quality can lead to failure of the business [1, 19, 20]. Consequently, information quality criteria have become important considerations for any organisation that wants to carry out a variety of processes well.

In particular, accounting can be seen as important to the information quality capacity to help business growth. Moreover, accounting information is useful to those who need to make decisions and plans about the business [22]. At the same time, accountants require accounting systems to manage all the processes of accounting in the organisation, which involves quality information in order to function effectively. In order to implement an AIS successfully, it is important to consider the quality of the system and the quality of information used throughout the adoption process [4, 16].

In order to ensure information quality in AIS adoption, it is important to understand the underlying appropriate IQ criteria specifically for AIS adoption. However, no standard definition exists today; there have been some studies of qualitative characteristics in accounting quality management, such as FASB, IASB, AARF, and SAC3. Some of the IQ literature also addresses the critical points and steps for IQ adoption systems. Figure 1 shows the related research efforts and reflects whether these research efforts address certain issues or elements of IQ criteria factors of quality or information quality management.

Furthermore, accounting information system is dependent on the accounting standard and law each county [9, 22]. And also considering the importance of information quality in accounting and the profession's dependence on AIS systems, it is important for any accounting firms to incorporate the IQ requirements during the system adoption process (especially in the cases of adopting a commercial AIS system, of which the system design cannot be altered). Thus, this research tries to develop an adequate framework to provide such guidance.

AIS uniqueness

AIS have been a unique software application and work process for defining. In specifically, finding from Davila, Foster et al (2004) state that management AIS is the initial framing of the accounting adoption decision under accounting standard [3]. Many organisation concern to manage all process of accounting information system is dependent on the accounting standard and law each county [3, 9, 22]. According to Naomi s & Kevin s 2007 argue that three factors to affects specific as accounting quality such as the quality of the standard, a country's legal and political system, and financial reporting incentives. This is specific in accounting information system.

Moreover, finding from Rom and Rohde (2007) indicate that data integration in accounting system should be studied more narrowly and specifically [21]. Especially, information produced for financial accounting purposes is used for management accounting purposed as well. Furthermore, base on this finding, Granlund, M. and T. Malmi (2002) argues that the relationship between ERP system and management accounting techniques used have not changed significantly. However, ERP system are considered to be an important data source for most new accounting practised, but not an incentive for accounting adoption[8]. In addition, according to Kaplan (1988) argues that one cost system is insufficient. Organisations need a system for each purpose. The same system cannot provide information for financial accounting, operational control and product cost measurement [11]. The characteristics of management accounting techniques are different in a number of ways such as allocations, frequency, precision, scope, etc.

AIS systems have been specific considering the importance of information quality in accounting and the profession's dependence on AIS systems (Xu 2000). This is important for any accounting firms to incorporate the IQ requirements during the system adoption process (especially in the cases of adopting a commercial AIS system, of which the system design cannot be altered).

Factor influence in AIS

The findings from the pilot case study indicated that adopting management accounting systems is important in an organisation, for it to support effective in business, decision-making and growth. AIS Adoption is affected by internal organisation such as the organisation behavior, organisation culture, business objective, policy, strategy, communication, size organisation, top management, system development, management support, and external organisation such as social environment, regulatory environment, legal environment, ethics and accounting standards—GAAP, TFASB, AARF, FASB, government agencies, IT

Manirath Wongsim, Jing Gao

Governance, and comptroller general's department in Thailand. The result indicated that the impact of factor influencing AIS effort to develop accounting system to obtain competitive advantage and survive in today's global economy.

Information Quality

According to Wang (1998) and Kahn, Strong et al (2002), information quality has the critical aspect of fitness for use by data consumers; fitness for use requires that data must continually satisfy the needs of the user [10, 24]. Thus, information quality management is important in organisations, in order to support and develop different departments in corporations by enabling work processes of all sorts as well as decision-making. Moreover, according to Lee, Strong et al. (2002), organisations are highly concerned by the problems of their information quality. Organisations propose to improve information quality by identifying interdependencies between information and organisation processes. Thus, adequate information quality management must be discussed in relation to the existing business processes in organisations [2, 13].

Information Quality in AIS

Accounting and management decision making are concerned with the appropriateness of the AIS for the organisation's requirements for information communication and control [7, 14]. More specifically, accounting can be seen as important to the information quality and information system capacity to help business growth and increase profit. Furthermore, the accounting system and accounting information system require quality information and system processes in order to function effectively (as show in Figure 2).

Xu (2003) indicates that the element of IQ management is important to accounting systems' consideration in all processes of the AIS(Xu 2003). Moreover, the quality of the information provided is important to the success of an AIS. In particular, AIS require information quality management to improve work processes of all sorts as well as decision making. In order to ensure IQ in AIS, it is important to understand the appropriate IQ criteria specifically for AIS system [27].

Moreover, findings from Krishnan, Peters et al. (2005) show that the reliability of accounting data needs to meet organisation elements of information quality, to diagnose issues, and control the business [12]. In addition, AIS requirements legislated in the accounting standards have made data reliability assessment of great importance in organisations, particularly for accounting data. Also, accounting information requires improved quality of information to create and add value so that organisations become trustworthy and reliable. Therefore, organisations must pay attention to IQ management in AIS adoption, as it can add value to an organisation through actions that can be performed more effectively and efficiently.

Important IQ dimensions

In order to high quality information, it is important to identify IQ dimension as business requirements. IQ dimension is primarily an aspect of information quality which can help organisation to satisfy business objectives, and understand the requirements for delivering high-quality information [10]. According to Chutimaskul, Funilkul & Chongsuphajaisiddhi (2008), information quality has the characteristics of confidentiality, integrity, compliance, availability, effectiveness, reliability, and efficiency. These information quality characteristics are relevant to all data management processes adopted by individuals, corporations, governmental organisations, educational institutions, and virtually any other organisation [8].

Consequently, quality of information should be concerned with the efficiency to the user of the information. In the accounting management lifecycle, the utility of accounting information depends upon its potential to influence users' decision making [6].

Table 1. IQ Dimensions in AIS adoption

IQ Dimensions	Author
Relevance	Delone and McLean, 1992; Goodhue, 1995; Wang, Storey, and Firth, 1995; Jarke and Vassiliou, 1997; Kahn, strong, and Wang, 2002; Lee, Strong, and Kahn, 2002; FASB; IASB; AARF; SAC3;COBIT; ITIL.
Reliability	Delone and McLean, 1992; Goodhue, 1995; Wang, Storey, and Firth, 1995; Jarke and Vassiliou, 1997; Kahn, strong, and Wang, 2002; Lee, Strong, and Kahn, 2002; FASB; IASB; AARF; SAC3;COBIT; ITIL.
Effectiveness	COBIT; ITIL.
Efficiency	COBIT; ITIL.
Confidentiality	COBIT; ITIL.
Comparability	Delone and McLean, 1992; Jarke and Vassiliou FASB; IASB; AARF; SAC3.
Compliance	COBIT; ITIL.
Integrity	COBIT; ITIL.
Availability	Jarke and Vassiliou, 1997; COBIT; ITIL.
Understand ability	Zmud, 1978;Delone and McLean, 1992; Wang, Storey, and Firth, 1995; Jarke and Vassiliou, 1997; Kahn, strong, and Wang, 2002; Lee, Strong, and Kahn, 2002; SAC3;COBIT; ITIL.
Accuracy	Ballou and Pazer, 1985; Delone and McLean, 1992; Goodhue, 1995; Wang, Storey, and Firth,

Manirath Wongsim, Jing Gao

IQ Dimensions	Author
Objectivity	1995; Jarke and Vassiliou, 1997; Kahn, strong, and Wang, 2002; Lee, Strong, and Kahn, 2002;Xu,2003; Zmud, 1978; Wang, Storey, and Firth, 1995; Kahn, strong, and Wang, 2002; Lee, Strong, and Kahn, 2002.
Accessibility	Delone and McLean, 1992; Wang, Storey, and Firth, 1995; Jarke and Vassiliou, 1997; Kahn, strong, and Wang, 2002; Lee, Strong, and Kahn, 2002;
Security	Wang, Storey, and Firth, 1995Kahn, strong, and Wang, 2002; Lee, Strong, and Kahn, 2002;
Completeness	Zmud, 1978; Ballou and Pazer, 1985; Delone and McLean, 1992;Wang, Storey, and Firth, 1995; Jarke and Vassiliou, 1997; Kahn, strong, and Wang, 2002; Lee, Strong, and Kahn, 2002;Xu,2003.
Timeliness	Zmud, 1978; Ballou and Pazer, 1985; Delone and McLean, 1992;Wang, Storey, and Firth, 1995; Jarke and Vassiliou, 1997; Kahn, strong, and Wang, 2002; Lee, Strong, and Kahn, 2002;Xu,2003.

In this research, IQ dimensions are identified as relevance, reliability, comparability, understandability, availability, effectiveness, efficiency, confidentiality, accessibility, integrity, compliance, accuracy, objectivity, security, completeness, and timeliness, as identified from the literature and business requirements for information by pilot case studies, as shown in Table 1. These information quality criteria are relevant to all data management processes adopted by organisations.

A set of comprehensive essential dimensions of information quality for delivering high quality data has been determined as follows [24]: Intrinsic, Contextual, Accessibility, and Representational.

AIS adoption process

Fig 1 show that summary of case studies findings-AIS adoption process finding for pilot case study by different types of organisation as large public organisation, large private organisation to obtain a refined perspective on AIS adoption processes. The pilot case study was conducted to verify the framework developed to explore IQ management as related to organisational AIS. The AIS adoption process model show that the adoption of process management for accoutning management systems is using technology-adoption to support operation, strategic

management, and decision making in the firm. The model reference framework defines 36 high-level control objectives for AIS adoption processes. These categories were identified as AIS System Selection, AIS System Implementation and AIS System Use.
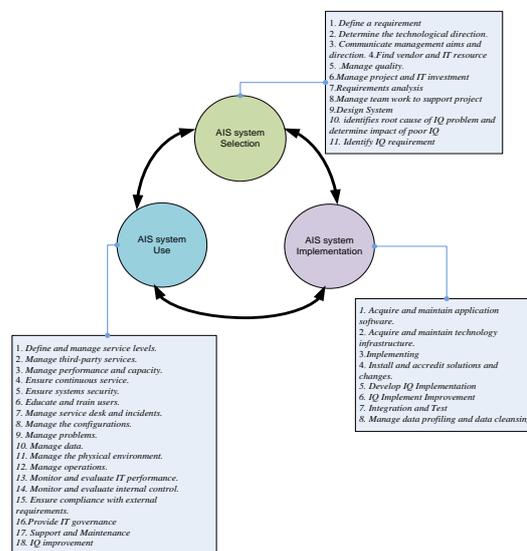

Fig 1 AIS adoption process model

Mapping the IQ dimensions into the adoption process

Several authors (e.g. Wang, 1998; Kahn, Strong at al, 2002) argues that IQ dimension is important role in influencing information quality. Base on this finding, Kahn, Strong at al (2002) indicates that IQ dimension is primarily an aspect of product quality or service quality. They were mapping the IQ dimensions into the PSP/IQ model to help ensure information quality benchmarks. In addition, according to COBIT framework indicates that information quality in adoption process used information quality dimensions into all the process of adoption systems. To satisfy business objectives, information needs to conform to certain control criteria, which COBIT refers to as business requirements for information quality.

Therefore, in this research, ties to identify the IQ dimension combines from IQ of IS and IQ of AIS (show in table 1) into the adoption processes (show in fig 1). Fig 2 show that adoption process and domain, of which IQ dimension is impacted by control objectives and business requirements. It is important to matching the IQ dimensions into individual adoption stages, the factors which impact information quality in adoption process have been identified from a literature review. In adopting AIS, IQ dimension is potential to influence decision making in each process adoption.

The proposed IQ in AIS adoption framework

With in framework, these elements of IQ issues are

Manirath Wongsim, Jing Gao

important to researchers and are developed in the theoretical framework of this research which is shown in fig.2. Davila, Foster et al (2004) state that adopting management accounting systems is important in an organisation, for it to become effective in business, decision making, and growth. In accounting systems, adoption of an AIS is defined as using computer hardware and software applications to support operations, strategic management, and decision making in the business [8, 6, 12, 16]. However, AIS adoption is affected by internal organisation aspects and external organisation factors. Thus, it is important to understand the underlying factors that influence the AIS adoption.
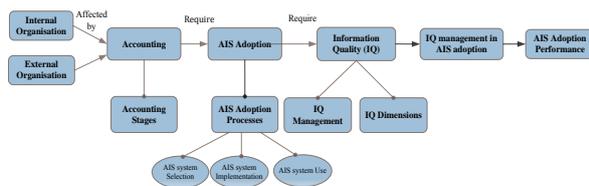

Fig. 2. IQ management in AIS adoption framework

In particular, accounting systems adoption requires quality information in order to function effectively, in which the level of information quality is critical for all accounting system processes. Information quality criteria are relevant to all data management processes adopted by an organisation. Thus, organisations need to apply information criteria to organize and control all stages of AIS and AIS adoption (shown in table 1). This framework links IQ management efforts to AIS adoption performance. The framework is developed based upon the existing literature review and the exploratory pilot case study.

Development of the Research Framework

The findings from the pilot study used together with the available literature to build the research framework, which was include the critical IQ factors derived from internal organisations as well as external organisations. The framework provides guidelines on how to ensure quality in AIS adoption. Fig.2 shows information quality management has a significant impact on decision making within AIS adoption. The initial exploratory research will also be used to re-design the interview protocol and data collection procedures, which will be used in the next stage.

The third stage will use case studies as confirmatory evidence, conducted as multiple case studies. The development of the case study methodology is recommended by Yin (2009), who suggests that the researcher must possess or acquire the necessary skills. Case study research design is also recognized by IS researchers as providing important contributions in case study design [29] which will be used in next stage.

1) Multiple Case Studies
The third stage of this research will be conducted as multiple case studies to validate results. A case study

protocol must be part of every case study project and must address issues such as project objectives, case study issues, literature and research. Field procedures include access to field sites, sources of information, location of those sources and a guide for the case study report. This study will use in-depth interviews with key stakeholders, conducted to examine the applicability of the proposed factors compared to the factors that impact information quality in AIS adoption in practice.

2) Case Selection
In this research, the selection of cases in this study was purposefully carried out in order to achieve theoretical and literal replication. Cases are selected containing the three dimensions: industry type, and the sizes and types of organisations. The first dimension, there are different types of business - agricultural, financial, industrial, education and government. The second dimension relates to organisation sectors, consisting of public and private groups. The third dimension focuses on the size of various organisations, especially large corporations and SMEs. The selected organisations are from Thailand but enable the dimensions to be addressed.

3) Data Analysis
According to Yin (2008), analysis of evidence achieved through investigation should be based on a general methodical strategy such as theoretical propositions or case description. The developments of the case study methodology are procedures for linking data to propositions and criteria for interpretable finding.
In this research, data gathered from case studies will be qualitative. The qualitative data analysis methods will use pattern-matching, content analysis, and cross-case synthesis.

1. Pattern-matching analysis will use to logic approach compares an empirically based pattern with what is predicted to occur from all cases. If the patterns coincide, the results can help a case study to strengthen its internal validity [28].
2. Content analysis will use to enhance understanding of the data and natural phenomena from all cases. According to Elo and Kyngas (2007), indicate that content analysis is widely used in qualitative research techniques for describing and quantifying phenomena [5].
3. Cross-case analysis will use to gain insights into the factors from summaries and analyses of the findings from all cases. According to Yin (2008), the emphasis on data demonstrates assists in ensuring transparency, and the results of the synthesis are likely demonstration to be capable of being readily converted to qualitative variables.

Findings and Discussion

Base on finding from literature, AIS is specific

Manirath Wongsim, Jing Gao

software application and manage process. Finding from Kaplan (1998) indicate that enterprises should be operated management accounting outside the ERP system because the same system can not provide information for financial accounting. What's more, Malmi (2001) and Scapens and Jazayeri (2003) find that the relationship between ERP system and management accounting techniques used have not changed significantly. However, ERP system are considered to be an important data source for most new accounting practiced. The characteristics of management accounting techniques are different in a number of ways such as allocations, frequency, precision, scope, etc.

Moreover, according to Rom and Rohde (2007) indicate that data integration in accounting should be studied more narrowly and specifically. And also several authors (e.g. Davila, Foster et al, 2004; Naomi and Kevin, 2007;Ismail, 2009; Romney and Steinbart, 2009) state that in organisation must be attention under accounting standard and law each country[3, 9, 22].

In particular, recently when adopting AIS, some organisation used AIS vendors for adopting accounting systems by the software vendors to the organisations who want to adopt their solutions. Other organisation used generic framework adoption by COBIT, ITIL, and SDLC to guideline on how to select and adopt AIS systems, but no specific for AIS adoption.

Finding from literature, most of the research concerning AIS has focused on the management of internal controls, design of an accounting information system and auditing [2, 17]. Few studies have attempted to understand how to choose and use (adopt) AIS systems well, in organisations, to meet all IQ requirements.

Interestingly, IQ management specific to AIS adoption is a new area, there is a growing need for research to provide insights into issues and solutions related to IQ management in AIS adoption. A number of generic IQ frameworks have been proposed in the literature, but none of them has actually looked into the area of AIS adoption. There is a lack of knowledge and of a standards framework for information quality management in accounting information systems adoption that can assist organisations to ensure and improve accounting information quality

Conclusions

This research provides the overview of the studies that have been discussed in the literature and propositions based on the evidence. In order to implement this research, it will be necessary to conduct case studies and collect information from the user's perspective by interview. In addition, an AIS adoption specific IQ framework will be developed, drawing on the substance of knowledge linked to IQ management in terms of AIS adoption by organisations.

A preliminary theoretical framework for information

quality management in accounting information systems adoption was developed in this research after a detailed literature review and two pilot case studies. Based on this framework two research questions have also been developed. These research questions will be investigated by using theory building and testing research methodologies described in further research.

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Manirath Wongsim, Jing Gao

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