PhD Proposal
Information Quality Management in Accounting Information Systems Adoption

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Abstract

Information Quality (IQ) Management plays a vital role in the process of Accounting Information Systems (AIS) adoption. IQ is becoming a well-known business problem in modern organisations. Especially, the level of information quality is critical for all accounting processes, which has a significant impact on business decision-making. It must be noted that modern organisations rely heavily on the use of accounting information systems for their accounting processes. Thus, this research will investigate the IQ issues emerged during the adoption of AIS systems with the aim of developing a framework to guide the 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).
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1. Introduction

Information is one of the main resources used and applied in organizations. Information development is essential for improving or developing new contexts to support management, strategy, and decision making (Strong, Lee et al. 1997; Levitin 1998; Redman 2008). For example, managers use information to make operational decisions related to production, ordering and scheduling. Accountants use information to prepare financial statements and documents including financial reports. However, in real world practice, the poor quality of information may impact the quality of decision-making. For example, a general backlog in the data entry section will delay inventory record updates and cause problems in inventory ordering (Martin and Lam 2003). The lack of quality information leads to customer dissatisfaction, increased operation costs, reduced ability to make and execute strategy, and lack of effective decision making (Redman 1998). Consequently, information quality issues have become important considerations for any organisation that wants to perform a variety of tasks well.

In particular, accounting is essential in making economic decisions. Its function is to provide and analyse financial information from one person to one or more people (Hoggett, Edwards et al. 2006). Furthermore, accounting and management decision-making is dependent on the fit of the Accounting Information Systems (AIS) with the organization requirements. Therefore, AIS plays an important role in business management, and strategic plans (Ismail and King 2005; Sirisom, Phonnikornkij et al. 2008). In addition, AIS is a part of the Management Information System (MIS) that applies accounting software to process accounting information (Romney, Marshall B 2009). For example, Wal-Mart solved problems and improved organisational performance by strategically using AIS. AIS led Wal-Mart to success by enhancing value chain activities and also developing operations (Romney, Marshall B 2009). Therefore, a well managed and designed AIS can improve work performance and increase the efficiency of activities as well as help organizations to make profits by improving the quality and reducing the cost of products or services, sharing knowledge and improved decision making (Romney, Marshall B 2009).
Information quality (IQ) within AIS adoption is concerned with the quality of the information provided; this, it is critical to the success of accounting information systems (Kaplan, Krishnan et al. 1998; Xu 2003). Adopting management accounting systems is important in an organisation. Adopting AIS is using technology-adoption to support operation, strategic management, and decision making in the firm. In order to adoption AIS successfully, it is important to consider the quality of information use throughout the adoption process (Delone and McLean 2003; Nelson and Todd 2005). Therefore, organizations must pay attention to information quality within AIS adoption as well as seek to improve it effectively.

Information quality management has become important for the achievement of AIS adoption. It is vital to monitor, update and pay greater attention to improving the quality management of information to create and add value so that organizations become trustworthy and reliable (Kahn, Strong et al. 2002). Therefore, this research intends to study the perspective of IQ management in AIS adoption.
2. Definitions

*Information Quality (IQ)* is the capability of information to be fit for use (Wang 1998; Kahn, Strong et al. 2002; Parker, Moleshe et al. 2006).

*Information Quality Management* focuses on the processes, tools and procedures employed to maintain quality information (Wang 1998; Kahn, Strong et al. 2002; Parker, Moleshe et al. 2006).

*Accounting* is concerned with the collection, analysis and communication of economic information (McLaney and Atrill 2005).

*Accounting Information System (AIS)* is a system that collects, records, stores and processes data to produce information for decision makers (Romney and Steinbart 2009)

*Information System Adoption* is using software applications to support operations, management, and decision making in the business (Thong 1999).

*Accounting Information Systems Adoption* is the use and chooses of software applications to support operations, strategic management, and decision making in accounting information system (Thong 1999; McLaney and Atrill 2005; Hoggett, Edwards et al. 2006; Romney and Steinbart 2009).
3. Literature Review

The literature review will address areas including information quality, accounting, accounting information systems, accounting information systems adoption, and quality of information management that are relevant to the research problems. In addition, background theories will be used to focus on the research impact and develop a theoretical framework for this research.

3.1. Information Quality

According to Wang (1998) and Kahn, Strong et al (2002), information quality has the critical aspect of fitness for use by information consumers; fitness for use requires that information must continually satisfy the needs of the user. 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 processed adopted by individuals, corporations, governmental organizations, educational institutions, and virtually any other organization (Olson 2003). Consequently, quality of information should be concerned with the efficiency to the user of the information.

3.1.1 Importance of information quality

Information quality (IQ) has become a critical concern of organizations (Lee, Strong et al. 2002; Michnik and Lo 2009). 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. According to Lee, Strong et al (2002), the growth of data warehouses and the direct access of information from various sources by managers and information users have increased the need of quality of information in organizations. Information management is important in organisations as it requires supporting and developing different departments in corporations by enabling work processes of all sorts as well as decision-making. In addition, Michnik and Lo (2009) state that online businesses always rely on information quality due to information-sharing requirements in different departments, at all stages of the communication.
3.1.2 Information Quality Dimensions

Table 1 Information quality category and dimensions (Wang 1998)

<table>
<thead>
<tr>
<th>IQ Category</th>
<th>IQ Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intrinsic IQ</td>
<td>Accuracy, Objectivity, Believability, Reputation</td>
</tr>
<tr>
<td>Accessibility IQ</td>
<td>Access, Security</td>
</tr>
<tr>
<td>Contextual IQ</td>
<td>Relevancy, Value-Added, Timeliness, Completeness, Amount of data</td>
</tr>
<tr>
<td>Representational IQ</td>
<td>Interpretability, Ease of understanding, Concise representation, Consistent representation</td>
</tr>
</tbody>
</table>

Information quality has been described by dimensions such as accuracy, timeliness, completeness, consistency (Wang, Storey et al. 1995; Wang 1998; Pipino, Lee et al. 2002; Xu, Nord et al. 2002). According to Wang (1998), information quality categories were identified as intrinsic IQ, accessibility IQ, contextual IQ and Representational IQ. Information quality categories and dimensions represent measurement components within IQ metrics, as shown in Table 1.

However, these categories are not general information quality elements. It depends on the research area and proposed use of research (Wang, Storey et al. 1995). The choice of IQ dimensions in this research is discussed in next sections.

3.1.3 Information Quality Problems

Information quality problems can impact on operations, increase costs and lower worker job satisfaction, while increasing customer dissatisfaction (Redman 1998). 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 (Redman 1998; Bovee 2004; Redman 2008). Bovee (2004) states that poor quality information has resulted in
controversy and adversity, clinical accidents, lost productivity, and failed enterprise. For instance, customers expect that their names and addresses, item of products and services need to be correct (Bovee 2004). In most cases, the costs of poor information quality are not only ignored but subsumed into the overall category of the cost of doing business (Redman 1998).

3.1.4. Information Quality in Information Systems

Information quality in information systems such as information quality and IT auditing, information quality frameworks, information quality related software and information quality and organisation processes discussed in detail in the next sections.

3.1.4.1. Information Quality and IT Auditing

The computer auditing (also known as IT auditing) embraces a selection of computer-assisted audit techniques (CAATs) (Cerullo and Cerullo 2003). Auditing requires a step-by-step approach characterized by scrupulous planning and well-selection and execution of appropriate techniques (Romney and Steinbart 2006). Currently, IT auditing is known as the computer-aided process to check the adequacy of system controls, data, and output (Romney and Steinbart 2006). Among which, data and information quality is a key area in any IT auditing processes. It must be noted that a number of information quality assurance processes and frameworks are adopted in IT auditing. Examples are discussed in the next section.

3.1.4.2. Information Quality frameworks

A number of Information Quality frameworks are identified through the preliminary literature review (as listed in Table 2). These frameworks are constructed to provide a comprehensive coverage of IQ problems, related activities, and context-driven IQ dimensions (Stvilia, Gasser et al. 2007). Additionally, these IQ frameworks can also be used as knowledge resources to provide guidelines on how to ensure information quality for various environments (Parker, Moleshe et al. 2006; Stvilia, Gasser et al. 2007). Table 2 has summarised the IQ frameworks identified from the literature (between 2001 and 2008) and the key areas that these frameworks are applied.
### Table 2 Information Quality framework

<table>
<thead>
<tr>
<th>Author (Year of Publication)</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leung (2001)</td>
<td>Intranet</td>
</tr>
<tr>
<td>Eppler (2001)</td>
<td>Knowledge Management</td>
</tr>
<tr>
<td>Pierce (2004)</td>
<td>Data Quality Assessment</td>
</tr>
<tr>
<td>Price &amp; Shanks (2005)</td>
<td>Information Science</td>
</tr>
<tr>
<td>Blechar &amp; Friedman (2005)</td>
<td>Data Quality Improvement</td>
</tr>
<tr>
<td>Friedman (2005a)</td>
<td>Data Quality Methodology</td>
</tr>
<tr>
<td>Neely (2005)</td>
<td>Data Quality Analysis</td>
</tr>
<tr>
<td>Even &amp; Shankaranarayanan (2005)</td>
<td>Data Quality Assessment</td>
</tr>
<tr>
<td>Fletcher, Robbert, Mohamad &amp; Middleton (2005)</td>
<td>Data Quality Monitoring</td>
</tr>
<tr>
<td>Strong &amp; Volkoff (2005)</td>
<td>Integrated Enterprise System</td>
</tr>
<tr>
<td>Garcia-Molina (2005)</td>
<td>Entity Resolution</td>
</tr>
<tr>
<td>Hariharan, Shmueli-Scheuer, Li &amp; Mehrotra (2005)</td>
<td>GIS Data</td>
</tr>
<tr>
<td>Russom (2006b)</td>
<td>Enterprise Information Management</td>
</tr>
<tr>
<td>Friedman (2007a)</td>
<td>Data Stewardship</td>
</tr>
<tr>
<td>Caro, Calero &amp; Piattini (2007)</td>
<td>Portal Data Quality</td>
</tr>
<tr>
<td>Friedman (2007b)</td>
<td>Data Quality Metrics</td>
</tr>
<tr>
<td>Nigier, Goasdoue, Duquennoy &amp; Laboisse (2007)</td>
<td>DQ Tool Evaluation</td>
</tr>
<tr>
<td>Stvilia (2007)</td>
<td>Information Quality Change</td>
</tr>
<tr>
<td>Even &amp; Shankaranarayanan (2007)</td>
<td>Data Quality Assessment</td>
</tr>
<tr>
<td>Klein (2007)</td>
<td>Sensor Data</td>
</tr>
</tbody>
</table>

10
Table 2 Information Quality frameworks (continued)

<table>
<thead>
<tr>
<th>Author (Year of Publication)</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friedman (2008)</td>
<td>Enterprise DQ Improvement</td>
</tr>
<tr>
<td>Thoo &amp; Friedman (2008)</td>
<td>IT Delivery</td>
</tr>
<tr>
<td>Richardson &amp; Friedman (2008)</td>
<td>Business Intelligence</td>
</tr>
<tr>
<td>Cutt &amp; Lawrence (2008)</td>
<td>Sensor Data</td>
</tr>
<tr>
<td>Hua &amp; Pei (2008)</td>
<td>Data Cleaning</td>
</tr>
<tr>
<td>Kou (2008)</td>
<td>Data Quality Improvement</td>
</tr>
</tbody>
</table>

Source: developed from the literature review, Eppler & Wittig (2000), Knight & Burn and Lin 2008

However, many of these information quality frameworks may not be relevant and applicable in this research due to the factor that the characteristic of data quality can diversify and depend on the context which data is to be used (Shankar & Watts cited in Knight and Burn 2005). Nevertheless, these IQ frameworks will help the researcher to obtain in-depth understanding of various IQ issues.

3.1.4.3. Information Quality Related Software

Today’s most of companies use software systems to help routine work (Hoggett, Edwards et al 2006). Indeed, software quality is become important for the achievement of business activities. In organisations, software helps to provide adequate management of the collection, reliability, up to date, sharing information and enhancing decision making (Romney and Steinbart 2006). Therefore, many firms must pay attention for software quality to improve quality of information. Among all organisational software systems, a special set of software applications are developed to focus on the data and information quality problems, often known as data profiling and cleansing software.

The data profiling and cleansing software utilises various data quality metrics to detect data errors, maintain high data quality by filling in missing data, correct wrong data, and consolidate duplicate occurrences (English 2005; Maydanchik 2007). The popularity of these software applications also leads to the development of a wide range of methods and special algorithms designing to enhance the
accuracy of existing data (English 2005; Maydanchik 2007). As a result, user confidence of the existing data can be improved.

3.1.4.4. Information Quality and Organisation Processes
Information Quality has become critical in organisation (Lee, Strong et al. 2002; Wang, Pirce et al. 2005). Organizations are highly concerned to the problems of their information (Wang, Pierce et al. 2005). To improve information quality, it is critical to understand the relationship between information and organization processes (Wang, Pierce et al. 2005). For example, Lee, Strong et al. (2005) propose to improve information quality by identifying interdependencies between information and organization processes. Thus, the adequate information quality management must be discussed in relation to the existing business processes in organizations (Xu 2003; Choe 2004).

3.2 Accounting
Accounting is important to report financial information for a business entity and a service activity (McLaney and Atrill 2005; Hoggett, Edwards et al. 2006; Romney and Steinbart 2006). The function provides and analyses financial information that is intended to be useful in making economic decisions. In addition, elements which are financial in nature include business entities, government departments, charitable organizations and not-for-profit organizations, family units and individuals. They all engage in economic activities which involve decision making about allocating available resources effectively. People need relevant information to be able to make sound economic decisions (Hoggett, Edwards et al. 2006).

In addition, the length of the accounting period depends on the needs of concerned parties (Hoggett, Edwards et al. 2006). During each period, steps and procedures are followed within the accounting function to properly record all transactions and records are kept to ensure that the financial statements can be prepared for the accounting period. The time frame is referred to as the accounting cycle.

3.2.1 Evolution of the accounting
Nowadays, accounting is the system which measures business activities (Hoggett, Edwards et al. 2006). It processes activities in businesses into reports and communicates the results to users. In accounting systems, all recording,
processing, analysis and report preparation were originally done manually. This system was acceptable when businesses were small and had a limited number of transactions. And also an integrated accounting system was designed to provide small and growing enterprises with an effective accounting tool (Hoggett, Edwards et al. 2006).

The growing volume of transactions and the repetitive nature of accounting tasks led to the use of machines to increase the speed and accuracy of processing; special functional machines called accounting machines were introduced as part of the process. Finally, electronic computers were introduced to the accounting system, and today’s accountants must have knowledge of computer systems. The accounting system is now only one component of an organization’s total management information system (Hoggett, Edwards et al. 2006).

In businesses as a result of developments, methods of recording, processing and preparing reports have changed over time (McLaney and Atrill 2005; Hoggett, Edwards et al. 2006; Romney and Steinbart 2006). Data entry has progressed from handwritten source documents to direct entry via computer terminals or product code scanners.

![Diagram of accounting system evolution](image)

**Figure 1. Evolution of accounting (Hoggett, Edwards et al. 2006)**

The processing of data uses tools ranging from individual personal computers to enterprise servers; technology has undergone changes with the result that output can now be produced the instant data are entered into the system. Alternatively, the use of a commercially available accounting information system in a business, to develop an accounting system, must be based on a thorough understanding of the business and the operations (Hoggett, Edwards et al. 2006).
3.2.2 Computer-Assisted Accounting

Hoggett, Edwards et al (2006) describes the primary objective of the accounting function in an organization as being to process financial information. Accounting functions prepare financial statements at the end of the accounting period by carrying out processes which are somewhat different for manual and computerized systems. A series of steps is required collectively. These steps are known as the accounting cycle. The steps, distinct from the analysis and recognition of transactions, and the input of data, are applicable to a manual accounting system; a computerized system will perform all steps automatically. Additionally, accounting and management decision-making concerns the fit of the AIS with the organization requirements for information communication and control (Gordon and Miller 1976; McLaney and Atrill 2005; Sirisom, Phonnikornkij et al. 2008)

Table 3 Accounting cycle - manual versus computerized (Hoggett, Edwards et al. 2006)

<table>
<thead>
<tr>
<th>steps in the accounting cycle</th>
<th>Manual system</th>
<th>Computerised system</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Manual data entry</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(including manual and electronic coding for data entry)</td>
</tr>
<tr>
<td>2. Journalise transactions</td>
<td>Manual system</td>
<td>Automatic</td>
</tr>
<tr>
<td>3. Post to ledger accounts</td>
<td>Manual system</td>
<td>Automatic</td>
</tr>
<tr>
<td>4. Prepare unadjusted trial balance</td>
<td>Manual system</td>
<td>Automatic</td>
</tr>
<tr>
<td>Prepare worksheet</td>
<td>Manual system</td>
<td>automatic Unnecessary</td>
</tr>
<tr>
<td>6. Post adjusting entries</td>
<td>Manual system</td>
<td>Automatic</td>
</tr>
<tr>
<td>7. Prepare adjusted trial balance</td>
<td>Manual system</td>
<td>Automatic</td>
</tr>
<tr>
<td>11. Prepare financial statements</td>
<td>Manual system</td>
<td>Automatic</td>
</tr>
<tr>
<td>13. Post reversing entries</td>
<td>Manual system</td>
<td>Automatic</td>
</tr>
</tbody>
</table>
Table 3 presents a comparison of how the steps in the accounting cycle are performed under manual and computerized accounting systems.

### 3.2.3 Accounting as a service function

Accounting is a service function that provides information of value to all operating units and to other service functions, such as the relevance, reliability, comparability, and understandability (McLaney and Atrill 2005). Accounting information is useful to those who need to make decisions and plans about business. As a result, the quality of the service provided will be decided by the area to which it meets the information need of the assorted user groups (McLaney and Atrill 2005). In order to meet the user’s needs, accounting information requires positive key qualitative characteristics that include:

- **Relevance** is accounting information must be able to influence decisions making by the information may help to predict future events or to confirm past events.

- **Reliability** is accounting information should be free from any material error or bias.

- **Comparability** is Items that are basically the same should be treated in the same characteristic for measurement and reporting purposes.

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![Figure 2. Accounting as a service function (McLaney and Atrill 2005)](image-url)
- **Understandability** is accounting reports should be voiced as clearly as possible and should be readily understood by their intended recipients.

The figure 2 shows that there are four main qualitative characteristics that influence the advantage of accounting information. These qualitative characteristics utilize in accounting information reported to any of the user groups identified.

### 3.2.4 Accounting Information Systems

A specialised Information system which automates the manual accounting processes and tasks is often known as Accounting Information Systems (AIS). An AIS can collect and store data about activities and transactions, and processes data into information that is useful for decisions; it also provides adequate controls to safeguard the organization’s assets (Romney and Steinbart 2006; Phonnikornkij, Sirisom et al. 2008). Therefore, the AIS can add value to an organization through actions that can be performed more effectively and efficiently. The AIS can improve quality and reduce the costs of products or services, improve efficiency by being well-designed, and can make operations more efficient by providing more timely information, sharing knowledge, improving the efficiency and effectiveness of its supply chain, developing internal control structures and enhancing decision making (Romney and Steinbart 2006).

An AIS can provide assistance in all phases of decision making (Nicolaou 2000; Romney and Steinbart 2006; Phonnikornkij, Sirisom et al. 2008). Information can improve decision making in several ways: It identifies situations requiring management action. It also provides a basis for choosing among alternative actions by reducing uncertainty. And information about the results of previous decisions provides valuable feedback that can be used to improve future decisions. In addition, an AIS can improve decision making by providing accurate information in a timely manner.

### 3.2.4.1 AIS Processes

An AIS can be a very simple manual system, a very complex system using the very latest in computers and information technology, or somewhere between these two extremes.
The AIS and the users who collect, enter, process and store data, and the software are merely the tools used to produce the information.

These are the components of an AIS:

1. The people who operate the system identify the account in the transaction and perform various transactions.
2. The procedures and instructions, both manual and automated, involved in collection, processing, and storing data as activities of the organization.
3. The data about the organization and its business processes.
4. The software used to process the organization’s data to provide information.
5. The information technology infrastructure, including computers, peripheral devices, and network communications devices used to collect, store, process, and transmit data and information useful to decision makers.
6. The internal controls and security measures that safeguard the data in the AIS systems by means of efficient management of collection of data about activities.

In particular, these six components enable an AIS to fulfil three important business functions:

1. *Collect and store* data about organizational activities, resources, and personnel in the organization.
2. *Transform data into information* that is useful for making decisions. The management can develop and adjust plans, execute, control, and evaluate activities, resources, and personnel in the organization.
3. Provide adequate controls to safeguard the organization’s assets by managing its data to ensure that the assets and data are available to decision makers when needed and the data is accurate and reliable.

3.2.4.2 Emerging Requirements for AIS systems

Accounting is affected by the business environment, social environment, regulatory environment, legal environment, culture, ethics and accounting standards, which is demonstrated in Figure 4. Accounting and management decision making are concerned with the appropriateness of the AIS for the organization’ requirements for information communication and control (Gordon and Miller 1976; McLaney and Atrill 2005). In addition, accounting can be seen as important to the information system capacity to help business growth. At the same time, the accounting information system is useful to those who need to make decisions and plans about the business (Romney and Steinbart 2009). Furthermore, accounting system and accounting information system requires quality of information in order to function effectively (as show in figure 2). Additionally, The AIS requires technology adoption to develop and support toolsets and helps to supply an integrated set of instruments to manage all the stages of AIS (Romney and Steinbart 2009). In order to adoption AIS successfully, it is important to consider the quality of system and the quality of information use throughout the adoption process (Delone and McLean 2003; Nelson and Todd 2005).

Figure 4. Requirement in AIS
3.3. Information Quality and AIS Adoption

There are many researches concerning information quality and AIS adoption, such as accounting information system adoption, the factors influencing information quality in accounting, factors influencing design of the AIS and other factors influencing AIS adopting discussed in detail in the next sections.

3.3.1. Accounting Information Systems Adoption

Davila, Foster et al (2004), state that adopting management accounting systems is important in an organization, for it to become effective in business, decision making, and growing. In accounting systems, adopting of AIS is defined as using computer hardware and software applications to support operations, strategic management, and decision making in the business (McLaney and Atrill 2005; Hoggett, Edwards et al. 2006; Romney and Steinbart 2009). According to Romney and Steinbart (2009), a company can use many different of strategies by management to obtain a new AIS. Firstly, as organizations address issues of quality and quantity of vendors, written software increases and more companies are purchasing software. Because of its easy availability and can be deployed as lower cost, an estimated 80% of companies currently installing computers are either using or considering canned software packages (Romney and Steinbart 2009). Secondly, they can use their information systems to develop their own software within the organization. In addition, some companies can buy the software and then modify it themselves to use in company. Thirdly, companies can contract an outsourcing company to handle data processing activities. Furthermore, decisions to make or purchase software can be made depending on related decisions such as acquiring hardware, service, maintenance, and other AIS resource (Romney and Steinbart 2009).

Romney and Steinbart (2009) indicate that evaluating proposals and selecting a system should be carefully compared with the proposed AIS requirements to determine essential requirements and how many of the desirable requirements they meet. Table 4 presents criteria that can be used for hardware evaluation, software evaluation, and vendor evaluation (Romney and Steinbart 2009).
<table>
<thead>
<tr>
<th>Hardware evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the cost of the hardware reasonable, based on its capabilities and features?</td>
</tr>
<tr>
<td>Ca Can the hardware run the desired software?</td>
</tr>
<tr>
<td>Are the CPU's processing speed and capabilities adequate for the intended use?</td>
</tr>
<tr>
<td>Are the secondary storage capabilities adequate?</td>
</tr>
<tr>
<td>Are the input and output speeds and capabilities adequate?</td>
</tr>
<tr>
<td>Does the system have adequate communication capabilities?</td>
</tr>
<tr>
<td>Is the system expandable?</td>
</tr>
<tr>
<td>Is the hardware based on the most recent technology, or on technology that is old or soon to be out-of-date?</td>
</tr>
<tr>
<td>Is the hardware available now? If not, when?</td>
</tr>
<tr>
<td>Is the system under consideration compatible with existing hardware, software, and peripherals?</td>
</tr>
<tr>
<td>How do evaluations of the system's performance compare with those of its competitors?</td>
</tr>
<tr>
<td>What are the availability and cost of support and maintenance?</td>
</tr>
<tr>
<td>What guarantees and warranties come with the system?</td>
</tr>
<tr>
<td>Are financing arrangements available (if applicable)?</td>
</tr>
<tr>
<td>Does the package meet all mandatory specifications?</td>
</tr>
<tr>
<td>Will program modifications be required to meet company needs?</td>
</tr>
<tr>
<td>Does the software contain adequate control capabilities?</td>
</tr>
<tr>
<td>Is the performance (speed, accuracy, reliability) adequate?</td>
</tr>
<tr>
<td>How many other companies use the software?</td>
</tr>
<tr>
<td>Are other users satisfied with the package?</td>
</tr>
</tbody>
</table>
Table 4. Evaluation criteria of Hardware, software, vendor (continued) (Romney and Steinbart 2009)

<table>
<thead>
<tr>
<th>Software valuation</th>
<th>Is the package well documented?</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Is the software compatible with existing corporate software?</td>
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<td></td>
<td>Is the software user-friendly?</td>
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<td></td>
<td>Can the software be demonstrated and test driven?</td>
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<td></td>
<td>Does the software have an adequate warranty?</td>
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<td></td>
<td>Is the software flexible and easily maintained?</td>
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<tr>
<td></td>
<td>Is online inquiry of files and records possible?</td>
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<tr>
<td></td>
<td>Will the vendor keep the package up-to-date?</td>
</tr>
<tr>
<td>Vendor evaluation</td>
<td>How long has the vendor been in business?</td>
</tr>
<tr>
<td></td>
<td>Is the vendor financially stable and secure?</td>
</tr>
<tr>
<td></td>
<td>How well does the vendor stand behind its products? How good is its guarantee?</td>
</tr>
<tr>
<td></td>
<td>Does the vendor regularly update its products?</td>
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<tr>
<td></td>
<td>Does the vendor provide financing?</td>
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<tr>
<td></td>
<td>Will the vendor put promises in a contract?</td>
</tr>
<tr>
<td></td>
<td>Will the vendor supply a list of customers as references?</td>
</tr>
<tr>
<td></td>
<td>Does the vendor have a reputation for reliability and dependability?</td>
</tr>
<tr>
<td></td>
<td>Does the vendor provide hardware and software support and maintenance?</td>
</tr>
<tr>
<td></td>
<td>Does the vendor provide implementation and installation support?</td>
</tr>
<tr>
<td></td>
<td>Does the vendor have high-quality, responsive, and experienced personnel?</td>
</tr>
<tr>
<td></td>
<td>Does the vendor provide training?</td>
</tr>
<tr>
<td></td>
<td>How responsive and timely is vendor support?</td>
</tr>
</tbody>
</table>

As stated early, this research focuses on the software issues emerged from the AIS adoption process. Thus, Moore (1999)’s technology-adoption approach is particular relevant to understand the processes and tasks of AIS system adoption.
This approach consists of a 10 step process that includes system selection, system implementation, and system use.

**System Selection**

1. Assess Needs: involve business in the need to recognize value of the system
2. Evaluate and Selection: to judge the quality and selection of systems
3. Justify: Cost justification

**System Implementation**

4. Buy, Install: companies select on factors such as purchase, configuration and installation.
5. Customize: involve business in customizing solutions to meet their needs.
6. Convert: conversion of data, transfer and integration with existing system.

**System Use**

7. Educate: educate the user about their job, not in terms of technology
8. Motivate: change old system to new system and change their behaviour.
9. Train: user training to learn the new system
10. Support: support and maintenance for users needed.

**Uniqueness AIS Adoption**

According to Davila, Foster et al (2004) state that management AIS adoption is the initial framing of the accounting adoption decision under GAAP (Generally Accepted Accounting Principles) (Delaney 2002) constraints supported financial planning. And six components of financial monitoring consist variance analysis, operating expense, approval policies, capital expenditure approval policies, product profitability, customer profitability, and customer acquisition costs within management accounting broadly defined. Furthermore, this research finds a significant increase in the size of the company about the adoption of functioning
budgets; moreover faster adoption of operating budgets is associated with faster growing companies.

3.3.2. Information quality within AIS
Nicolaou (2000) discusses a contingency model of perceived effectiveness in AIS that examines sources of requirements for organizational coordination and control as extensions of integration in accounting information systems. In addition, an AIS is defined as a computerized system that processes financial information and supports decision tasks in the context of coordination and control of organizational activities.

According to Xu (2003), when managing accounting information quality in an AIS, it is important to understand the underlying factors that influence the AIS’s data quality. Knowledge of the critical factors that influence the data quality in the AIS will assist an organization to ensure and improve problem of the AIS data quality. The quality of the data provided is important to the success of accounting information systems.

According to Krishnan, Peters et al. (2005), the reliability of data needs to meet organization elements of information, to diagnose issues, and control the business. Nowadays, accounting scandals and subsequent requirements legislated in the Sarbanes-Oxley Act, have made data reliability assessment of great importance in organizations, particularly for accounting data.

3.3.2.1. The factors influencing information quality in Accounting
Sirisom, Phonnikornkij et al. (2008) state that the implementation of AIS to enhance performance of Thai listed firms (Figure 5) indicates that AIS implementation promotes improved business performance. The effect of organizational characteristics on implementation of AIS can be seen from five perspectives including the general environment and four major accounting stages, including the expenditure cycle, revenue cycle, production cycle, and financial accounting cycle. In addition, AIS enhance firm performance and the impact of organizational contextual variables on AIS implementation. Furthermore, this
evidence suggests that organizational contextual variables should be examined in the process of AIS design in order to enhance its implementation effectiveness.

Figure 5. The implementation of AIS to enhance performance of Thai listed firms (Sirisom, Phonnikornkij et al. 2008)

3.3.2.2 Factors Influencing Design of the AIS
Romney and Steinbart (2006) state that AIS design is affected by information technology, by the organization’s strategy, and its culture. In additional, culture affects the design of the AIS, just as the AIS can affect culture, by altering the circulation and availability of information. Therefore, information technology affects the company’s alternative business strategies, by performing cost benefit analyses on information technology changes.

Figure 6. the factors influencing information quality in AIS (Romney and Steinbart 2006)
3.3.2.3 Other Factors Influencing AIS Adoption

According to Choe (1996), the relationships among performance elements of accounting information systems are significant, as are the influence of factors such as the evolution level of information systems. It is necessary to identify the moderating effect of the evolution level of Information Systems (IS) on the relationships. The results of the empirical research show that there are significant positive relationships between the performance of an AIS and the influencing factors such as user participation, capability of IS personnel, organization size, and the provision of user training and education. In particular, the relationships between performance of AIS and influence factors are significantly influenced by the evolution level of IS.

![Diagram of AIS influence factors](image)

Figure 7. The model for factors influencing information quality in accounting

(Choe 1996)

In addition, the impact of IS investment on performance depends on contextual variables, such as the external environment, organizational context and IS maturity. Finally, there are significant impacts of user participation on the accounting information systems.

3.3.3. Gaps in the literature

Most of the research concerning AIS has focused on the management of internal controls, design of an accounting information system and auditing (Nicolaou 2000; Choe 2004). Few studies have attempted to understand how to choose and use (adopt) AIS systems well, in organisations, to meet all IQ requirements. In
addition, there is a lack of knowledge and of a standards framework for information quality in AIS that can assist organizations to ensure and improve accounting information quality.

It is found in the literature (for example, Table 4, the system evaluation stage of the adoption process) that IQ related questions have not been raised as important selection criteria. 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.
4. Area of research

This research consists of Research Questions and Research Methodology and Research Design, and Expected contribution.

4.1 Research Questions

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

1. What are the current IQ issues associated with the AIS system adoption in Thailand Organisations?

2. What are appropriate information quality criteria for accounting information systems?

3. 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 has been placed on the adoption process (e.g. system procurement). This research will not focus on the design and development of IQ enhanced AIS systems (which can be found in the existing literature). Instead, it is intended to help organisations to choose and use AIS systems well in relation to their IQ requirements. However, it is anticipated that the research result will also be useful to AIS developers for better system design.

4.2 Research Methodology

A research method is a strategy of enquiry which is influenced by the essential philosophical assumptions of research design and data collection. Moreover, specific research methods imply different skills, assumptions and research practices (Yin 2008). This research will seek qualitative, interpretive evidence. Interpretive research often involves using qualitative methods from which to
develop awareness gained from the data collection, and analyses the research process.

Orlikowski and Baroudi (1991) highlight that interpretive studies assume access to people’s real experiences, and to create and associate subjective information through social interpretation. Interpretive researchers thus attempt to understand phenomena from a representative sample, extrapolated to a stated population. Furthermore, interpretive research looks for relationships between theory and practice.

Avison and Myers (2002) state that interpretive methods of research may start with the position that our knowledge of reality derives from access to human action, as well as cultural or political power perspectives, that are undertaken with different assumptions about knowledge. Thus it is necessary for the researcher to make clear the ontological and epistemological underpinnings of the research. In addition, information systems interpretive research is ‘aimed at producing an understanding of the context of the information system, and the process whereby the information system influences and is influenced by the context’ (Avison and Myers, 2002 cite Walsham, 1993).

Avison and Myers (2002) state that qualitative research methods were originally developed in the social sciences discipline to study social and cultural phenomena. It follows from this that the choice of a specific qualitative research method such as the case study method may underlie the adopted philosophical position. For example, case study research can be interpretive or critical (Walsham, 1993) (Elden and Chisholm, 1993).

In this research, the case study will consist of interview research to collect information. The interview research will be employed following initial exploratory work. Literature reviews will be used together with a conceptual study research method in order to develop a questionnaire.

Kumar (1999) suggests that when an interviewer can pursue in-depth information related to the topic, they are able to develop a guiding framework for the interview. This research will therefore use a semi-structured interview approach in which the
method of research is drawn from the social sciences, with specific questions organized by topics but not necessarily asked in a specified order (Bailey 2006). Interviews take the researchers’ previous knowledge or perspectives, as well as other methods such as questionnaires, to direct the interview questions and guide the conversations during the interview data collection process (Witzel 2000).

4.3 Research Design

In order to achieve the research objectives, the research will be structured in terms of the following phases:

- Methodological qualitative research involving the use of interview research, case study
- Development of the research framework from literature/theory/interview
- Modification of the research framework in response to identification of issues addressing IQ in AIS adoption.

![Figure 8. Research Design](image-url)
The first state will be inductive and exploratory, beginning with a focus on detailed information drawn from theory and the literature review, to promote the development of the pre-research framework. A wide reading of the literature will be balanced with consultation with professionals in related areas, to help identify and narrow the research focus. The research questions will identify and define issues drawn from a review of the literature in relation to the theoretical framework. The second stage will involve verifying the framework by a pilot case-study. The third stage will use case studies as confirmatory evidence, conducted as multiple case studies. The fourth stage involves analysis of the data to refine the data collection instruments; the fifth stage will be thesis writing.

4.3.1 Case study research design

According to Orlikowski and Baroudi (1991), case study research is the most common qualitative method used in information gathering. 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 (Yin 2008). Research design links the data which needs to be collected and helps researchers draw conclusions linked to the initial study questions. It also provides a conceptual framework and action plan for getting from questions to sets of conclusions.

- 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.
- Case study questions: the type of research question is typically designed to address questions like “how” or “why”, which the investigator must keep in mind during data collection.
- Field procedures include access to field sites, sources of information, location of those sources.
- A guide for the case study report

Conducting case studies

This study will include preparation for data collection, conducting interviews, and documentation. Two pilot case studies will be conducted to verify the framework.
developed to explore IQ management as related to organizational AIS. Ten organizations will be conducted as multiple case studies to validate results. Thus, this study will use in-depth interviews and documentation as primary sources of evidence. Semi-structured interviews with key stakeholders will be conducted. In addition, data collection sources will include relevant documents, such as position description, policy manuals, organizational charts, service records, and annual reports.

4.3.2 The number of cases
The selection of cases in this study was purposefully carried out in order to achieve theoretical and literal replication. The number of cases depend on the purpose of this research, available resources and constraints; in addition, the decision about the number of cases may be left to the individual researcher (Patton 1990). Regarding this research, cases were selected by considering three dimensions - drawing on members of different industries, and the sizes and types of organisations, given that they have dissimilar structures, cultures, processes and outcomes. This methodology has been designed to help investigate the significance of the size of organizations as this can influence the potential and actual performance of AIS. In addition, it is desirable to determine if it is possible to generate some common critical success factors for different sizes of organizations (Choe 1996; Xu, Nord et al. 2002). In terms of the first dimension, there are different types of business - agricultural, financial, industrial, education and government.

Regarding final firm selections, these companies were selected as being well-known corporations in the Thai stock market; they are regarded as powerful and also kindly provide high quality knowledge and valuable information for higher education providers in terms of education and data collection. Their contribution is acknowledged for the learning purposes of this proposal.
Table 6. The number of case studies

<table>
<thead>
<tr>
<th>Organization Size</th>
<th>Number of Case studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large organisation</td>
<td>5</td>
</tr>
<tr>
<td>SMEs</td>
<td>5</td>
</tr>
</tbody>
</table>

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. Due to funding constraints, the selected organizations are from Thailand but enable the dimensions to be addressed.

4.3.3 The number of interview

This research will use in-depth interviews to collect information. In addition, this research will draw on a semi-structured interview, with stakeholders such as:

1. Accounting managers /Accountants
2. Internal auditors
3. IS manager/Technical of IS
4. Top managers/ Supervisors
5. Data managers

In AIS, these stakeholders are identified as follows:

1. Information producers who create, collect and monitor information for AIS
2. Information auditors who record, classify, report and interpret financial information
3. Information analysts who analyse, design, develop and operate AIS
4. Information users who access and operate Accounting Information Systems in their work activities.
5. Information managers who are responsible for managing and controlling information and information quality in AIS.

*Internal auditors would have gained experience in using AIS systems.*

In summary, there will be 50 interviews across 10 organizations in Thailand, with interviewees reflecting different AIS stakeholders (Information producers, Information auditors, Information analyses, Information users, Information managers).
4.3.4 Analyzing the evidence
According to Yin (2009), analysis of evidence obtained through investigation should be based on a general analytic strategy such as theoretical propositions or case description. Relying on theoretical propositions that have informed the design of the case study helps to focus attention on certain data and ignore other data. The case description will assist in organizing case studies on the basis of description of general characteristics and relationships of the phenomenon in question.

The developments of the case study methodology are procedures for linking data to propositions and criteria for interpretable finding. According to Yin (2003) for case study analysis, one of the most procedures is using a pattern-matching logic. A logic compares an empirically based pattern with a predicted to occur. If the patterns coincide, the results can help a case study to strengthen its internal validity. In addition, According to Elo and Kyngas (2007), indicate that content analysis is widely used qualitative research techniques of describing and quantifying phenomena. It allows the researcher to examination theoretical issues to enhance understanding of the data and natural phenomena (Kracauer 1952; Elo and Kyngas 2007). Furthermore, According to Yin (2003), highlight that cross-case syntheses can be performed whether the individual case studies have previously been conducted as independent research studies or as a predesigned part of the same study. The treats each individual case studies as a separate study. The technique does not differ from any other research synthesis. The emphasis on data demonstrates assists in ensuring transparency, and the results of the synthesis are likely to be capable of being readily converted to qualitative variables (Yin 2003).

Therefore, 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. In addition, analyses will be carried out using Nvivo on a PC compatible running Windows Vista.
4.4 Expected contributions
This research concerns various case studies of different organisations related to IQ management in AIS adoption. Outcomes of this research will contribute to substantial knowledge within AIS and IQ fields and it also supports other research areas. For example, organisations can identify sources of poor IQ of their AIS systems and the factors affecting their AIS IQ problems. Moreover, it also assists firms to obtain clear understanding of the overall aspects shaped by IQ impacts. It is anticipated that:

1. This research will develop an IQ framework specifically for AIS system adoption. The framework encapsulates the critical IQ factors derived from internal organizations as well as external organizations. The framework will provide guidelines on how to ensure quality in AIS adoption.

2. The research will enhance the existing IQ research by providing an in-depth study that represents a new aspect of IQ research in applying IQ to AIS adoption.

3. This research will contribute to the substance of knowledge related to IQ management for organisational AIS adoption.

It is also intended to publish the research results in related journals (including both accounting journals and information system journals) and international conferences.
4.5 **Timeline**

The thesis will be based on the timeline shown in table 7.

**Table 7. Thesis timeline**

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<td>0-6 month</td>
<td>6-12 month</td>
<td>0-6 month</td>
<td>6-12 month</td>
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<tr>
<td>Research Proposal</td>
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<tr>
<td>Literature Review</td>
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<tr>
<td>Conference Paper</td>
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<td>Develop Research Model</td>
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<td>Design Pilot case studies</td>
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<td>Design Cases studies</td>
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<td>Analyses case studies</td>
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<td>Develop conclusion</td>
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<td>Thesis Writing</td>
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</table>
5. Trial Thesis Table of Contents

Title Page
Table of Contents
List of Figures
List of Tables
Abstract
Acknowledgement
Chapter 1: Introduction
Chapter 2: Literature Review
Chapter 3: Methodology
Chapter 4: Analysis of Data
Chapter 5: Conclusions and Implications
References
Appendices
6. Conclusions
This proposal provides the overview of the studies that have been discussed in the literature and implications based on the evidence. In order to implement this proposal, it will be necessary to research case studies and collect information from the user’s perspective by interview. In addition, an AIS specific IQ framework will be developed, drawing on the substance of knowledge related to IQ management in terms of AIS adoption by organisations.
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