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## Developing a Framework for Accounting Information Systems Adoption

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### Abstract

Accounting and management decision-making is dependent on the fit of the Accounting Information System (AIS) to the organisation's requirements. Therefore, AIS plays an important role in business management, and strategic plans. It is essential to understand the AIS adoption process to ensure success in accounting systems. This research aims to explore ways of managing AIS adoption to investigate the adoption of accounting information systems within organisations. The study has led to the development of a framework for understanding the AIS adoption process in an organisation. This framework was developed from case studies and by collecting qualitative data (interviews). Case studies from six organisations involving 32 respondents were used as confirmatory evidence. The purpose of the case studies was to investigate how to choose and use (adopt) an accounting information system that best achieves organisational goals before and during the adoption of an AIS. The findings of the study's empirical evidence suggest that AIS adoption is critical in accounting information systems to provide assistance in all phases of decision making; the study also provides recommendations that may be useful to practitioners.

**Keywords:** Accounting Information Systems, Accounting Information Systems Adoption, Accounting Information Systems Adoption Process.

### Introduction

Accounting Information Systems (AIS) are important to any organisation, especially those which are medium and large. Unlike many enterprise-wide systems, AIS systems are often purchased off-the-shelf (due to compliance requirements, etc [2]). It is also noted that (as discussed below) many information system adoption theories and frameworks have placed specific focuses on system customisation or in-house developed systems, but are seen as limited regarding the various aspects of the reasons why problems have arisen in the process of implementing accounting information software. At present it is difficult to buy accounting software matched with the actual enterprise situation, making the implementation of AIS hard, because of

their lack of knowledge and vision to adopt an AIS well [7].

However, business needs to be seen as adopting AIS well, because they require quality accounting information, which is critical to a company in order to organise, manage and operate processes across the business. Recently, when adopting AIS, some organisations used AIS vendors for adoption of accounting information systems proposed by the software vendors to the organisations who want to adopt their solutions. Other organisation used generic framework adoption guidelines by COBIT, ITIL, and SDLC to indicate how to select and adopt AIS systems, but none specific for AIS adoption.

Regarding findings from the literature, most of the research concerning AIS has focused on the management of internal controls, design of an accounting information system and auditing [3][11]. Few studies have attempted to understand how to choose and use (adopt) AIS systems well. Thus, this study aims at developing an AIS adoption framework which provides guidance to choose and use (adopt) software applications to support operations, strategic management, and decision making in an accounting information system.

Moreover, a proposed framework also attempts to identify the adoption process that organisations should focus on to ensure quality of information during system adoption. Case studies in six organisations in Thailand were used to provide useful insights into the nature of information quality management in AIS adoption. This paper describes and analyses the case studies, and then discusses the practical implications of the findings.

### Background

The following literature review addresses areas including accounting information systems, systems adoption overview, and uniqueness of AIS that are relevant to the research problems. Likewise, background theories are used to focus on the research impact and develop a theoretical framework for this research.

### Accounting Information Systems

Nowadays, an AIS is the system which measures business activities. 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 will identify and capture relevant economic information, record information in a systematic manner, analyse and interpret the information, and report information that suits the needs of users for decision-making [15][17]. Moreover, in accounting firms that combine traditional accounting practices such as the Generally Accepted Accounting Principles (GAAP) with modern information technology resources (Davila, Foster *et al.* 2004), it also provides adequate controls to safeguard the organisation's assets.

Several authors (e.g. Nicolaou (2000), Phonnikornkij, Sirisom *et al.* (2008)) argue that an AIS can provide assistance in all phases of decision making. Moreover, accounting information can improve decision making in several ways: for example, it identifies situations requiring management action by choosing among alternative actions by reducing uncertainty. Furthermore, accounting information about the results of previous decisions provides valuable feedback that can be used to improve future decisions. Additionally, Xu (2003) indicates that an AIS can improve decision making by providing accurate information in a timely manner. Consequently, accounting information systems have become important considerations for any organisation that wants to perform a variety of tasks well.

### System adoption overview

Figure 1 shows that some organisations use AIS vendors for implementing accounting systems. Vendors such as SAP, Oracle, and Microsoft etc seek to integrate business management systems covering functional areas of an enterprise like Finance, Human Resources, Production, Sales and Logistics etc. The Panorama Consulting Group (2011) indicate that overall market share distribution for the time period 2005-2009 of ERP vendors showed that SAP and Oracle were the top two ERP vendors where SAP ranked highest by capturing 32% of the market, followed by Oracle with 23% of total market share [13]. These organisations have specific interests in making general solutions with follow-up customisation services for organisations worldwide.

Moreover, few researchers have attempted to understand how to choose and use (adopt) systems well in organisations. For example, Moore (1999) indicates that the technology-adoption approach is particular relevant to understanding the processes and tasks of system adoption. This approach consists of a 10 step process that includes system selection, system implementation, and system use for generic adoption.

In addition, the COBIT framework employs formal concept definitions and decision rules in the adoption process. This framework has been described by four domains, consisting of Plan and Organise (PO), Acquire and Implement (AI), Deliver and Support (DS), and Monitor and Evaluate (ME) [8]. Furthermore, the Systems Development Life Cycle (SDLC) is a conceptual model used in the development and implementation of technology systems as follows: Planning, Analysis, Design, Development, Testing, Implementation and Maintenance [9]. This can help organisations to guide adoption of AIS as well. However, recently, organisations have experienced problems in the process of implementation of accounting information systems. Moreover, organisations may lack knowledge and vision to adopt AIS; accounting personnel may not understand the performance of the financial software, or may lack the knowledge and vision to adopt AIS well, making the implementation of AIS hard [6].

Therefore, in this research, the focus is placed on organisations who choose and use (adopt) these software solutions to support their accounting needs. Especially in medium and large organisations, a multi-stage adoption process is found common to ensure that the right AIS system is acquired and implemented to support the existing business operations.

The literature shows that there are many system adoption processes in use. Some are suggested by the software vendors to the organisations who want to adopt their solutions; others are generic adoption processes. This study tries to identify the common stages from these adoption processes and use these stages to study the AIS adoption issues.

Moore Phase (1999)	COBIT Phases (2006)	SDLC Phases (2007)	ORACLE Phases (2009)	MYOB Phases (2010)	Phenix's Business System Phases (2010)	SAP Phases (2010)	
1. System Selection	1. Plan and Organise(PO)	1. Planning 2. Analysis 3. System design	1. Requirements Definition 2. Design System	1. Identifying the areas points of growth 2. Taking the time to plan ahead	1. Pre-implementation checks 1. Project preparation	1. Project preparation	Stage1: AIS system Selection
2. System Implementation	2. Acquire and Implement(AI)	4. Implementation 3. Integration and Test 6. Acceptance, finalisation	3. Implementing the Specifications 4. System integration and Test	3. Data Conversion 4. Installation, set-up and configuration	2. Installing the software 3. Customising ACC/PAC	2. Setting and start-up 3. SAP functional development	Stage2: AIS system Implementation
3. System Use	3. Deliver and Support(DS) 4. Monitor and Evaluate(ME)	7. Maintenance	5. System Training 6. Monitoring	5. Training 6. Post implementation review	4. Training 5. Testing 7. Issues list management	4. Final Preparation 5. Turn on the SAP system for the end-users 6. Documentation	Stage3: AIS system Use

Figure 1 Existing adoption process

### Uniqueness of AIS

AIS have become a unique software application and work process for defining information. Specifically, findings from Davila, Foster *et al.* (2004) state that management of AIS adoption involves the initial framing of the accounting adoption decision under accounting standards [5]. Many organisations, concerned to manage all processes of accounting, find that the information system is dependent on the accounting standards and laws of each country that are of relevance to develop new systems [5][6][16].

Moreover, findings from Rom and Rohde (2007) indicate that data integration in accounting systems should be studied more narrowly because AIS have unique purposes, being used for management accounting function.

What is more, at present, AIS still represents problems in organisations. Ismail (2009) argues organisation-wide implementation of a new accounting system may give rise to some problems in the process of development, specific features such as the lack of software matched with the actual situation of operation, the lack of knowledge and vision in implementation of accounting software. In addition, findings by Krishnan, Peters et al (2005) indicate that the need to ensure reliability of accounting data has long been recognised. Using the accounting information systems of management accounting data approach improves the efficiency and effectiveness of reliability assessments; although some problems have arisen in the process of development of AIS data. The present issue is that the lack of formal concept definitions and decision rules makes it difficult to develop practical data reliability for assessment accounting systems. However, business needs to be seen as employing quality accounting systems, and require accounting information quality to manage and operate processes in all sections [17].

## Framework for Accounting Information Systems Adoption

The analysis of interviews was performed and common findings were presented in Figure 2. The findings from multiple case studies among the 32 respondents from 6 organisations, as given by different stakeholders in case A to case F, used together with the available literature to build the research framework, helped to provide guidelines on how to ensure quality in AIS adoption (as show in Figure 2).

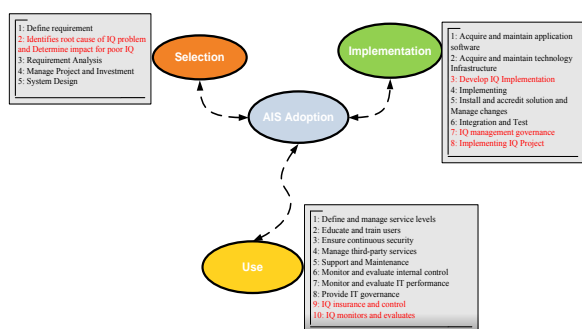


Figure 2 Framework for Accounting Information Systems Adoption Processes

- The factors in black denote the factors that are supported from the literature review and case studies.
- The factors in red denote the new factors that are findings from the case studies.

The framework shows that the adoption of process management for accounting management systems uses technology-adoption to support operations, strategic management, and decision making in the firm. The model reference framework defines 23 high-level control objectives for AIS adoption processes. These categories were identified as AIS System Selection, AIS System Implementation and AIS System Use, as identified by Moore (1999), and are discussed in the next sections.

## Research Methodology

This research used 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 [1][12]. In this study, collecting relevant information was done by conducting interviews following initial exploratory work. Literature reviews were used together with a conceptual study research method in order to develop interview questions.

The research was completed in four stages; the first stage involved a detailed and focused literature review, which led to the development of the preliminary research model representing a proactive AIS adoption process. (The prior model from the literature was used together with the pilot case study, in building the research model). A broad reading of the literature was followed by consultation with professionals in the related areas. This helped to identify and narrow the research. The second stage involved verifying the model by pilot case studies in which two large Thai organisations were used to provide useful insights into the nature of adopting an AIS.

Table 1 Overview of organisations

Case	Organisation Type	Organisation Size	Description
A	Private	Large	Private national manufacturing enterprise.
B	Public	Large	Higher educational institution
C	Private	Large	Private banking organisation
D	Private	SMEs	Private organisation of the conventional paper industry
E	Public	SMEs	Government organisation in the maintenance of assets
F	Public	SMEs	Government funded research institution

The third stage used case studies as confirmatory evidence, conducted as multiple case studies. The fourth stage involved analysis of the data to refine the data collection instruments.

Case studies in six organisations from 32 respondents

provided confirmatory evidence; these organisations were used to provide useful insights into the nature of adopting an AIS. 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 (shown in table 1). This methodology has been designed to help investigate the significance of the size of organisations 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 organisations [3][18]. 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 Listed Firms; 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 research. 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. This study used in-depth interviews to collect information as well as a semi-structured interview with different AIS stakeholders (CEO, IT/IS, accountant/auditor, data manager, accounting manager).

In addition, data collection sources also included relevant documents, such as position descriptions, policy manuals, organisational charts, service records, and annual reports. The purpose of the case study was to investigate how to best choose and use (adopt) an accounting information system, before and during the adoption of an AIS. Moreover, qualitative data analysis methods used pattern-matching, explanation-building, within-case analysis, and cross-case synthesis as data gathered from case studies was qualitative.

### Research findings

Figure 2 shows a summary of case studies findings - AIS adoption process findings from multiple case studies. The results of common stages of the AIS adoption processes from twenty-three among the 32 respondents from 6 organisations as given by different stakeholders in Case A to Case F. The adoption processes of AIS, including AIS system selection, provides direction to solutions for delivering AIS system implementation; AIS system implementation provides the solutions and passes them to be turned into services, receives the solutions and makes them usable for end users, and the AIS system use monitors all processes to ensure the appropriate direction.

## 1. AIS System Selection

The first domain in the framework is AIS System Selection. It is made up of 5 processes that are;



Figure 3 AIS system Selection

**1. Define requirements:** requirements are identified by unique accounting requirement identifiers. These requirements define the major functions of the intended application, define operational data areas and reference data areas, define the initial data entities, IT value management, business-IT alignment, assessment of current capability and performance, IT strategic plan, IT tactical plans, and IT portfolio management.

*"We've defined a requirement of users involves determination of the scope and objectives of the project, the definition of project responsibilities, control requirements, project phases, budgets, and final products. We want to know current capability and performance of IT in accounting systems, unique accounting requirement, IT strategic, and IT portfolio management."*

*IT manager (Company E)*

**2. Identifies root cause of Information Quality (IQ) problem and determines impacts of poor IQ:** involves identifying root causes of information quality problems and the impact of poor information quality in AIS adoption, which entails directed IT, and also in relation with critical input, processes, and output, constituting an important component, and strategic plans of accounting management.

*"This stage put success criteria and metrics in place for the information quality management initiative. This phase will involve performing trend analyses on the data and the rules in place to ensure the data continues to conform to the rules put in place through the data quality management initiative."*

*IT manager (Company B)*

**3. Requirement analysis:** to determine where the problem is in an attempt to fix the system. It also determines the root of problems from scratch which must be fixed in the system. It also involves information quality needs analysis to determine the accounting information document and also determines the root of information quality problems for which solutions must be found.

*"In our company, requirement analysis determines where the problem is in an attempt to fix the system. Requirements gathering sometimes requires individuals/teams from users as well as service provider sides to get detailed and accurate requirements. We conduct requirement analysis by seminar, workshop, training and meetings with employees and collaborating firms to improve and solve the AIS system. Next set up team work using brain storming to find solutions and find real problems to solve. Moreover, the goal of problem analysis is to obtain a clear understanding of the requirements of the client and the users."*

*IT manager (Company A)*

**4. Manage project and manage investment:** cost justification such as operational control, product costing and profitability analysis.

*"after the requirement analysis step, we have to write plans for presentation to the organisation board to approve all planning including budget, details of all phases as development, who is undertake this project, schedule time of all process. Manage team*

work to support project, set up team work to support all phases of system.”

IT manager (Company A)

5. **System design:** the purpose of the design phase is to plan a solution for the problems specified by the requirement document. It involves detailed design of all inputs, processing, storage, and outputs of the proposed accounting system.

“I think the design phase takes the conceptual results of the analysis phase and develops detailed, specific designs that can be implemented in subsequent phases. It involves the detailed design of all inputs, processing, storage, and outputs of the proposed accounting system. Inputs may be defined using screen layout tools and application generators. Processing can be shown through the use of flowcharts or business process maps that define the system logic, operations, and work flow, and output refers to the activity of creating prototypes of software applications. A prototype is to allow users of the software to evaluate developers’ proposals for the design of the eventual product.”

IT manager (Company B)

## 2. AIS System Implementation

The second domain in the framework is AIS System Implementation. It is made up of 8 processes that are:

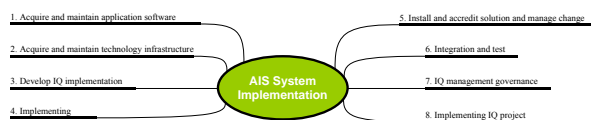


Figure 4 AIS system Implementation

1. **Acquire and maintain application software:** writing the accounting program based upon business objectives, user requirements, real processes of accounting, accounting standards, role of management accounting, and accounting techniques. Applications are made available in line with business requirements. This process covers the design of the applications, the proper inclusion of application controls and security requirements, and the development and configuration in line with accounting standards. This allows organisations to properly support business operations with the correct automated applications.

“In our company, programmers are writing accounting programs built upon accounting objectives that are relevant to business objectives, user requirements, real processes of accounting, accounting standards – GAAP, TFASB, and accounting standards of Thailand. And also organising cautious IQ management to improve work processes by enabling work processes of all sorts as well as decision-making. In addition, the organisation uses continuous information quality improvement by specific IQ criteria, and IQ metrics focused on writing programs. Moreover, organisations have strict governance of IQ roles, IQ strategic, IQ Audit and providing accountability and rewards.”

IT manager (Company B)

2. **Acquire and maintain technology infrastructure:** organisations have processes for the acquisition, implementation and upgrade of the technology infrastructure. This requires a planned approach to acquisition, maintenance and protection of infrastructure in line with agreed-upon technology strategies and the provision of development and test environments. This ensures that there is ongoing technological support for accounting applications.

“we require a planned approach to acquisition, maintenance and protection of infrastructure in line with agreed-upon technology strategies and the provision of development and test environments. This ensures that there is ongoing technological support for accounting applications that are relevant to business objectives.”

IT manager (Company A)

3. **Develop Information Quality (IQ) implementation:** involves applications being made available in line with accounting requirements. the IQ programme should emphasize the benefits that the organisation expects to realise through its information quality management system. The programme could be run either by the implementation team or by experts hired to talk to different levels of employees. The implementation progress should be monitored to ensure that the information quality management system is effective, conforms to accounting objectives and meets the information quality policy objectives. The activities include a documented procedure for dealing with user feedback, data verification, a review of the data input and processing procedures, product master data management, preventative action and determine and implement action needed.

“I think IQ implementation is important in the organisation so that we’re always developing IQ to improve work performance in the accounting department. We ensure applications are made available in line with business requirements as specifics to check all processes of quality information within development and configuration in line with standards. I think, in essence, implementation should cover all the accounting objectives established by the top management.”

IT manager (Company E)

4. **Implementing:** involves accounting solutions which can be customized to meet accounting needs. This process requires the production of documentation and manuals for users and IT, and provides training to ensure the proper use and operation of applications and infrastructure. In addition, planning for operational solutions such as knowledge transfer to accounting management, knowledge transfer to end users and knowledge transfer to operations and support staff.

“I think the implementation phase consists of primarily construction and delivery. Construction includes the selection of hardware, software and vendors for the implementation, building, and testing of the network communication systems. This involves building and testing the databases, writing and testing the new program modifications, and installing and testing the total system from a technical standpoint. The delivery also includes the process of conducting final system and user acceptance testing, preparing the conversion plan, installing the production database, training the users, and converting all operations to the new system.”

IT manager (Company B)

5. **Install and accredit solution and manage change:** all changes, including emergency maintenance and patches, relating to infrastructure and applications within the production environment are formally managed in a controlled manner. This assures mitigation of the risks of negatively impacting the stability or integrity of the production environment including change standards and procedures, impact assessment, prioritisation and authorisation, emergency

changes, change status tracking and reporting, change closure and documentation.

*"We have changed the old system in parallel with the new system and also we have training before using the new system. In addition, users can check and correct data by comparing with the old system, manual, and documentation."*

*IT manager (Company B)*

**6. Integration and test:** this stage is the process of data conversion, transfer and integration with the existing accounting system. This phase is to ensure that various system parts, related components and programs work properly together. Integration testing includes data set testing, system testing, integration testing, automation testing, user acceptance testing, grant user testing, security testing, performance testing.

*"We have tested at various levels; software testing, system testing and user acceptance testing are often performed...we have been testing our accounting system including data set testing, system testing, integration testing, automation testing, user acceptance testing, grant user testing, security testing, performance testing. We have integration of new systems in parallel with old systems to make sure the new system can replace the old system for a long time."*

*IT manager (Company B)*

**7. Information Quality (IQ) management governance:** this phase uses information quality management software and develops data governance processes to help improve corporate data assets. The initial step in the implementation of a data governance program involves defining the owners or custodians of the data assets in the enterprise. A policy must be developed that specifies who is accountable for various portions or aspects of the data, including its accuracy, accessibility, consistency, completeness, and updating.

*"We have to do IQ management governance because following company policy and look at International finance cooperation's strategic IQ project, following best practice by using quality management software and developing data governance processes to help improve my company. We developed guidelines that specify who is accountable for various portions or aspects of the data, including its accuracy, accessibility, consistency, completeness, and updating."*

*IT manager (Company E)*

**8. Implementing Information Quality (IQ) project:** implementing a data management initiative involves a combination of people, processes, and technology. And also IQ project can be implemented in the form of stand-alone- data quality initiatives, compliance efforts, master data management projects, and data warehousing projects, among others.

*"we see Implementing IQ project as important to properly managing all processes within the AIS system in the organisation. Implementing a data management initiative involves a combination of people, processes, and technology. Moreover, documenting the scope of a information quality project in terms of project objectives, tasks, schedule, deliverables, and resources provides the overall scheme for performing a information quality project."*

*IT manager (Company E)*

### 1. AIS System Use

The third domain in the framework is AIS System Use. It is made up of 10 processes that are:

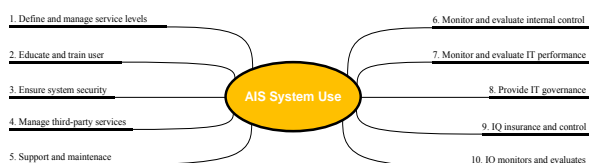


Figure 5 AIS system Use

**1. Define and manage service levels:** this process enables alignment between IT services and the related accounting requirements, including monitoring and timely reporting to stakeholders on the accomplishment of service levels.

*"In our company we define and manage service levels to efficiency as each person and work to each specific job. This process also includes monitoring and timely reporting to stakeholders on the accomplishment of service levels. This process enables alignment between IT services and the related business requirements."*

*IT manager (Company A)*

**2. Educate and train user:** effective education of all users of accounting systems, including those within IT, requires identifying the training needs of each user group. This process includes defining and executing a strategy for effective training and measuring the results. An effective training programme increases effective use of technology by reducing user errors, increasing productivity and increasing compliance with key controls, such as user security measures, accountability measures, and manager measures, identification of education and training needs, delivery of training and education, evaluation of training received.

*"When the organisation has new systems, we always have training before using AIS program. We have two level of training, firstly, general training for all people and secondly, training by function of software for each level of detailed different work processes."*

*IT manager (Company B)*

**3. Ensure system security:** the need to maintain the integrity of information and protect IT assets requires a security management process in accounting systems. This process includes establishing and maintaining IT security roles, accounting security roles and responsibilities, policies, standards, and procedures. Security management in accounting system also includes performing security monitoring and periodic testing and implementing corrective actions for identified security weaknesses or incidents. Furthermore, effective security management protects all accounting assets to minimise the business impact of security vulnerabilities and incidents including management of IT security in accounting systems, IT security plan, identity management, user account management, security testing, surveillance and monitoring, security incident definition, protection of security technology, cryptographic key management, malicious software prevention, detection and correction, network security, exchange of sensitive data.

*"in our company we are concerned by system security, we check everything including establishing and maintaining IT security roles, accounting security roles and responsibilities, policies, standards, and procedures. Security management in accounting system also includes performing security monitoring and periodic testing and implementing corrective actions for identified security weaknesses or incidents. Moreover, we have undertaken reviews to determine the efficiency and effectiveness of the system every week, checking and managing database. And also we backup accounting data everyday at midnight."*

*IT manager (Company A)*

4. *Manage third-party services*: the need to assure that services provided by third parties (suppliers, vendors and partners) meet accounting requirements requires an effective third-party management process in organisations. This process is accomplished by clearly defining the roles, responsibilities and expectations in third-party agreements as well as reviewing and monitoring such agreements for effectiveness and compliance. Also effective management of third-party services minimises the business risk associated with non-performing suppliers including identification of all supplier relationships, supplier risk management, supplier performance monitoring.

*"We have to manage third-party services by clearly defining the roles, responsibilities and expectations in third-party agreements as well as reviewing and monitoring such agreements for effectiveness and compliance."*

*IT manager (Company A)*

5. *Support and Maintenance*: support and maintenance for users is needed. Support helps development by continuously improving the business through adjustments to the accounting information systems caused by business and environmental changes. These changes might result in future problems, new opportunities, or management or governmental directives requiring additional system modifications.

*"Support has two objectives. The first is to update and maintain the accounting information systems. This includes fixing problems and updating the system for business and environmental changes. For example, changes in generally accepted accounting principles (GAAP) or tax laws might necessitate changes to conversion or reference tables used for financial reporting. The second objective of support is to maintain development by continuously improving the business through adjustments to the accounting information systems caused by business and environmental changes. These changes might result in future problems, new opportunities, or management or governmental directives requiring additional system modifications. Vendors come to support all AIS processes 3 times per year. Otherwise, organisation can contact vendors via email, telephone, and monitor via networks supporting AIS systems."*

*CEO (Company F)*

6. *Monitor and evaluate internal control*: organising an effective internal control programme for accounting requires a well-defined monitoring process. This process includes the monitoring and reporting of control exceptions, results of self-assessments, third-party reviews, accounting report actions, and an internal control framework. A key benefit of internal control monitoring is to provide assurance regarding effective and efficient operations and compliance with applicable laws and regulations.

*"In our company, this stage provides monitoring and evaluation of AIS performance, monitoring of internal controls, compliance with regulations and providing governance of the system. This process applies to IT-related activities and identifies improvements."*

*Accounting Manager (Company C)*

7. *Monitor and evaluate IT performance*: effective IT performance management requires a monitoring process in accounting systems. This process includes defining relevant performance indicators, systematic and timely accounting reports of performance, and prompt responses to diversions from standards. Furthermore, monitoring is needed to make sure that the right things are done and are in line with the set directions and policies in an organisation including

monitoring the approach, definition and collection of monitoring data, monitoring method.

*"This process is focused on management reporting, customer satisfaction assessments, external benchmarking. We need to make sure the right things are done and satisfaction of management and the governance entity with the performance reporting by defining relevant performance indicators, systematic and timely accounting report of performance, and prompt acting upon diversions."*

*Accounting Manager (Company E)*

8. *Provide IT governance in accounting systems*: this process defines organisational structures, processes, leadership, roles and responsibilities to ensure that enterprise IT investments are aligned and delivered in accordance with accounting strategies and objectives. This process is concerned with integrating IT governance with corporate governance objectives and complying with laws, regulations and contracts.

*"In our company, we focus on the quality of reporting on IT to stakeholders, frequency of reporting from IT to the board, frequency of independent reviews of IT compliance. We have been approving IT strategic plans and controlling major investments within the goals of IT governance."*

*Accounting Manager (Company E)*

9. *Information Quality (IQ) insurance and control*: the process of controlling the usage of data with known quality measurement—for an application or a accounting process. This process is usually done after a data quality assurance process, which consists of discovery of data inconsistency and correction.

*"We have to prepare data for transfer from an old system to a new system. This section describes the strategy to be used to ensure data quality before and after all data conversions. This section also describes the approach to data scrubbing and quality assessment of data before they are moved to the new or converted system. The strategy and approach may be described in a formal transition plan or a document if more appropriate. Transfer data uses Excel templates then transfers to the SQL database. To check all processes of ensuring security we spend more than 6 months on management. We have been using data profiling and data cleansing to manage all data quality. Also every day we have to transfer and backup data to make sure that data is correctly stored."*

*Accounting Manager (Company E)*

10. *Information Quality (IQ) monitors and evaluates*: this process is an important step for measuring the impact and effectiveness of a information quality program. Measuring and monitoring the IQ attributes is essential for success in an accounting system. The ability to monitor information quality processes is critical, as it provides the organisation with identifying all applicable laws, regulations and contracts and the corresponding level of IT compliance and optimising IT processes to reduce the risk of non-compliance.

*"We provide AIS performance by monitoring internal controls, complying with regulations and providing governance. Monitor information quality: The ability to monitor the data quality processes is critical, as it provides the organisation with a quick snapshot of the health of the data within the organisation. Through analysis of the data quality scorecard results, a data governance committee will have the information needed to confidently make additional modifications to the data quality strategies in place, if needed. Conversely, the scorecards and trend analysis results can also provide peace of mind that data quality is being effectively addressed within the organisation. And also we measure conformance with established business rules and develop exception reports"*.

*CEO (Company C)*



## Discussion and Conclusions

This analysis was done on the data of 32 respondents at six organisations from manufacturing firms in Thailand collected by in-depth interviews which involved on semi-structured interview. This study investigates the adoption of accounting information systems within organisations. The developed framework provides guidance on how to choose and use (adopt) an accounting information system that best achieves organisational goals. The study indicates that common stages of AIS adoption define 23 factors. Specifically, these new factors, based on the research findings and the literature and unique to AIS adoption, include identifying the root causes of IQ problems and determine the impact of poor IQ in the AIS System Selection stage, develop IQ implementation, implementing the IQ project in the AIS System Implementation stage, and IQ insurance and control, IQ monitoring and evaluating in AIS System Use stage (as shown in Figure 2). The evidence in this study suggests that information quality criteria promote AIS adoption process performance.

As a result, this study makes a contribution to the information systems literature by providing evidence on the usefulness of AIS adoption in enhancing accounting performance. This evidence suggests that organisations should obtain knowledge of appropriate systems, in order to best choose and use (adopt) accounting information systems to improve work processes as well as help organisations to make profits.

## Limitations & future research

The results of this study are only drawn from Thai organisations; there might or might not be similar results if a study was conducted in other Asian countries. Whether or not there are similarities and differences needs to be further investigated. It is acknowledged that cultural differences may impact the results, but these are beyond the scope of this research; those issues could be addressed by further research. To improve the level of reliable results, future research is needed to collect data from other populations, mediators and moderators with respect to a framework for the accounting information systems adoption process.

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