# A STUDY OF ACCOUNTING INFORMATION SYSTEM ADOPTION IN THE SMALL AND MEDIUM COMPANIES IN LIBYA: A TECHNOLOGY ACCEPTANCE MODEL APPROACH

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UNIVERSITI UTARA MALAYSIA

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# ABSTRACT

The small and medium sized companies in Libya are fast growing industry in Libya and there is a lot of potential and opportunities in this area from investment perspective. Due to uncertainty and geographic location in the region the SME's in Libya are providing very limited performance and mostly the Libyan economy is depending on Oil production. SME's are largest proportion of economics pillar in a country and it need to contribute through their small business efforts. In many countries, SME's has important role in creating employment and supporting economic growth. On the other hand these companies are lacking behind in term of adopting accounting information system among the SME's. The study is based on perceive ease of use, perceive usefulness and intention to use influencing dependent variable as AIS adoption among the SME's. Secondly the SME's are not satisfied, with the technology or the tool which is use to monitor accounting methods, as SME's adoption of AIS is one of the important factor that can influence companies performance and fulfill the audit requirements. Due to all the above reason these SME's are needed to find the ways to strategies there accounting base activities through AIS, as there is very limited research has been prevailed by Libyan SME's to improve their financial operational through AIS. The Libyan companies need strategic leaders who can create organization culture to influence to implement AIS practices and in the end of the day these SME's can have better performance. This study is unique as there are very few studies on Libyan SME's to measure adoption of AIS and this research have been never conducted on Libyan SME's before. This study will add value by providing a significant contribution towards adoption of AIS practices among the Libya SME's.

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Mustafa I .O. Omran

October 2010

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# CHAPTER ONE

# INTRODUCTION

## 1.1 Introduction

Fundamentally, identifying why and how firms adopt technological innovations and more specifically information technology is fundamental for ensuring a successful adoption process (Swanson and Wang, 2005). For the many years, a research stream has identified variables that can explain why firms adopt information technology with different intensities and speeds (e.g., Premkumar et al., 1997; Mehrtens et al., 2001; Teo and Pian, 2003). However, there has been little research on the factors inducing small and medium-sized firms (SMEs) to introduce information technology (Premkumar, 2003; Riemenschneider et al., 2003; Morgan et al., 2006).

The SMEs sector is the engine of the economies of many countries. For instance, in the United States, small businesses create two-thirds of the new jobs, produce 39% of the gross national product (GNP), and generate more than half of the technological innovation (Kuan and Chau, 2001). In Europe, 99.8% of the firms are SMEs, responsible for two-thirds of the turnover and business employment (Carayannis et al., 2006). In Southern Europe, the importance of SMEs in the total employment is even higher. For instance, SMEs generate 70% of the employment in Spain (European Commission, 2005).

In this competitive age to win the competition across the countries, a country should response its technological change with increasing its ability of economics resource. However, the globalization of the economy has forcing many businesses to change in order to survive in this competitive era (Caldeira & Ward, 2003 in Guinea et al, 2005). The ability of a national economy to adapt with the changing demands has been associated and achieved by flexibility and responsiveness of small and medium business enterprises (Hunter & Long, 2003). Small and medium business enterprises as largest proportion of economics pillar in a country need to response competitive environment facing business. In many countries, small and medium business enterprises has important role in creating employment and supporting economics growth. This condition also exists in Indonesian economy, where small and medium business enterprises has important role in creating employment opportunities and generating income, especially in rural areas (Tambunan, 2000). Because its important role of small and medium business enterprises in supporting economic growth, Indonesian government had to builds and develops the strong small and medium business enterprises in order to win the global competition.

## 1.2 Problem Statement

Pressured by rising costs, ever more demanding customers, and the need to preserve profitability while standing out from the competition, small and medium organization found themselves forced to invest in new customer service channels such as accounting information system. Recent literature on accounting in the AIS shows that several

scholars have investigated the adoption of the system in large firms but not in the small and medium companies.

As DeLone and McLean (1992), Rai et al. (2002), and Sabhrewal et al. (2006) suggest that the observed empirical relationship among the various dimension of IS success might due to the exclusion of the other factor affecting them. By reviewing and examination dimensions of IS success along with the factor affecting of IS success, could mitigate those problem (Sabhrewal et al, 2004). The application of computer based information in large organization has been carefully studied and several models of growth have been proposed although its result still inconsistent (Huff, et.al, 1988, Nolan 1973, Saarinen, 1989). However, very little knowledge is known about the evolution of computing in small and medium firm, even though more and more small firms has installed computer or if they already installed, have continued to upgrade (Cragg & King, 1993). Many of information system research are based on application of information system in large companies, and only a little research had studied adoption of information system in small and medium business enterprises. Because small and medium business enterprises have different characteristics from large companies, an in depth studies about the adoption of information systems in SMB had to be done.

## 1.3 Research Objectives

1. To examine the influence of perceived ease to the adoption of accounting information system.

2. To examine the influence of perceived usefulness to the adoption of accounting information system.
3. To determine the influence of perceived ease of use, perceived usefulness to the adoption of accounting information system and mediating effect of intention to use on AIS Adoption?

## 1.4 Research Questions

A fundamental research problem that this study seeks to investigate is, whether? Therefore, this study intends to answer the following questions:

1. Somehow the influence of perceived ease to the adoption of accounting information system?
2. Somehow the influence of perceived usefulness to the adoption of accounting information system?
3. Somehow the influence of perceived ease of use, perceived usefulness and mediating effect of intention to use on AIS Adoption?

## 1.5 Significance of the Study

Using the theory acceptance model as its basis, this study is to identify the relationships among perceived usefulness, perceived ease of use and computerized implementation. The significance of this research also to apply the TAM in the context of computerized

acceptance to the management information system in the small and medium sized companies in Libya.

## 1.6 Scope of the Research

Small and medium size company of Libya selected as object in the adoption to the accounting information system. This study had determined the adoption of accounting information system using perceived usefulness and perceived ease of use as predictors in the model. The mediating effect of intention to use was examined to confirm the improvement of AIS on the relationship between perceived usefulness and perceived ease of use.

# CHAPTER TWO

# LITERATURE REVIEW

## 2.1 Introduction

Historically, the study of people's reactions to computing technology has been an important topic in IS research since the 1980s. The theoretical foundation for the study of whether a person is willing to use a technology comes from research on adoption and diffusion (Moore & Benbasat, 1991; Rogers, 2003). Research in this area has continued to develop over the decades producing other theories, including the technology acceptance model (e.g., Davis et al.1989; Venkatesh & Davis, 1996), the theory of planned behavior (e.g., Mathieson 1991; Taylor & Todd, 1995), and social cognitive theory (e.g., Compeau & Higgins, 1995; Hill et al. 1986, 1987; Eveleth & Stone, 2008).

In an effort to better understand how individuals make decisions regarding new technology, studies based on these theories have examined variables related to individuals' beliefs and intentions regarding the acceptance and continued use of new IT (Bhattacherjee, 2001). Researchers have studied different aspects of the phenomenon and have produced insights into the cognitive, affective, and behavioral reactions of individuals to technology and into the factors which influence these reactions. No theoretical framework has been more successful at this than the TAM (Davis et al., 1989; Bates, & Khasawneh, 2007).

The TAM proposes that the use of technology is motivated by an individual's attitude toward using the technology, which is a function of their beliefs about using the technology and an evaluation of the value of actually using it. This is based on "the cost-benefit paradigm from behavioral decision theory" (Davis, 1989, p. 321), which posits that human behavior is based on a person's cognitive tradeoff between the effort required to perform an action and the consequences of the action (Jarvenpaa, 1989). Therefore, the TAM asserts that a person will use a technology if the benefits of doing so outweigh the effort required to use it (Iivari, 2005).

Among the behaviors commonly measured are: system usage (Venkatesh, 1999), and user satisfaction (Bhattacherjee, 2001). Some researchers have studied both of these dimensions as a composite (Gelderman, 1998). User satisfaction actually represents a cognitive and affective outcome that is less tangible in terms of classification as a behavior. Al-Gahtani and King (1999) pointed out that system usage is a more precise measure of IT acceptance (Luarn,& Lin ,2005).

## 2.2 Behavioral intention to use technology

According to TPB, perceived behavioral control, together with behavioral intention, can be used to directly predict behavioral achievement, or actual behavior. However, the predictive power of perceived behavioral control on actual behavior can be significantly muted, and rendered unrealistic, when, as examples, a person has little information about the behavior, when available resources and/or requirements have changed, or when emergent, new, and unfamiliar elements impinge on the situation. Furthermore, the

influence of perceived behavioral control on behavior is more important as the behavior becomes less volitional. When the person has complete control over the behavior in question, that is, when the behavior is completely voluntary, intentions alone should adequately predict behavior (Ajzen and Fishbein, 1980). In these cases, it is the existing behavioral intention to perform the behavior that can significantly predict actual future behavior. Behavioral intention has long been recognized as an important mediator in the relationship between behavior and other factors, such as attitude, subjective norm, and perceived behavioral control (Ajzen, 1991; Ajzen and Fishbein, 1980; Tang & Chiang, 2009).

## 2.3 The Importance of SMEs

Most of the previous research has centered on large firms. Some studies suggest that information system theories and practices developed for large firms may not be suitable for small ones (Farhoomand and Hrycyk, 1985; Premkumar, 2003). SMEs are different from large firms in several ways. In SMEs, decision-making is centralized in a reduced number of persons, standard procedures are not well laid out, there is limited long-term planning, and there is greater dependence on external expertise and services for information systems (Premkumar, 2003). Furthermore, SMEs face substantially greater risks in information system implementation than large businesses, since they have inadequate resources and limited education about information systems (Cragg and King, 1993). They have difficulties in recruiting and retaining internal information system

experts due to the scarcity of qualified information system experts and the limited career advancement prospects in SMEs (Kuan and Chau, 2001; Carr, 2005).

There is considerable abundance of literature concerning enterprise adoption of IT, for instance, Brown and Lockett (2007) have discussed IT adoption in the specific context of SMEs. More widely Frambach and Schillewaert (2002) described a model of organizational innovation adoption. They suggest a number of determinants that influence the organizations decision on whether to adopt a new innovation; like Accounting Information echnology. Importantly, they suggest that enterprise innovation adoption arises both at the organizational level but also at the individual adopter level. Broadly outlined, these factors are briefly described to highlight key areas of research. Firstly, innovation supplier marketing effort that makes enterprise aware of the technology can provide increased adoption (Brown & Lockett 2007).

Further increments in adoption can be provided via enterprise network participation and inter-connectivity provided via social networks. In Rogers (1995) innovation diffusion terminology this may, in part, be viewed as word of mouth effects that are known to positively influence the diffusion of innovations among early and later adopters. The previously discussed innovation supplier marketing effort, of course, would capture Rogers media effects. Environmental influences can also place sufficient pressure on enterprises to adopt novel technologies. For example, if the prime of a group of companies encourages the use of a new integrating supply chain system, it may be more effective for the supply chain partners to adopt the technology to enhance communication (i.e. a positive network externality); or even essential to remain in the supply chain.

Strategically, if a competitor adopts the technology, it may be essential for other competing enterprises to do so if they are to remain viable within the industry sector (Carr, 2005).

SMEs comprise an essential sector of all countries' economies and in some countries constitute more than 90 per cent of businesses. Given the economic importance and their intrinsic community value, the role of small businesses in emerging markets based on EC is a major policy issue for governments. Smaller companies can benefit disproportionately from the opportunities offered by information technologies and EC. The internet can make size irrelevant, because it can level the competitive playing field by allowing small companies to extend their geographical reach and secure new customers in ways formerly restricted to much larger firms. On the other hand, it is conceivable that the dynamics of electronic markets could create conditions that might impede SME involvement, relating to access to networks and connectivity, technical standards, or institutional arrangements that might have anti-competitive effects or pose barriers to entry. This means that both governments and the business community must remain attentive to developments in the electronic marketplace in order to prevent or remove barriers to full SME participation (Gabriel, 2005).

## 2.4 Theory of Planned Behavior

A social psychology model frequently used to explain a variety of behavioral intentions is the Theory of Planned Behavior (TPB; Ajzen, 1985, 1991). The TPB is an extension of the theory of reasoned action (TRA; Fishbein and Ajzen 1975), and the TRA is an

improvement over Theory of Information Integration (TII; Norman Anderson 1971). The TPB extended the TRA by the addition of Perceived Behavioral Control (PBC) because the TRA has difficulty explaining behaviors over which one does not have volitional control(Ramayah, & Jantan,2004).

The TPB model proposes that intention to perform a behavior is the immediate antecedent of that behavior (Courneya, Bobick and Schinke 1999; Ajzen 2002). Whereas intention, in turn, is determined by three conceptually independent variables labeled attitude, subjective norms and perceived behavioral control (PBC). TPB has successfully been used in previous studies to control undesirable behaviors, indicating good correlations between behavior and planned behavioral control.

According to TPB, an individual's performance of a certain behavior is determined by his or her intent to perform that behavior. Intent is itself informed by attitudes toward the behavior, subjective norms about engaging in the behavior, and perceptions about whether the individual will be able to successfully engage in the target behavior. According to Azjen (1985), an attitude toward a behavior is a positive or negative evaluation of performing that behavior. Furthermore, attitudes are informed by beliefs, norms are informed by normative beliefs and motivation to comply, and perceived behavioral control is informed by beliefs about the individual's possession of the opportunities and resources needed to engage in the behavior (Azjen, 1991). Azjen compares perceived behavioral control to Bandura's concept of perceived self-efficacy (Bandura, 1997). TPB also includes a direct link between perceived behavioral control and behavioral achievement (Ramayah, & Jantan,2004).

The present research drew upon one of the most established social psychology theories about the way in which perceptions influence actions, the Theory of Planned Behavior (TPB, Ajzen 1988, 1991). TPB has been widely applied to aid the understanding of a variety of health-related behaviors successfully. In this study of consumers' perceptions towards purchase behavior, the TPB provides a systematic and comprehensive framework which allows the assessment of personal, social and psychological factors. The main purpose of this study is to analyze psychosocial predictors that affect consumer purchase behavior and decision making and to test whether the TPB model is applicable to be used in oil company context alongside the TPB constructs (Sagas, Cunningham, & Pastore, 2006).

Given two individuals with the same level of intention to engage in a behavior, the one with more confidence in his or her abilities is more likely to succeed than the one who has doubts (Azjen, 1991). As a general theory, TPB does not specify the particular beliefs that are associated with any particular behavior, so determining those beliefs is left up to the researcher(Sagas, et.al, 2006).

The attitude-behavior relationship has been a popular topic in a variety of fields of study and research over the past 30 years. In psychology, this relationship has been studied to better understand what influences our actions and to learn more of how the brain works. In the business world also, to learn to better persuade consumers and learn what campaigns will result in a positive attitude toward a product or service. There are three main models form the backbone of studies concerning Attitude-Behavior Relationships in academia. They are Norman Anderson's Theory of Information

Integrated, proposed in 1971, Ajzen and Fishbein's Theory of Reasoned Action and Planned Behavior, publish in 1980 and 1991. At first glance, the three models seem similar, but further exploration shows that the main premises of these models differ greatly. Besides research done in testing these two models there has been a large amount of time donated to other aspects of the attitude behavior relationship (McCullough,& Cunningham, 2009).

One of the main indicators of the validity of a theory is that it needs to be demonstrated that the particular theory works under a variety of context (Bamberg, Ajzen and Schmidt 2003). Empirical reviews of the TPB have supported the predictive ability of behavioral intention in many different contexts. For instance, past research has tested the TPB model in a variety of behavioral intentions research, including exercise behavior (Rhodes, Blanchard & Matheson 2006), sports and leisure consumption behavior (Onghununtakul 2004), and technology adoption (Pavlou and Fygenson 2006). The TPB model has also been widely applied to food-related behavior (Cowan & McCarthy 2006).

Specifically, researchers have examined the consumption of dietary supplements (Neuhouser 2003) mostly in UK and US context and healthy eating behavior (Payne, Jones and Harris 2004; Hagger and Chatzisarantis 2005). Other than that, a number of previous studies have also used the TPB as conceptual model to explain consumer purchase intention and behavior (e.g. Chiou 1998; Kalafatis, et al. 1999; Magnusson, Arvola, Hursti, Aberg and Sjoden 2001; Puntoni 2001; Cook, Kerr and Moore 2002; Chiou, Huang and Chuang 2005; Tarkiainen and Sundqvist 2005). In all these studies,

the researchers have introduced a modified version of the TPB model in their study and the results were different from those of the original TPB model(Tarkiainen, et, al, 2005).

As mentioned before, TPB is a well-researched model that has been shown to predict behavior across a variety of settings. As a general model, it is designed to explain most human behaviors (Ajzen 1991). Hence, it is reasonable to expect that TPB-based model could effectively explain consumer purchase behavior. Hence, this study aims to propose, operationalize, and empirically examine an extended model (i.e. with the inclusion of self-identity) that explains and predicts consumer purchase behavior(Hagger, et. al, 2005).

A variety of consumer behavior theories derived from the social sciences: psychology, sociology, social psychology or economics have been put forward over the years (Kalafatis, Pollard, East and Tsogas 1999). Many researchers have suggested the intention models from social psychology can explain the behavior as well as behavioral intentions of individual (e.g. Ajzen and Driver 1992a; Bamberg, Ajzen and Schmidt 2003). A social psychology model frequently used to explain a variety of behavioral intentions is the Theory of Planned Behavior (TPB; Ajzen, 1985, 1991; Cowan, et.al, 2006).

The TPB is an extension of the theory of reasoned action (TRA; Fishbein and Ajzen 1975), and the TRA is an improvement over Theory of Information Integration (TII; Norman Anderson 1971). The TPB extended the TRA by the addition of Perceived Behavioral Control (PBC) because the TRA has difficulty explaining behaviors over which one does not have volitional control. The TPB model proposes that intention to

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## 2.5 Perceived Ease of Use of Accounting Information Systems

Recently, the accounting information system has changed from face-to-face conference to more Internet based decisions because accountants are moving their group business booking to the Internet when possible. Additionally, there is a lot more integration between systems than in the past, thus the process is more efficient and accurate (Helsel & Cullen, 2006). Perceived ease of use is defined as to which a person believes that using a particular system will be free of effort. Among the beliefs, perceived ease of use is hypothesized to be a predictor of perceived usefulness. Both types of beliefs are influenced by external variables e.g. computer self-efficacy (Helsel, et.al, 2006).

There is a significant effect of perceived ease of use on usage intention, either directly or indirectly through its effect on perceived usefulness (Agarwal and Prasad, 1999; Davis et al., 1989; Hu et al., 1999; Jackson et al., 1997; Venkatesh, 1999, 2000; Venkatesh and Davis, 1996, 2000; Venkatesh and Morris, 2000). In order to prevent the "under-used" useful system problem, Internet banking systems need to be both easy to learn and easy to use. IT's that are easy to use will be less threatening to the individual (Moon and Kim, 2001). Extensive research over the past decade provides evidence of the

significant effect of perceived ease of use on usage intention, either directly or indirectly through its effect on perceived usefulness.

AIS usage refers to the amount of data flowing through a computer when a person use the Internet for downloading/uploading Web pages, transferring FTP files or using exchange networks, newsgroups, chat services, e-mail, etc. Another terms that is frequently used is download and upload refer to the direction the data travels between a computer and the Internet network. For example, when loading a web page, a computer accesses the data on a server and brings it back. This is called downloading. When a person send files to friends or relatives or organization such as bank, the content travels from your computer to theirs and this is called uploading(Shih, 2004).

AIS judgments are in turn related to outcome expectations. Outcome expectations are estimates that a behavior will produce particular outcomes (Oliver & Shapiro, 1993) but depend upon how well one thinks her or she can perform the behavior (Bandura, 1977). Oliver and Shapiro (1993) found that the stronger a person's self-efficacy beliefs, the more likely he or she was to try to achieve the desired outcome. In the present context this means that AIS should be positively related to the expectation of positive outcomes of Internet usage, such as doing banking transactions on the intranet and internet(Bates, et.al, 2007).

## 2.6 Perceived Usefulness toward Accounting Information System Adoption.

The theoretical importance of perceived usefulness and perceived ease of use as determinants of diverse lines of research. The impact of perceived usefulness on system utilization was suggested by the work of Schultz and Slevin (1975) and Robey (1979). Intention may be defined as a measure of the strength of one's intention to perform a specific behavior (Fishbein & Ajzen, 1975); that is, use an information system. Petty, Cacioppo, and Schumann (1983) suggested that the argument for change must contain well-supported explicit facts to influence one's beliefs about the perceived usefulness of the system. The TAM model has been tested across a wide range of computer settings and has been shown to be a robust predictor of computer use (Taylor & Todd, 1995 Venkatesh & Davis 2000; Yang, & Yoo, 2004).

Davis et al. (1989) found that behavioral intention to use the system is significantly corrected with usage, and that behavioral intention is a major determinant of user behavior while other factors influence user behavior indirectly through behavioral intention. Hill, Smith, and Mann (1987) also indicated behavioral intention significantly predict action (Nadim & Begum, 2008).

The ambiguities make AIS difficult for some user to understand. To use internet financial and accounting services, users not only need to understand the technology, they also need to understand financial services. The complex nature of financial services often renders the task of information search easier than information evaluation (Wang, 2004). The combined effect of users' understanding of both the internet channel and financial

services is difficult to foresee. AIS acceptance can be studied by examining the causes behind frequency of use of accounting system. This identifies the perceived usefulness and the perceived ease of use of a technology as determining user behaviors. Since many researchers have also found that trust influences user's behaviors in the usage of AIS (Yang, et.al, 2004).

## 2.7 The Intention to use Adoption of Accounting Information System

The accounting based measures are given by (Brancato, 1995), stating that these activities are to historical which one company need to be focus on the past strategies. The power has lack of prediction with the working on only raw fact and figures. It is very wrongly perceived that they reward a wrong behavior which creates a negative impression other the positive performer (Eveleth, et.al, 2008).

The accounting base activities are more focused on inputs rather than outputs. Most of the time they do not capture key business changes until it is too late. It reflects functions, not cross-functional process within a company. Lastly it is very difficult to quantify resources such as intellectual capital with a given inadequate consideration. (Ruben, 1999), These days' governments focus on performance measures, especially in term of complications, varied services, such as public sports programs managed at the local level. Agencies must go beyond financial measures and examine a bigger group of programmatic outcomes in order to achieve long-term strategic objectives. One of the important tools which is used by organization is AIS, which defines cause and effect

relationships and performance drivers, while on the other hand still emphasizing to accomplishment of financial objectives (Maiga, 2003).

Several competing theoretical approaches have been used to investigate the determinants of acceptance and use of new information technology (Venkatesh et al., 2003). One of the most important lines of study in this area focuses on the determinants of individual acceptance of new technologies by using behavioral intention (intention to adopt a new technology) or behavior itself (actual adoption of a new technology) as dependent variables (Davis, 1989; Taylor and Todd, 1995; Eveleth, et.al, 2008).

The main contribution of this current research study is to offer a validated scale of social influence that fits well into the Technology Acceptance Model. This scale will be a modification of one that has typically been used to measure social influences in these models. The development of this scale will closely follow the method used by Davis in developing scales for Usefulness and Ease of Use in the original Technology Acceptance Model (Davis 1986). The goal will be a scale that preserves the parsimony of the original Technology Acceptance Model while significantly adding to its predictive power (Tang, et.al, 2009).

The notion that individual differences play a crucial role in the implementation of an technology innovation has been a recurrent research theme in wide variety of disciplines including information systems, production and marketing (e.g., Harrison & Rainer, 1992). With the advent of the personal computer in the 1970s, the enhancement of software applications in the 1980s and the emergence of the World Wide Web in the 17 1990s, technology has created a new world of learning at all levels of education.

Although technology has greatly improved the educational process, it has become evident that not all students are reaping the benefits of technology in our public college. With the dawning of the information age, it is evident that there is a disparity among technology usage between different socioeconomic groups (Tang, et.al, 2009).

The review of literature involving the digital divide tends to evolve around two central themes: computer access and Internet access (Mathieson, 1991). Thus, acceptance behavior is posited to be influenced by a variety of factors, including individual differences, social influences, beliefs and attitudes, situational influences, and managerial interventions. Managerial interventions and individual differences, in turn, are hypothesized to have an effect on beliefs and attitudes (Ramayah, et.al, 2004).

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# CHAPTER THREE

# RESEARCH METHODOLOGY

## 3.1 Introduction

This study will provide a brief description about the method to conduct the study for investigating the level factors affect the AIS adoption in SMEs. In this part to the study we will be discussing the tools used to accomplish this study and the methods which are used in this study.

## 3.2 Research Framework

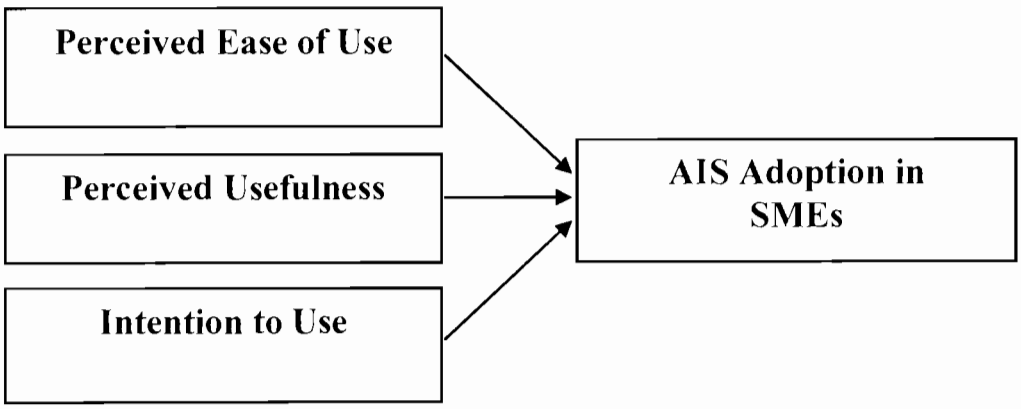


**Figure 1: Research Framework**

## 3.3 Hypothesis

H1 : There is a relationship between PEU and AIS adoption in SMEs in Libya

H2 : There is a relationship between PU and AIS adoption in SMEs in Libya

H3 : There is a relationship between IU and AIS adoption in SMEs in Libya

## 3.4 Type and Nature of Study

This chapter describes the research methods used for Libyan small and medium firms adoption for AIS. Research methodology is a set of procedures or methods used to conduct research. There are two types of research methodologies. These two types of methodologies qualitative and quantitative methodologies. Quantitative methodologies will be used during the AIS adoption phase in this study.

Qualitative research involves the use of qualitative data such as interviews, direct observations, survey and analysis of documents and material. Quantitative research involves questionnaire for the collection of data. These research methods are important to gather information such as users' preferences, opinions and suggestions.

### 3.4.1 Type of Investigation

Based on objective of this study this is a causal study quantitative in nature. When a researcher wants to delineate the cause of one or more problems, then the study is called

a causal study. In this study researcher's objective is to investigate the adoption factors of AIS in small and medium sized firms in Libya.

### 3.4.2 Study setting

In this study we are aiming to conduct the study in Libya. It is aimed to take the data within three months time and the intention of time will be setting from July 2010 until September 2010.

### 3.4.3 Unit of Analysis

Unit of analysis in this study is the managers in Libyan firms who are practicing AIS and how its influence the overall adoption process. Also the other accountants who are using accounting system will be included.

## 3.5 Size of Sample

Population of this study is all firms in industrial area are practicing AIS in Libya in SMEs. Researcher will use the selective sampling method to achieve the objective of this study. 150 managers will be selected from industrial areas that are practicing AIS in their firm as sample for this study. The questionnaire has distributed to the 150 managers in the Industrial Area of Tripoli Libya. Among those 100 questionnaires will be collected from the managers. The data and this is a targeted sample. The data will be focused to be calculated from those firms especially where AIS is being practiced.

## 3.6 Data Collection Method

The search for the standardized instrument and the making of questionnaire is conducted to execute the survey. There are various methods in collecting information or more precisely data gathering. It can be carried out by searching the related topic literatures, white papers, technical papers, marketing reports, conferences proceedings, product data sheets, product brochures, web pages, project focus groups, conducting interviews with experienced personnel, distributing questionnaire, or even communicate to people. The research methods used for this dissertation purpose are the review of literatures and books from the Internet, depth-interview and data gathering by distributing questionnaires among managers. In this regards data will collect through questionnaire distribution to the managers in SMEs.

## 3.7 Questionnaire Design

In the first phrase, this research adopts an expert-opinion survey, which uses convenience sampling to choose the sampling objects for firms in Libya. We also asked selected managers about their objectives and performance of organization in various ways after executing AIS and each kind of performance index. Before the in-depth interview, we referred to related literature reviews to list all possible measurement indexes for the draft of the interview. We then chose managers of firm interviewees from different organization in Libya. Each interview will to last about 30 minutes. The direction and questions inside the questionnaire would then be formulated based on the items that all interviewees consider important. Two part will be designed our questionnaire

demographic and interval scale. We will use personally administrated questionnaire which will consist a Likert interval scale, "strongly agree, agree, neutral, disagree, and strongly disagree to" rate the specific question about AIS adoption.

## 3.8 Summary

This chapter discussed about the research method used in this study. Distributions of questionnaire have been used as data collection research instruments. It is intended that the findings of this research study will be used local and regional authorities to assess and evaluate the AIS adoption factors.

# CHAPTER FOUR

# RESULTS

## 4.1 Introduction

This chapter presents the results of the statistical analysis of four sections. The first section illustrates the overview of data collected. The second section explains the respondent's demographic profile. The third section covers the results from the statistical methods, including factor analysis, reliability test, descriptive statistics, correlation analysis, and regression result.

## 4.2 Overview of Data Collected

A total of 125 questionnaires were distributed to employee in Tripoli practicing the AIS, Libya by questionnaire administrator appointed by researcher. Of the 120 returned questionnaires, 20 questionnaires were discarded due to incomplete data. Hence, 100 questionnaires were used in the statistical analysis, representing a response rate of 80%.

## 4.3 Demographic Profile of Respondents

Table 4.1 depicts the demographic profile of respondents. Appendix CI provides the demographic profile of respondents in detail. In this study, demographic variables consisted of gender, education level, number of employee and experience in AIS.

**Table 4.1: Summary of Demographic Profile**

| Demographic Variables | Categories | Frequency | Percentage (%) |
|---|---|---|---|
| Gender | Male | 79 | 79 |
| | Female | 21 | 21 |
| Education level | Diploma | 7 | 7 |
| | Bachelor | 22 | 22 |
| | Master | 60 | 60 |
| | PhD | 11 | 11 |
| Number of employee | Less than 20 | 16 | 16 |
| | 21-50 | 21 | 21 |
| | 51-100 | 37 | 37 |
| | 101-200 | 23 | 23 |
| Experience in AIS | Less than 1 year | 1 | 1 |
| | 1-3 years | 27 | 27 |
| | 3-5 years | 52 | 52 |
| | 5-10 years | 12 | 12 |
| | More than 10 Years | 8 | 8 |

As revealed in Table 4.1, 79% of the respondents were males with the remaining of 21% being females. In terms of education level, majority of the respondents have master degree (60%). In the category number of employees in a firm majority of the firm has 51 to 100 range of employee (37%). The largest percentage of the respondents reported they have 3 to 5 years work experience with AIS (52%).

## 4.4 Analysis

This section will discuss the results of the statistical analysis, including reliability test, descriptive statistics, correlation analysis, and regression analysis.

### 4.4.1 Reliability Test

Reliability tests were conducted on PEU, PU, IU, AIS. The Cronbach alpha values of the study variables are shown in Table 4.2. The detail of reliability analysis is given in Appendix C2. As revealed in Table 4.2, the reliability coefficient of the study variables exceeded the minimum acceptable level of 0.70 (Nunnally & Bernstein, 1994).

Table 4.2: Reliability Coefficient of the Study Variables

| Variables | Total Items | No.of Items Deleted | Alpha Coefficient |
|---|---|---|---|
| PEU | 4 | None | 0.88 |
| PU | 4 | None | 0.91 |
| IU | 4 | None | 0.79 |
| AIS Adoption | 4 | None | 0.78 |

### 4.4.2 Descriptive Statistics

The on PEU, PU, IU, AIS variables were measured based on a 5-point Likert scale. Table 4.3 highlights the results of the descriptive analysis in terms of means and standard deviations for interval scale variables. The detail of descriptive statistics could be referred to Appendix C3.

**Table 4.3: Descriptive Statistics of the Study Variables (N=100)**

| Variables | Mean | Standard Deviation |
|---|---|---|
| PEU | 4.14 | 0.65 |
| PU | 4.44 | 0.49 |
| IU | 4.17 | 0.61 |
| AIS Adoption | 4.55 | 0.41 |

For the PU, the mean and standard deviation values were 4.44 and 0.49 respectively. Regarding the IU the mean value was 4.17 whilst the standard deviation value 0.61 understanding IU variables have the mean 4.45 with the standard deviation 0.41 which indicates the most of the people agreed on AIS adoption in SMEs positively.

### 4.4.3 Correlation Analysis

To examine the bivariate relationship among the variables, a Pearson's correlation analysis was carried out. Table 4.4 displays the results of the correlation analysis of the study variables. The detail of correlation analysis is depicted in Appendix C4.

**Table 4.4: Pearson's Correlation Analysis of the Study Variables**

| | Variables | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| 1 | PEU | **1.00** | | | |
| **2** | PU | **0.27**** | **1.00** | | |
| 3 | IU | **0.91**** | **0.51**** | **1.00** | |
| 4 | AIS Adoption | **0.91**** | **0.97**** | **0.99**** | **1.00** |

***Note, ** p<0.01***

Base on Table 4.4, PEU has a positive correlation with perception (r = 0.38, p<0.01) and AIS (r = 0.91, p<0.01). All study variables are correlated to AIS with the range of value 0.39 to 0.96.

As revealed in Table 4.4, AIS adoption variable was highly correlated with PEU *(r=0.91, p<0.01)*. This was followed by IU *(r=0.51, p<0.01.*

### 4.4.4 Regression Analysis

Based on the discussion made in subsection 2.3 of Chapter 2, four main hypotheses were developed. The regressions analyses were conducted to examine

- There is a relationship between PEU and AIS adoption in SMEs in Libya
- There is a relationship between PU and AIS adoption in SMEs in Libya
- There is a relationship between IU and AIS adoption in SMEs in Libya

#### 4.4.4.1 Regression between PEU and AIS Adoption

The first hypotheses of this research postulated the relationship between perceived ease of use and adoption of accounting information system. Regression analysis was conducted to test HI, with AIS as the dependent variable. The regression result is presented in Table 4.5.

**Table 4.5: Regression between PEU and AIS.**

| **Independent Variable** | **Std Beta** |
|---|---|
| PEU | **0.96**** |
| $R^2$ | **0.92** |
| $Adj.R^2$ | **0.91** |
| $R^2$ Change | **0.91** |
| F Change | **264.02** |
| Sig. F Change | **0.00** |

According to Appendix C5.1, the PEU variables were significantly in the high positive correlation (0.96). The coefficient of determination ($R^2$) is 0.92, representing that **92** % of the cases will be correctly predicted by the regression equation and 8% not. The variable had a tolerance value of more than 0.10 and a variance inflation factor (VIF) of less than 10.

As shown in Table 4.5, the beta values for the independent variable PEU have positive impact on AIS adoption. Specifically, the result revealed that PEU has ($\beta = 0.53$, $p < 0.01$) positive impact on AIS.

Simple regression was conducted to investigate how PEU could affect AIS. The results (table 4.5) are statistically significant $F(4, 95) = 264.02$, $p < 0.000$. **(Hypothesis 1 Accepted).**

### 4.4.4.2 Regression between PU and AIS Adoption

**Table 4.6: Standard Beta Value for PU and AIS**

| Independent Variable | Std Beta |
|---|---|
| PU | **0.99**** |
| $R^2$ | **0.929** |
| $Adj.R^2$ | **0.99** |
| $R^2$ Change | **0.99** |
| F Change | **857.78** |
| Sig. F Change | **0.00** |

According to Appendix C5.2, the customer perception variables were significantly in the high positive correlation (0.99). The coefficient of determination ($R^2$) is 0.99, representing that **99%** of the cases will be correctly predicted by the regression equation and 1% not. The variable had a tolerance value of more than 0.10 and a variance inflation factor (VIF) of less than 10.

As shown in Table 4.6, the beta values for the variable perceived usefulness were significant. This implied that the PU has the positive impact on accounting information system adoption in small and medium sized firms. Specifically, the result revealed that PU has ($\beta = 0.99, p < 0.00$) positively related with AIS adoption.

Simple regression was conducted to investigate PU and AIS adoption relationship. The results (table 4.5) are statistically significant F (1, 98) = 857.78, p< 0.000. **(Hypothesis 2 Accepted).**

### 4.4.4.3 Regression between Intention to use and AIS

**Table 4.7: Intention to use and AIS**

| Independent Variable | Std Beta |
|---|---|
| Intention to Use | **0.90**** |
| $R^2$ | **0.83** |
| $Adj.R^2$ | **0.82** |
| $R^2$ Change | **0.82** |
| F Change | **467.52** |
| Sig. F Change | **0.00** |

According to Appendix C5.3, IU and AIS adoption were significantly in the high positive correlation (0.90). The coefficient of determination ($R^2$) is 0.83, representing that **83%** of the cases will be correctly predicted by the regression equation and 17% not. The variable had a tolerance value of more than 0.10 and a variance inflation factor (VIF) of less than 10.

As shown in Table 4.7, the beta values for the independent variable IU were significant. This implied that IU AIS adoption. Specifically, the result revealed that IU ($\beta = 0.83, p < 0.00$) positively related with AIS adoption in SMEs.

Simple regression was conducted to investigate the relationship between intention to use and AIS adoption in small and medium sized firms in Libya. The results (table 4.7) are statistically significant $F(1, 98) = 467.52$, $p < 0.000$. **(Hypothesis 3 Accepted).**

## 4.5 Summary of Findings

Summarizes the findings in this chapter Table 4.9

**Table 4.8: Summary of All Hypotheses Results**

| Hypotheses | Results |
|---|---|
| H1: There is a relationship between PEU and AIS adoption in SMEs in Libya | Accepted |
| H2: There is a relationship between PU and AIS adoption in SMEs in Libya | Accepted |
| H3: There is a relationship between IU and AIS adoption in SMEs in Libya | Accepted |

# CHAPTER FIVE

# CONCLUSIONS AND RECOMMENDATIONS

## 5.1 Introduction

With regards the factors, and in the context of SMEs, our findings demonstrate that various elements influence the adoption of information technology. First, there is a broad consensus on the part of the respondents that the adoption is motivated by the growth experienced by the firm. Growth makes it necessary for firms to adopt new and more powerful technological solutions. This conclusion is in line with other research demonstrating the importance of size in technology adoption models for SMEs (Premkumar, 2003).

## 5.2 Discussion

The previous chapter presents the results of data analyses intended to test the research model for this study. In this final chapter, the results of empirical tests are summarized and discussed from the perspective of their practical and theoretical implications, possible limitations and future research opportunities. This chapter also determined the discussion of the research framework. The examination was confirmed the direct relationship between perceived ease of use and perceived usefulness to Intention to use AIS adoption in small and medium sized firm in Libya.

## 5.3 AIS Adoption and Libyan SME's

The AIS adoption in SMEs at Tripoli of Libya defined as the unit of analysis of the technology acceptance model (TAM) of this study. It was the exploration of the influence of perceived usefulness and ease of use of the public accountant. At the end, it has conclusively found answer to all research questions and research objectives and found evident to all hypotheses formulated. The questionnaire sees a complete picture of the way different things are connected, what to focus on and measure, together with direction and clarity. Perceived of usefulness and ease of use were confirmed as a variables to influence Intention to Use AIS adoption.

## 5.4 Results Discussion

The result of correlation, the regression and multiple regressions in assessing the variables or the empirical relationship between AIS adoption to the perceived usefulness and ease of use and intention of use were positively significant as hypothesized. The positive association between two independent and dependent variable was supported. Furthermore, empirical research supporting the theoretical development of technology acceptance model (TAM) has been conducted. Analyze AIS adoption is the scientific activities and as a combination of representing (theory) and empirical research to explore the technology acceptance of accounting information system in SMEs.

The multivariate technique was employed to assess the interaction among variables in the model. The result of correlation, the regression and multiple regressions

in assessing the variables or the empirical relationship between perceived usefulness and ease of use contribute were positively related Intention to use AIS adoption as hypothesized.

The positive association between independent variables (perceived usefulness and ease of use) to the AIS was supported. The set of items that correspond to each theoretical construct was initially subjected to an examination of Cronbach's alpha are confident reliable more than 0.7 as recommended. Thus, all measures in the perceived usefulness, ease of use and intention to use AIS adoption items were appeared internally consistent, reliable and valid. The high influence among independent variables to dependent variable confirmed the hypothesis. The main objective is achieved, and this chapter concludes the relationship and level of influence of perceived usefulness and ease of use as predictor to the Intention to use AIS adoption. In conclusions, this study supported technology acceptance model (TAM) by Davis (1990).

The main objectives of this study are to investigate there is relationship between perceived usefulness, ease of use and Intention to use AIS adoption. AIS based on the usefulness and ease of use is the measurement of the technology acceptance. Furthermore, the terms of the likely behavioral and performance changes of technology acceptance are expected to occur through performance applications to business functions of public sector organization in Tripoli of Libya. These changes should be measure through the level of acceptance of technology. At the end, this study has conclusively found answer to all research questions and research objectives and found evident to the hypothesis formulated.

The positive association between combinations among all independent variables (perceived usefulness and ease of use) of AIS adoption was supported. Descriptive research supporting such theoretical development has been conducted. The Intention to use AIS adoption measurement in this research also supported the conceptual development of the technology acceptance model by Davis (1990) as the module interaction to enhance the technology performance in the public sector. Furthermore, the predictors of AIS adoption such as perceived usefulness and ease of use was support the study that has done by Davis (1990). This thesis success to answer the research questions, reaches the objective, and confirmed the hypothesis of the exploration of technology acceptance in SMEs Tripoli of Libya.

## 5.5 Recommendation and Future Suggestions

The organizational objectives in technology improvement, accountant must identify the acceptance level of their services as a key business processes. This study recommends the acceptance level technology among provider is a key process to monitor and to ensure the services outcomes in high satisfactory level. Internal business processes are the mechanisms through which performance expectations are achieved. In a public sector organization, employees who have better understanding to their customer are better able to improve quality and lower cycle times in technology improvement. The authors form are need to fine more avenues in order to have better understanding of AIS adoption among the SME's. The future researchers are needed to conduct the similar research in other sector of Libyan SME's. The technology acceptance model is a management system (not only a measurement system) that enables SMEs to clarify their vision and

strategy in technology enhancement and translate them into action. It provides feedback around both the internal business processes and external outcomes in order to continuously improve business performance and results. At the same time, the SME's policies of benchmarking and building closer relationships with the technology supplier can be fostered if it establishes a complete network of relationships (by means of collaboration agreements, strategic alliances, joint ventures, etc.) with firms that are innovative in information technology. Equally, there may be a positive association between networks of SMEs and technological learning (Chipika and Wilson, 2006).

## 5.6 Conclusion

The present study supported Technology Acceptance Model (TAM) by Davis (1991) to explore the interaction between user and system in the context of AIS adoption SMEs. Empirical research supporting such theoretical development has been conducted. Analyze Intention to use AIS adoption is the scientific activities to determine the acceptance level of technology and as a combination of perceived usefulness and ease of use representing the TAM theory to improve the technology performance of public sector organization in Tripoli of Libya. This research also supports the conceptual development of AIS adoption improvement to the public sector performance in their services to the customer. Intention to use AIS adoption are effective in aligning of business areas and activities with its overall strategy, identifying customer and services needs and also identifying cause-and effect relationships among measures that may aid in problem diagnosis and encourage accountability across the technology implementation in their service. This perspective

provides data regarding to the internal business results of public sector organization in Tripoli of Libya.

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