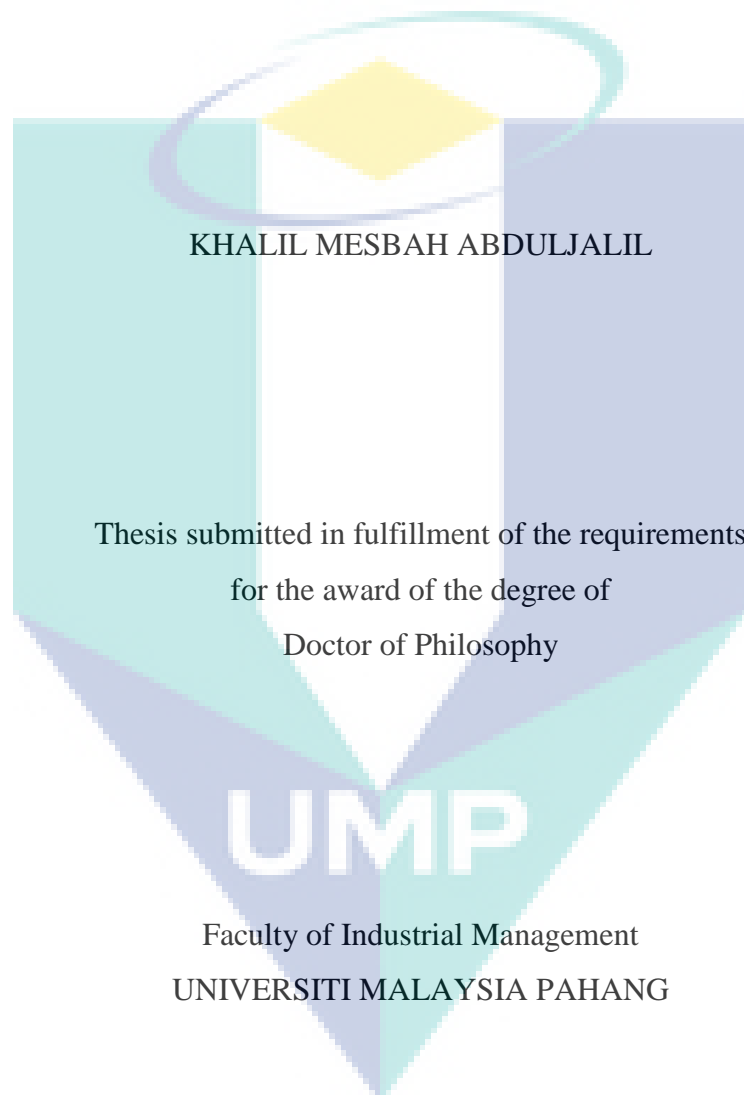# AN INVESTIGATION ON USER'S INTENTION TO ADOPT ACCOUNTING INFORMATION SYSTEM IN LIBYAN SMALL AND MEDIUM ENTERPRISES: AN ANALYSIS OF STRUCTURAL EQUATION MODELING

KHALIL MESBAH ABDULJALIL

Thesis submitted in fulfillment of the requirements
for the award of the degree of
Doctor of Philosophy

Faculty of Industrial Management
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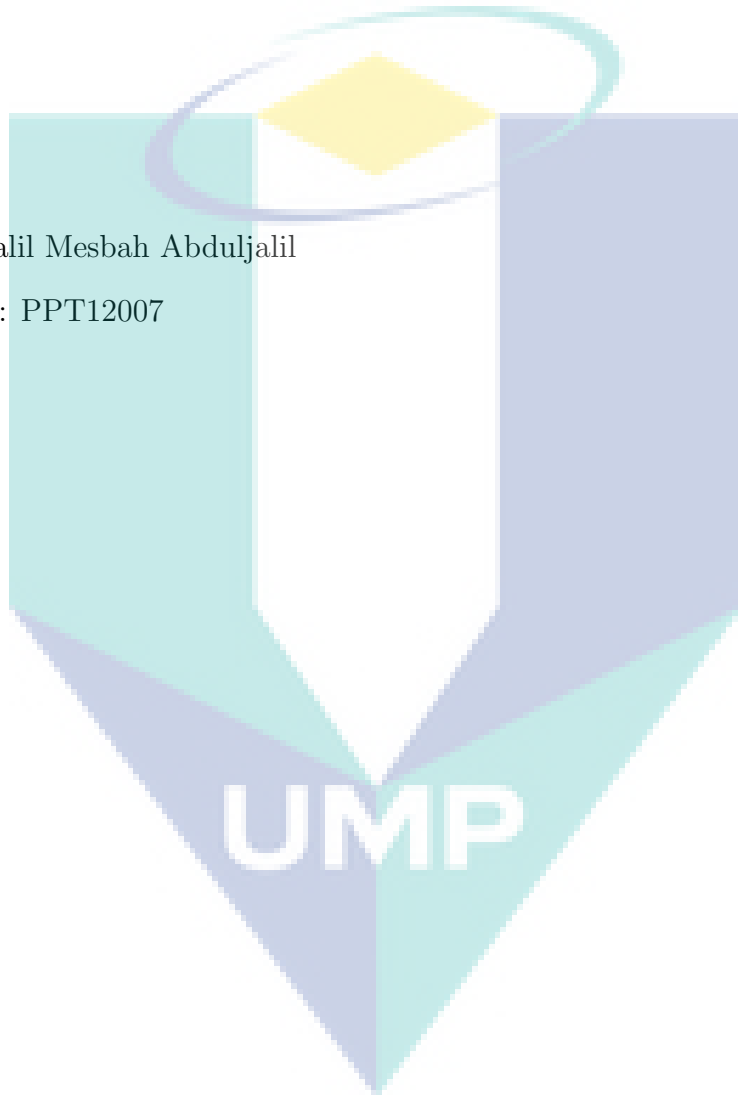Date:

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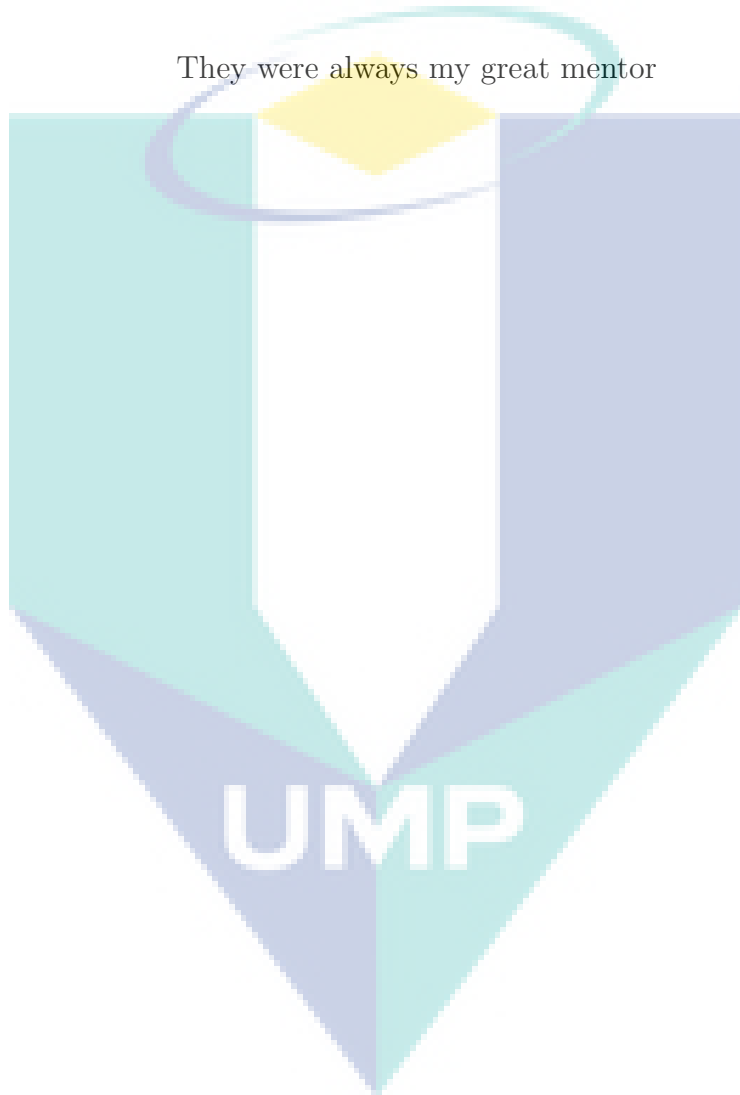
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DEDICATION

This thesis is dedicated to my beloved parents who encourage and inspired me to seek my education to my fullest capacity.

They were always my great mentor

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Khalil Mesbah Abduljalil
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ABSTRACT

Technology adoption study has been a constantly developing field as this field contributes to its development with either system-focused or belief-focused. The main purpose of this study had been to investigate the attitude-behavioral-intention relationship for the adoption of Information System. In fact, this study highlighted the belief-focused aspect by using the technology acceptance model and the motivation model. Hence, the current research model proposed a combination of Technology acceptance model and motivation model to investigate the mediating effect of user's attitude between Information Technology characteristics and behavioral intention. A non-probability purposive sampling technique was applied to collect data from owners or top manager of small and medium enterprises (SMEs) in Libya. A total of 348 personal structured questionnaires were considered for the analysis with the response rate of 46.4%. Besides, a structural equation modeling approach was employed to examine the direct and the mediating effects as drawn by the hypotheses. Furthermore, with quantitative research design following positivist research paradigm, the methodology was designed to focus on the research questions and the objectives. The questionnaire was designed by using closed interval measurement scale with proper care taken in designing the survey instruments. SPSS 21.0 & AMOS 21 for structural equation modeling were utilized in confirming the hypotheses developed for the study. The findings of the study revealed that there was no direct relationship between IT characteristics and behavioral intention to adopt accounting information system (AIS). From the square multiple correlation it was found that the variables were having overall 71% of the influence on behavioral intention to adopt AIS. Nevertheless, the results found support for the effect of user's attitude as mediator between IT characteristics and behavioral intention. Moreover, intrinsic motivation and extrinsic motivation factors of the motivation model had been found to have positive influence in the form of attitude on owner's behavior to adopt AIS. On top of that, perceived usefulness and perceived ease of use were also found to have positive mediating effect for the relationship between IT characteristics and intention of users. The findings, thus, confirmed that user's attitude had been associated with both types of deviances. Therefore, owners should realize that a great level of AIS adoption is indeed associated with its process and context. Apart from that, attitude was found to play an important mediating effect that enhanced the perception and the motivation among decision makers to adopt information system. Therefore, in selecting the AIS adoption, SMEs need to focus on motivating their managers within the organizational context and an attempt must be made both directly and indirectly for AIS adoption.

ABSTRAK

Kajian penggunaan teknologi telah menjadi bidang yang sentiasa membangun kerana bidang ini menyumbang kepada pembangunannya, sama ada berfokuskan sistem atau berfokuskan kepercayaan. Tujuan utama kajian ini adalah untuk menyiasat hubungan sikap-kelakuan-niat untuk penggunaan Sistem Maklumat. Malah, kajian ini menekankan aspek berfokuskan kepercayaan dengan menggunakan model penerimaan teknologi dan model motivasi. Oleh itu, model penyelidikan semasa mencadangkan gabungan model penerimaan Teknologi dan model motivasi untuk menyiasat kesan perantaraan sikap pengguna dengan ciri-ciri IT dan niat tingkah laku. A bukan kebarangkalian teknik persampelan bertujuan telah digunakan untuk mengumpul data daripada pemilik atau pengurus atas (PKS) di Libya. Sebanyak 348 soal selidik berstruktur peribadi telah dipertimbangkan untuk analisis dengan kadar respons 46.4 %. Selain itu, pendekatan pemodelan persamaan struktur telah digunakan untuk memeriksa kesan langsung dan perantaraan seperti yang disediakan oleh hipotesis. Tambahan pula, dengan reka bentuk penyelidikan kuantitatif yang mengikuti paradigma penyelidikan positivis, metodologi yang telah direka memberi tumpuan kepada soalan penyelidikan dan objektif. Soal selidik telah direka dengan menggunakan skala pengukuran selang tertutup dengan memberi perhatian yang teliti bagi mereka bentuk instrumen kajian. SPSS 21.0 & AMOS 21 untuk pemodelan persamaan struktur telah digunakan dalam mengesahkan hipotesis yang dibangunkan untuk kajian. Dari korelasi berganda kuasa dua didapati bahawa pembolehubah telah mempunyai keseluruhan 71 % daripada pengaruh ke atas niat tingkah laku untuk menerima pakai Sistem Maklumat Perakaunan (AIS). Dapatan kajian ini menunjukkan bahawa tidak terdapat hubungan secara langsung antara ciri-ciri Teknologi Maklumat dan niat tingkah laku bagi menerima pakai AIS. Walau bagaimanapun, keputusan itu mendapati ada sokongan untuk kesan sikap pengguna sebagai pengantara antara ciri-ciri IT dan niat tingkah laku. Selain daripada itu, faktor motivasi intrinsik dan motivasi ekstrinsik model motivasi telah didapati mempunyai kesan yang tinggi dalam bentuk sikap terhadap tingkah laku pemilik bagi menerima pakai AIS. Tambahan pula, tanggapan manfaat dan kemudahan juga didapati mempunyai kesan perantaraan yang signifikan untuk hubungan antara ciri-ciri IT dan niat pengguna. Justeru itu, dapatan kajian mengesahkan bahawa sikap pengguna telah dikaitkan dengan kedua-dua jenis lencongan. Oleh itu, pemilik perlu sedar bahawa tahap penggunaan AIS yang besar sememangnya berkaitan dengan proses dan konteksnya. Selain itu, sikap didapati mempunyai kesan perantaraan penting yang dapat meningkatkan persepsi dan motivasi dalam kalangan pembuat keputusan bagi menerima pakai sistem maklumat. Oleh itu, dalam memilih penggunaan AIS itu, PKS akan menerima kesan ke atas pelaksanaan AIS, bersama-sama dengan konteks organisasi, dalam mempengaruhi tahap perlaksanaan AIS secara langsung dan tidak langsung melalui penggunaan AIS.

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LIST OF ABBREVIATIONS

AIS	Accounting information system
AU	Actual use
AGFI	Adjusted goodness fit index
AVE	Average Variance Extracted
AMOS	Analysis of moment structure
BI	Behavioral intention
CIA	Central intelligence agency
CEO	Chief executive officer
CET	Cognitive Evaluation Theory
CFA	Confirmatory Factor Analysis
CFI	Confirmatory fit index
CMV	Common Method Variance
CR	Composite Reliability
DOI	Diffusion of innovation
EM	Extrinsic motivation
ERP	Enterprise resource planning
GDP	Gross domestic product
GFI	Goodness fit index
GLS	Generalized Least Square
ILM	Internet based learning medium
ICT	Information and communication technology

IM	Intrinsic motivation
IS	Information system
IT	Information technology
IMF	International monetary fund
LD	Libyan dinnar
MM	Motivation model
MLE	Maximum Likelihood Estimation
MNEs	Multinational enterprises
OLS	Ordinary Least Square
PEOU	Perceived ease of use
PLS	Partial Least Square
PU	Perceived usefulness
RMSEA	Root mean square of error approximation
RMSR	Root Mean Square Residual
SDT	Self determination theory
SMC	Squared Multiple Correlation
SME	Small and medium enterprises
SPSS	Statistical package of social sciences
TAM	Technology acceptance model
TLI	Tucker Lewis Index
TRA	Theory of reasoned action
TPB	Theory of planned behavior
UK	United kingdom
USA	United states of America
UTAUT	Unified theory of acceptance and use of technology

CHAPTER 1

INTRODUCTION

1.1   Introduction

This chapter intends to provide an overview of the background, purpose, scope, objective, significance, and potential contributions of the study. The research questions and organization of this thesis are presented. In addition, definitions of key terms used in this study are also explained.

1.2   Background of the Study

Accounting information system (AIS) is a tool that helps management control from the viewpoint of economic and financial aspects. Accounting can play an important role in providing such information for the economic activities and give reassurance to both Libyan government and foreign institutional investors to believe that accounting objectives and practices in Libya have the potential effect of economic development (Bakar and Alex, 2003). Information is one of the main resources used and applied in organizations. Information development is essential for improving or developing new contexts to support management, strategy, and decision making. Furthermore, management information is important in organizations as it requires quality information in order to improve the efficiency and effectiveness

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of their operations for higher profitability and increased productivity. Straub et al. (2002) stated that many organizations in developing countries have prioritized the importance of information system in increasing their overall efficiency and improving effectiveness of their businesses and processes. Thus, information system adoption has become essential to build infrastructures to support a more reliable and quick transfer of information.

Development of economy based on a successful monitoring and planning process in a developing country like Libya is very crucial. The lack of micro and macro information for the well-established planning process limits the organization to participate in successful economic development. Okunoye (2003) provide evident that there are many obstacles resulted in lack of organizations to adopt the technology. As per Central Intelligence Agency (2013) report, Libyan economy relies highly on the oil sector, whereas large enterprises represent the backbone of any economy, with small and medium enterprises (SMEs) are considered as the real growth engine for the real economy of Libya. The main objective of accounting in Libya is to comply the requirements of statistics and tax authorities. In the Arab world, the education rate is highest in Libya. Thus, Libya has been very enthusiastic in order to ensure access to right members of the association, including advancement in technology and infrastructure. According to Rhema and Miliszewska (2010), "The adoption of information and communication technology (ICT) at all levels is an essential factor in the advancement plan of Libya". According to Wongsim and Gao (2011) customers require good quality information, which is basic to the requirements of business activity and leads to high quality work performance in the partnership between the supplier and the consumer.

Hunaiti et al. (2009) argued that "at a strategic point of view, it is very crucial for SMEs to deal with the uncertainty in the competitive market and improve their system and data processing capacity in order to match the quality of

information requirements" (Hunaiti et al., 2009). Many studies have focused on the advancement of business strategy and information technology strategy. This study attempts to fill the gap in the accounting sector by examining various factors that influence the adoption of AIS in the context of Libyan SMEs. Libya is an Arab country with common cultural values, language, religion and social values with that of other Arab countries. Islam is considered as a religion that covers both social and political aspects and the principles of people's behavior. Twati and Gammack (2006) argued that it is very crucial to have a good relationship with colleagues and leaders and to have a link with both internal and external workforce in order to have good competitiveness in the market. Thus, in order to gain competitive advantage, many organizations in all sectors have been converting the modern technology.

Table 1.1: Real economy of Libya from 2009 to 2012

Economic Indicators	2009	2010	2011	2012
Consumer Price Index, 2005=100	121.90	124.90	-	NA
Gold Reserve	4.62	4.62	3.75	3.75
Goods export	37,161.60	46,050	17,500	NA
Goods Import	10,000	10,500	5000	NA
Gross Domestic Product	86,289	NA	NA	NA

Source: IMF data warehouse, 2013

From the IMF report provided above, it can be noticed that Libyan economy was very highly influenced by the revolution faced in the country in the year 2010-2011. Because of that, the budget deficit was 27.0 percent of GDP in 2011, compared to a budget surplus of 16.2 percent in 2010. Similarly, the current account surplus narrowed from 19.8 percent of GDP in 2010 to 1.3 percent in 2011.

Crude oil production should reach pre-conflict levels, whereas reconstruction expenditure and the release of pent-up private demand should facilitate advancement in non-hydrocarbon sectors. Increased hydrocarbon exports will lead to a fiscal

surplus of 14.2 percent of GDP and increase the current account surplus to 21.9 percent. The normalization of imports will continue to contain consumer price inflation at 10.0 percent, despite the upward pressure on prices arising from supply bottlenecks in housing and transportation. Libya has an opportunity to break with the past and promote inclusive growth by developing a vibrant, private-sector driven economy. Such a holistic strategy should also seek to address governance gaps, shortcomings in the legal and physical infrastructure, as well as improve workforce skills. Policies should be linked to a diversification strategy that includes fostering competition, establishment of a comprehensive social safety net, and financial system advancement that provides broader access to finance. The study of accounting system has been divided by the researcher into several sections. The first section focuses on the importance of AIS in SMEs in Libya, followed by the definitions of SMEs in developing and developed countries, issues faced by SMEs in Libya, technology adoption in Libya and an overview of AIS.

1.3 Small & Medium Enterprises in Libya

Libya with a small population of 6.25 million as of 2014 is located in the Middle East and North Africa (MENA) region. The gross domestic product (GDP) of Libya was found to be 74.2 billion dollar operating in a centrally planned economic model. With the aim of decreasing its dependence on oil revenue and increasing its industrial base, the country is in the process of implementing economic development plans that will assist it in reaching this goal and in moving into the global capital market arena (Shareia, 2010). SMEs have a significant role in driving the increase of main macroeconomic indicators, including: GDP, employment rate, and exports. The importance of SMEs in Libya comes with the fact that the Libyan economy suffers from non-diversification of economic activities; mostly concentrated in the construction and oil gas sectors - oil and gas sector constitutes about 80% of the Libyan GDP, over 99% of government revenues (CIA, 2013:8), and almost

all the country exports except for very few other products like fisheries and dates. Thus, building a strong SMEs environment will provide Libya with a more diversified economy, supporting both oil and non-oil industries. SMEs also provide an essential source of employment that can reach up to 70% of workforce in high-income countries, and 35% in low-income ones (Marium, 2012).

SMEs are more concentrated in the North Western of Libya (about 46% of the total number) than in the North Eastern (about 36%). About 80% of them are privately owned and run by individuals, while only 16% are established in the form of small corporate, and 3% are family owned. Food and beverages industry (retail restaurants) ranks first in both the number of firms and employees, followed by metal and heavy metal products, wood and paper, textiles and clothing, ceramics and bricks, and furniture. Some industries have greater opportunities of growth than others due to their link with larger industries. For example, the manufacturing of handmade artifacts is linked to the tourism sector and its advancement. The Libyan economy, being dependent mainly on its prevalent resources, has potentially been a fruitful environment for SMEs of non-complex industries (IMF, 2012).

1.3.1 Definition of SMEs

The definition of SMEs differs from one country to another and even from one institution to another in the same country like Libya. They can be defined according to many different criteria such as the invested capital, number of employees, and sales volume, to mention a few. Furthermore, Olusegun (2012) defined SMEs for Libya as the ones whose invested capital does not exceed LD 2.0 million and the number of employees does not exceed 50, whereas medium enterprises have an invested capital of no more than LD 12 million and the number of employees does not exceed 250 as shown in Table 1.2. Many studies like Asiedu and Freeman (2006); Eltaweel and Bown (2007); Lucey and Mac an Bhaird (2006); Marcketti and Kozar (2007)

have interpreted that countries can improve their economy by enhancing their SME sector.

Table 1.2: Definition of SMEs in developed and developing countries

Country	Small	Medium
Libya	No of Employees <50	No of employees <250
	Turnover <2.0 million LD	Turnover <12 million LD
Malaysia	No of employees 5 to 50	No of employees 51 to 150
	Turnover RM 250,000 to<RM 10 million	Turnover RM 10 to RM 25 million
USA	Business with up to 100 employees	Business with up to 500 employees
UK	Business with up to 49 employees	Business with up to 249 employees

Source: (Olusegun, 2012)

1.3.2 Threats Faced by SMEs

By considering the case of Libya, where the government is striving to diversify its production base, developing SMEs could provide better solutions to this issue. Thus, the recent direction as seen in the Libyan economy in developing its economic structure and expanding privatization has necessitated an urgent need for its government to focus and motivate more SMEs and support these companies in all aspects towards their development as a whole. Although 96% of the enterprises in Libya are SMEs, their contribution to the GDP of the country is only 4%. One of the aspects of this disadvantaged position is due to lack of technology usage and financial difficulties (Hassan Abdesamed and Abd Wahab, 2012). SMEs have the potential to become growth engines for Libya's private sector. Currently, the SME sector is dominated by the production of food products, wood products, and metals for construction. Some small firms are also engaged in the production of clothing, ceramics and bricks, grain milling and press and publication goods. Most small-scale manufacturing is concentrated in Misrata and Tripoli. Small-scale manufacturing firms have the potential to link into economic growth opportunities through the advancement in areas such as tourism (e.g. production of souvenirs). There is also

a scope for them to expand activities in the glass and leather goods industries, fisheries and tourism. A strategy that links small firms into larger national and multinational enterprises (MNEs) as suppliers in value chains is another area that could be investigated along with the advancement of higher technology industrial clusters (AFDB, 2010).

In addition, although the macroeconomic environment is favorable and business taxes are relatively low, the overall regulatory framework still needs to be streamlined and improved. Transaction and start-up costs for developing and sustaining businesses are high and uncertainty often prevails. AFDB (2010), mentioned that to date, the value-added contribution and growth performance of the SME and non-oil sector have been considerably lower than in the oil sector. Few and narrow exports originate from prevalent resource-based activities of Libya are fisheries and dates.

Another threat to the advancement of a booming SME sector is the narrow presence and influence of a culture of entrepreneurship within the population. The incentive and legal framework, and the institutional coordination are reported to undermine the emergence of a sustainable SME sector. The strengthening of the incentive framework and the advancement of a strategy for SME advancement suffer from crucial knowledge gaps. There is a need to appraise Libya's SME sector and institutional framework to identify existing opportunities and threats to promote SME advancement along local and national comparative and competitive advantages.

Threats that are faced by the SMEs sector usually fall into one of the two types: financial or technical. On the finance side, micro finance is characterized by its high risk due to many logic. Lack of information from the creditor and the client due to high numbers can lead to the problem of adverse selection where clients who

are less risk adverse are the ones selected for giving funds. The absence of a financial guarantee is another problem that arises as a normal result of most of the clients being of lower standards of living. On the other side, technical problems arise when the cost of getting information about the market in terms of prices and quantities demanded is high. SMEs entrepreneurs usually lack the required entrepreneurial and managerial skills and have difficulty in reaching and/or using the most developed technologies used in their industries, which makes them less competitive with larger enterprises. The smaller the enterprise, the harder it becomes to withstand the demand shocks.

1.4   Technology Adoption in Libya

The adoption of technology in a developing country like Libya has been investigated in terms of attitude and behaviors heavily in the past decades. Thus, it is expected that the adoption of new technology by companies in Libya will be rapid if the technology is perceived to be compatible and easy to adopt. Below are some of the researches performed in terms of technology adoption by Libyan companies.

Twati and Gammack (2006) examined the role of an accounting system through social and cultural factors and confirmed that, "the importance of an awareness of cultural context in the role of AIS in Libyan companies". Furthermore, Hosen et al. (2011) mentioned that, "demographic characteristics and societal culture of management team in the privatized SMEs have high effect on management control system usage". Even though, information on accounting is very important for the competitive advantage in a dynamic environment of SMEs, they do not strategically use accounting information to their advantage. Abukhzam and Lee (2010) investigated the adoption of e-banking in Libya by identifying factors affecting bank staff's attitude towards adopting e-banking technology and concluded that, "bank staff are happy to adopt e-banking technology if it is easy to use and helpful to

accomplish their work tasks effectively". Lack of IT knowledge and awareness of managers about e-banking and its benefits are the main reasons for the struggle in the implementation of the system at a regular interval of time.

The most significant variable that determines the extent of IT adoption is IT knowledge. Small businesses with high IT knowledge are most likely to use IT more extensively. When the small businesses accumulate more IT knowledge through learning, it will lower its IT knowledge barriers and increase confident in adopting IT (Kautz and Pries-Heje, 1996). An owner with more IT knowledge is able to assess awareness through knowledge that will increase confidence and facilitate adoption of new technology. Lack of IT knowledge creates uncertainty, which in turn limits its adoption. A user's IT knowledge plays a crucial role in the identification of benefits of innovative adoption. The study found that the impact of user's IT knowledge has been overshadowed by organizational and innovation factors that dictate the adoption processes in organizations (Abdul Hameed and Counsell, 2012).

Moftah et al. (2012) examined the challenges of security, protection and trust on online purchasing in Libya and mentioned that nature of online transaction in Libya is constrained due to instability resulting from insecurity, trust, and unprotected transaction. Consumer's intention to purchase via online is discouraged due to lack of trust. Trust in online transaction could be enhanced through policies that incorporate legal, technical, rigorous standards for security, data protection, as well as certificates of independent trusted third parties.

Abdelali (2013) investigated the role of management in the adoption of cost accounting system and found some of the motives for not using cost accounting system like lack of experienced personnel for the identification of cost centres, method used for the calculation of cost is outdated, and also ignorance of cost accounting by the management as they do not know the functions. The management must be con-

sistent in the usage of an accounting system. Orens and Reheul (2013) found that due to the positive attitude of a CEO towards change and innovation, the factors like experience, CEO tenure, and CEO education do not have any association with the level of holding cash. Azizan and Said (2013) mentioned that for the e-commerce adoption in hotel industry of Libya, lack of trust in online services, insecurity of personal information, lack of infrastructure and poor knowledge have been a great challenge.

Previous research, particularly in the SME industries, has provided a greater understanding of the benefits to organizations resulting from the adoption of new or advanced technologies. Amongst these benefits are improvement in accuracy, reduction in customer complaints, increase in efficiency, improvement in reliability, and improvement in overall performance (Liu and Barrar, 2008; Swamidass and Kotha, 1998; Walters et al., 2006). Although the benefits are widely documented, not all firms opt for advanced technology in their manufacturing operations (Agarwal, 1997). Thus it is expected that managers in Libyan SMEs must possess appropriate knowledge and facilitate technology usage in their firms and initiate their intention to adopt the technology that tends to enhance SME performance and gain competitive advantage.

There are many studies that confirmed adoption of technology enhancing their company's performance. In addition, SME business owner's ability and skills also play a crucial role for SME performance. For instance, it was also claimed by Olise et al. (2014) that, ICT adoption improved performance among SMEs. SMEs owners should endeavor to gain status and attitude as that will facilitate their ICT adoption followed with increased productivity and global competitiveness. In addition, Abd Rahman et al. (2013) focused on technology adoption behavior of Malaysian food processing SMEs that have intention to adopt advanced technology and relate them to firm performance. This study addressed perceptions on benefits

and obstacles by adopting technology and found that technology adoption behavior influences firm performance. Managers of low performing SMEs have low tendency of adopting new technology. These managers also need to be aware that resistance from people within the organization and the lack of knowledge and skills are impediments not only to successful technology implementation, but also to the initial intention to adopt the technology.

From the review of studies on technology adoption in Libya as a developing country, have many significant differences including the make use of accounting system. Current accounting system in Libya is not same as of the developed countries and are based mainly on government legislation instead of planning and decision making. This rules and legislation lacks the usage of technological notification on the practice of accounting. It was also noted from the review of studies that awareness on the role of accounting and achieving the effective use of timely, relevant and accurate accounting information linking with the technology would lead to development and use of accounting systems in the developing country like Libya.

1.5   Accounting Information System: An Overview

AIS is defined as "a collection of data and processes that creates information needs for the users". Gelinas et al. (2011) confronted that "accountants have been facing threats in order to determine the information required that supports both government and businesses". It is further noticed that "AIS helps accountants in making decision of buying office equipment, information about the sources of such equipment, the cost of alternative choices, and the purchase related terms for such choices". AIS does not only support accountants, but also non-accountants that are working in marketing, production and human resources. AIS system helps the manager by providing information that is effective and crucial for planning, decision making and controlling (Gelinas et al., 2011).

Technology acceptance model provides the theoretical framework for recognizing human behavior, which examines the mediating role of perceived ease of use and perceived usefulness in their relation between external variables and the probability of technology adoption (Legris et al., 2003). It suggests that perceived ease of use and perceived usefulness are the two most crucial factors in disclosing accounting information technology adoption. Thus, the behavioral intention of the owner of SMEs to adopt the accounting information technology is influenced by their perception of the characteristics. Therefore, it is expected that the accountants who perceive that the accounting information technology to be superior, compatible and easy to recognize are more willing to adopt AIS in their organization. AIS records the financial data of the transactions and shows the computerized accounting tools that are directly related to economic and financial results and productivity of SMEs. SMEs need to adopt new changing environment that shows high competitiveness and dynamic character of the business or organizations (Ismail and King, 2005).

Esa et al. (2009); Venkatesh and Davis (2000); Wixom and Todd (2005) disclosed that successful IT investment can lead to enhanced productivity, while failed systems can lead to undesirable effects such as financial losses and dissatisfaction among employees. Hence, information system (IS) and information technology (IT) are considered as competitive advantages that have a crucial role towards businesses (Rouibah et al., 2009). According to Rouibah et al. (2009) competitive advantage occurs from the IS/IT utilization and not the IS/IT solution. Similarly, Ramayah et al. (2002) argued that systems that are not utilized do not result in expected efficiency and effectiveness gains. IT is used as a route for quality advancement and cost effective strategy. AIS is also helpful for internal and external users by providing valuable information on accounting data(Sharkasi and Wynn, 2011). After the establishment of a new government that emphasizes working on economic growth and focusing their importance on SMEs, it has been viable for the SMEs to be inno-

vative both technologically and financially. Urquía Grande et al. (2011) uttered that corporate culture faces changes in the environment when the organization attempts to invest in staff training, quality advancement, product quality and increase in AIS investments. Many authors including Cram and Watson (2008); Urquía Grande et al. (2011) concluded that the contribution of IT in the organization increases the productivity of SMEs.

The status of accounting system in the developing countries, especially in Libya have been provided by many researchers. For instance, Kilani (1998) mentioned that, "accounting practices in the U.K. and U.S. have let influence the accounting practices of Libyan public enterprises". The resolution of issues in relation to accounting practices and awareness can be overcome by identifying the strength and weaknesses of accounting system in meeting the economic development of Libya. However, the focus of this research has generally been on the adoption of accounting system and not an identification of issues faced in developing accounting system or strategies available for resolving these issues of developing accounting system. Thus this study aims to make a contribution by examining the attitude of individuals to the adoption of accounting system in Libya, specifically focusing on the accounting information system in the Libyan SMEs, in order to assist the ongoing growth of the SMEs along with the country.

1.6   Research Problem

A developing country like Libya has struggled in the transfer of IT. Each country possesses its own number of issues when it comes to IT transfer or adoption. Twati and Gammack (2006) in their study uttered that "literature on the level of technology adoption in Libya is scarce and ordinary". It is noted from Mustafa and Mohammad (2013) that due to underdeveloped financial system, lack of sufficient infrastructure, ineffective public administration, and lack of educated employees,

the improvement of SMEs has been a major issue. Despite the substantial influence of SMEs on the national economy of Libya, SMEs face various obstacles to their development such as operational and financial impediments, limited expertise in accounting, limited strategic planning and ineffective implementation of information technology. Historical literature and internet sources are not helpful for providing information on technology adoption in Libya. Abukhzam and Lee (2010) investigated on e-banking adoption in Libyan banks and stated that "recognizing user's attitude towards adoption of new technologies is one of the challenging issues". This indicates that AIS adoption among SMEs in Libya is very low. This is largely due to a variety of logic that are beyond the control of SMEs. Most of the previous studies in the area of accounting have highlighted on the appropriateness of the accounting system and very little attention have been paid on addressing the usefulness of these systems examining the attitude of users for effective planning and decision making.

For instance, Abdesamed and Wahab (2014) mentioned that small businesses are important in the economy and its growth because a major part of small firm's external financing comes from bank loans. The acceptance of technology by the companies especially by SMEs in today's highly competitive and fast growing environment has made them to focus heavily on the achievement of technological superiority that can enhance production and operational performance with the usage of available resources. According to Pontiggia and Virili (2010), "the acceptance of technology has been considered as one of the most important issues in the organization". Thus, this study also focuses on the important issues that restrain the organization to accept the technology. Some of the important issues identified by previous researchers like Hunaiti et al. (2009) are system suitability, system services, internet safety, customers culture, Abukhzam and Lee (2010), user's attitude and Thong (1999) lack of IT expertise. Kijsanayotin et al. (2009) mentioned that "user's acceptance and usage of technology is one of the most important factors for the success of the IT implementation".Taherdoost et al. (2009) uttered that "acceptance of

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technology and confidence of user are very crucial due to several issues like control, security, usefulness, flexibility and ease of use". Awareness about technology makes users look forward to try technology and at the same time enjoys various benefits that the system provides.

Today, there are a few business enterprises that do not carry out accounting operations via computer (Grandon and Pearson, 2004). Thong (1999) suggested that "companies face unique IT issues such as reliance on external IT expertise". Thus, the implication of IT adoption may not be applied in some companies. Further, the study also examined that IT adoption is examined by a crucial determinant of attitude towards technology (Grandon and Pearson, 2004; Mirchandani and Motwani, 2001b; Riemenschneider et al., 2003). Aladwani (2001) also conferred his view that "each country has its own adoption factors, but in common, it is very crucial to consider their own factors, such as user's attitude towards the adoption of technology systems". Several previous researchers Ajzen (1985); Davis (1989); Rogers Everett (1995); Tan and Teo (2000) agreed that "user's attitude is the key determinant of technology adoption". Furthermore, Jones et al. (2011) mentioned that IT adoption depends mostly on the functional or emotional feelings of the decision makers that reflect their attitude, perception and motivation towards technology adoption. Thus, from the above mentioned problems faced by SMEs towards the use of technology in their work, it has been very crucial to examine the antecedent factors that influence the attitude and intention of the users in adoption of technology in SMEs.

Libya in the past decades along with other emerging countries had attempted to enter into the global economy moving towards privatization, establishment of capital market, embracing technologies of globalization and capitalism including accounting in order to manage conflicts with national politics and identity. However, the establishment of qualified accounting profession is very important for both developing and emerging countries, nation based studies till date have focused primarily

on the development of accounting profession usually in less developed countries (Graham et al., 2009). A conceptualized study on determining individual behavior, it uses the self-determination theory and technology acceptance model in order to interpret the results emphasizing on attitude and individual's characteristics on adoption of accounting information system in Libyan SMEs. This study acknowledges that the challenges for the developing country like Libya is to adopt them successfully in context of regulatory, legal, political and religious settings. Thus an assessment on the factors influencing the intention and attitude for the adoption of accounting system is a necessary point for achieving these goals.

1.7 Purpose of the Study

The primary purpose of the study is to examine the adoption of AIS in the context of SMEs in Libya by identifying key issues related to the attitude of users that affects the intention to adopt AIS. The following are the other main purposes of the study:

- To identify factors that affect the attitude factors (Perceived usefulness, perceived ease of use, intrinsic motivation, and extrinsic motivation) towards the intention of users to adopt the system.

- To investigate the level of technology adoption in Libyan SMEs.

The use of the technology acceptance model and motivation model through self-determination theory as a framework to design a model to examine the adoption of AIS provides the basis for the research. Thus, this research asserts that perceived factors alone are not enough for the adoption and acceptance of technology in the working environment. There is a need of motivation factors of attitude as well that can encourage management personal and offer the users some sort of utility.

1.8   Research Objectives

The background of the study and the problem statement highlighted in the previous section indicate the need to pursue a study of user's attitude and behavioral intention for adopting AIS in Libyan SMEs. Previous studies have provided different views and objectives on AIS, the purpose of accounting information and the content of financial statements. The main objective of the study is to focus on identifying the level of perception and beliefs of user's decisions towards acceptance of technology in their organizations. Furthermore, the following research objectives that are investigated in this research have been formulated:

1. To investigate the influence of user's attitude on user's intention to accept AIS in SMEs of Libya.

2. To investigate the influence of IT characteristics on user's intention to accept AIS in SMEs of Libya.

3. To examine the influence of IT characteristics on user's attitude to accept AIS in SMEs of Libya

4. To examine the mediating effect of user's attitude on the relationship between IT Characteristics and user's intention.

Apart from focusing on the adoption of AIS in Libyan SMEs, this study also focuses on the role of attitude and behavior of owners of SMEs for the adoption of technology. These significant details will ultimately help the establishment of supporting technological environment for SMEs in Libya.

1.9   Research Questions

On the basis of the research problem, this study was guided by the following major research questions:

1. Does user's attitude have an influence on behavioral intention to adopt AIS in Libyan SMEs?

2. Does IT characteristics have an influence on user's behavioral intention to adopt AIS in Libyan SMEs?

3. Does IT characteristics have an influence on user's attitude to adopt AIS in Libyan SMEs?

4. Does user's attitude mediate the relationship between IT characteristics and user's intention?

1.10   Contribution of the Study

This study makes an important contribution by empirically testing the Technology Acceptance Model (TAM) and Self-Determination Theory (SDT) in the context of Libyan SMEs and developing an estimate model for hypothesis testing. Attitude considering the mediating variable with the sub-constructs (perceived usefulness, perceived ease of use, intrinsic motivation, and extrinsic motivation) between user's acceptance characteristics and user's intention is the main contribution for the study. This study attempts to take the concept of acceptance of technology one step ahead of previous literature like Davis (1989), who utilized factors such as perceived usefulness and perceived ease of use by explaining user's beliefs towards acceptance of technology. This study provides a comprehensive contribution by including perception level (intrinsic motivation and extrinsic motivation) to fill the gap identified by Davis (1989) towards having less influence of attitude on the acceptance of system or technology. This study also makes the attitude factor strong by involving both belief and perception of users to investigate the impact of attitude on the level of acceptance of technology. In past research, many contributions have been provided to the study of Technology Acceptance Model in examining user's attitude. User's attitude has been one of the main limitations for the organizations and caused

many threats in business and competitive environment. Low attitude and resistance of technology are growing problems in the business settings throughout the world (Siegel, 2008).

1.10.1 Theoretical contribution

The theoretical contribution of the research is to be able to define factors that affect user's perception towards acceptance of AIS application. In addition to the basic theories related to technology acceptance, those that are utilized to cover the applications operating in IS are studied in order to find circumstances that are more specific. Such technology acceptance theories focused only on some specific industry or specific type of technology; therefore, there is a need to do research to find factors that fit into such situation and conditions. This research provides the main contribution to the information system literature on several aspects of motivation related to user's perceived values of IS. From the organizational perspective, this study would be a doorstep to encourage them towards technology usage and adoption. No research has found IS adoption that adequately identifies the motivation factors behind AIS adoption. This study also contributes to enhance technological knowledge of users and contribute to greater and deeper recognition on the importance of technology in the field of accounting. In addition, this study provides several factors that need to be examined in order to increase the adoption level of IS and contribute to the economic growth of the country. Statistical techniques like structural equation modeling are conducted in order to investigate the measurement variables and their relationship contributing to the theme of the study.

As derived by Moon and Kim (2001), "perceived usefulness and perceived ease of use constructs have been considered highly in determining individual's acceptance and information technology usage". Davis (1989) provided the factors of technology acceptance and found that "the acceptance factors are valid constructs

for the corporate to increase the intention of using information technologies". However, Davis (1989) also quoted that "there are many other external variables influencing the usefulness, ease of use and user acceptance". Claar (2011) concluded that "there was no significant impact of demographic factor like education on the computer security usage". The result also found that benefits from computer security usage are more relevant for those with less education. Owing to the significance of AIS adoption towards the growth of SMEs in Libya, this study highlights the limitation associated with the adoption of AIS in SMEs in Libya and proposes relevant steps towards overcoming the constraints. Validating the measurements used in the AIS adoption framework has been carried out from the literature on technology adoption success. Validating the construct measures of Davis (1989), Thong (1999) in Libyan SMEs is the main theoretical contribution for the study.

1.10.2 Practical contribution

With regard to the practical benefits of this study, an increasing understanding on the factors affecting technology adoption among Libyan SMEs will generate great awareness particularly in the preference of managers or owners as the decision makers of the SMEs, which would lead to better understanding on decisions that must be made for the enhancement of technological innovation in the firm. A better understanding of the technology and information system would assist policymakers in providing improved technological environment for the SMEs that would lead to focus on accessibility and adequacy of technological demand of SMEs with regard to the evidence for SME's technology preferences and adoption level.

Financial resources are one of the most crucial resources which are known as the key SMEs performance. Given that information systems and technologies are considered as the major enablers of superior business performance, quality of IS/IT products available in the market (e.g., attribute of the selected product, its reliabil-

ity and usefulness) could be an important determinant when it comes to deciding on the adoption IS/IT products among SMEs. Deficient IT investment decisions (regarding the compatibility and security issues of IT products) can impose a significant impact on organizational profitability (Ghobakhloo et al., 2011). It can participate in enhancing SME performance.

The findings of the study supports the concern provided by several studies from a practical point of view regarding the continuing efforts to put emphasize on perception over motivation. it is believed that an attempt to enhance positive attitude towards accounting information system adoption, a greater emphasize should be made on the technology usefulness. Positive attitude can be achieved by providing the opportunity to test-drive the technology and a quick guide on how to use the system. Furthermore, practically to increase the AIS acceptance, SMEs need to develop strategies that improves user's trust in the underlying technology. Finally, from a practical standpoint for trust to exist, individuals must believe that SMEs have characteristics like dealing truthfully, acting ethically, keeping and fulfilling promises have a significant effect on individual's trust of using AIS. As security is a big concern in AIS, SMEs should highlight their promises to keep private information of its customers safe and secure.

1.11   Operational Definitions

For the purpose of this study, the following operational definition of terms will be used:

Attitude: Operationally, attitude is in the context of the experimental situation that can be recognized in the example of helpful behavior (Levine and Parkinson, 2014). Melone (1990) defined attitude as "the process to respond favorably or unfavorably to a system related to the use of the system". Furthermore, Al-Gahtani

(1998) the degree of evaluative effect that an individual associates with using the target system of his or her job.

Perceived usefulness: Davis (1989) defined perceived usefulness as "the degree to which a person believes that using a particular system would enhance the job performance of the user".

Perceived ease of use: Davis (1989) defined perceived ease of use as "the degree to which a person believes that using a particular system will not require effort".

Intrinsic motivation: Chang and Chin (2011) defined intrinsic motivation as "the performance of an activity for no apparent reinforcement other than the process of performing the activity".

Extrinsic motivation: Teo et al. (1999) defined extrinsic motivation as "the performance of an activity because it is perceived to be instrumental in achieving valued outcomes that are different from the activity itself".

Behavioral intention: Operationally, Ajzen (1991) defined behavioral intention as the amount of effort one is willing to exert to attain a goal. However, Surendran (2012) defined behavioral intention as "the measure of the likelihood of a person employing the application".

1.12 Structure of the Thesis

The chapters for the study are represented in two different phases. The first phase consists of three chapters concerning the development and understanding of the theme under study that is related to theoretical and contextual literature.

CHAPTER ONE: INTRODUCTION

This chapter provides the reader with background information of the study. Background of the study, problem statement, research questions, research objectives, nature of the study and significance of research are being discussed.

CHAPTER TWO: LITERATURE REVIEW

This chapter explores past relevant literature. It basically deals with pertinent literature and consists of a theory that uses the research basis such as Technology Acceptance Model and Self-Determination Theory. In addition, this chapter also discloses the relationship between endogenous and exogenous variables.

CHAPTER THREE: RESEARCH METHODOLOGY

This chapter focuses on the research design that is used to conduct this research. It further discloses the approaches used in analyzing data that is collected through primary and secondary form, as well as limitations of the methods used and how the data is collected. This chapter provides details on the use of quantitative research with structural equation modeling using AMOS 21 software. The next phase focuses on the analysis and interpretation of the results in two different chapters.

CHAPTER FOUR: RESULT OF DATA ANALYSIS INTERPRETATION

This chapter outlines results of data analysis, provides discussion of research findings and builds bridges between objectives, findings and relevant literature. The result section summarizes the analysis of the data and presents findings of the study with respect to the hypothesis and research questions. The results provide descriptive information; SEM for measurement model and SEM for structural model.

CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS

This chapter begins with the discussion of the findings concerning the contribution of the research. Conclusions and recommendations are provided together with discussions on the contribution of the study to the body of knowledge. This chapter then concludes the research and documents the implications of the study with recommendations for future research. This chapter also presents an approach for further study in overcoming the limitations during this research.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Accounting information system (AIS) are systems used to record financial transactions of a business or organization that combines the methodologies, controls and accounting techniques with the technology of the information technology (IT) industry. Such system helps to track transactions, to provide internal reporting data, external reporting data, and financial statements, as well as to provide trend analysis capabilities that affect organizational performance (Urquía Grande et al., 2011).

Adoption of technology that offers unique opportunities for the information system are increasing worldwide impacting researchers and academicians to provide direction for future research. Spending on ICT have increased drastically due to adoption of new technologies and higher spending on its workforce and maintenance of existing system (Weber and Kauffman, 2011). However, Westland (2008) enlightened the critical importance of global technology innovation and adoption, and the ingredients that need to be in place to create the basis for an innovation society. Technology Acceptance Model (TAM) is often used to disclose the acceptance of new technology at work, and can predict which workers are likely to adopt a newly

implemented technology as it is intended to be used. However, it is unclear if the model can predict the acceptance of AIS, and it does not account for experience the user might have had with similar systems. Research on IT acceptance has yielded many competing models, each with different sets of acceptance determinants. According to Chenhall (2003), appropriate design of AIS supports business strategies in ways that increase organizational performance. As a result, increasing AIS investment in SMEs has been seen as an advantage for achieving a stronger, more flexible corporate culture to face persistent environmental changes faced these firms (Urquía Grande et al., 2011). Accordingly, innovation is seen as the incentive in which a virtuous circle would be in place, which could lead to better performance of firms and a reduction in the financial and organizational obstacles, while making it possible to access capital markets (Urquía Grande et al., 2011).

Nevertheless, it has also been highlighted that the threats of successful advancement in the information association lay not so much in the availability of good technological infrastructure in improving business disposition towards AIS use (Scapens and Jazayeri, 2003). However, a number of very recent studies concluded that the scope and approach of these IS success evaluation studies vary and there is little consensus on the appropriate measures of IS success, which have complicated the comparisons of results across studies and obstructed the establishment of a cumulative research tradition (Gagné and Deci, 2005; Sabherwal et al., 2006). A number of studies have pointed out the potential contribution of IT in terms of increase in productivity, particularly in SMEs firms and the need to develop strategy, as well as the need to continue investing in such a strategy of IT to achieve continuous advancement (Cramm, 2008; Ismail and King, 2005).

As such, the adoption of IS and computerized accounting system conceptually leads to the strengthening of information disclosure, information quality and company performance. Therefore, the review of previous studies on information and

technology adoption and its related antecedents is discussed in the next section.

2.2   Accounting information system in Libya

Examining the extent to which the evolution and status of accounting in Libya may have been influenced by the accounting system of developing countries like US and UK, and the effect of any such bias on the relevance of the system to Libya's needs. There is no exception to the condition of Libya. In response to the socio-political environment changes in Libya, the scope and importance of accounting are also expected to be developed. Preceding to the study of any aspect of accounting systems in Libya. Since the growth of Islamic influence, Arabic has become the official language and all signs and legal documents in Libya have to be written in Arabic. This has made it very difficult for non-Arabic accountants to practice accounting in Libya, and Libyans must be partners with foreign non-Arab accountants who wish to practice accounting in Libya. However, the colonization of Libya by the Italians undermined this and the Italian language superseded the Arabic language during the period 1911 to 1945. Hence, many accounting documents, rules and procedures have derived from those originally in Italian (Kilani, 1988).

Another social change which has influenced accounting in Libya is Islam, and Zakat (wealth tax) and the distribution of inheritance must be carried out in accordance with Islamic teaching. Thus, accountants have had to incorporate such rules in their accounting practices. The recent social change in 1977 which has given the Libyans the chance to study accounting abroad (mainly in the UK and USA) as well as the spread of accounting education and training in Libya have also influenced accounting improvements whereby British and American accounting techniques have been adopted in Libya. In addition, Flint (1971) wrote that, "the process of economic environmental change has certainly left its mark on the evolution of accounting in Libya. It seems that for some time to come, socio-economic development planning

is the only way for Libya to emerge from its socio-economic stagnation. Such development, to be successful, has to depend on an effective system of comprehensive and integrated information, an important part of which is accounting information. Such an accounting information system should be oriented towards the information needs of socio-economic development planning of Libya (Kilani, 1988).

Furthermore, while there is some research on accounting in Middle Eastern nations, there is very limited published research on accounting or the development of accounting in Libya. There is no doubt that the adoption of the US/UK system, in a situation where very little accounting existed before, would represent an improvement. However, it must be borne in mind that such a system evolved in a westernized social, political and economic environment, and that it may well need considerable adaptation to meet the needs of a particular country (Needles, 1976). Despite of huge environmental differences between developed countries like the US and UK, Libya has adopted their accounting systems in 1977. The accounting system adoption includes accounting principles, auditing standards, accounting education and the accounting profession institutions. These accounting systems were adopted without understanding the local environmental factors affecting it. These accounting practices as per El-Sharif (1981) were full of issues and as an emerging developing economy like Libya it was not advisable to impose western accounting system without the considerable understanding of unique political, economic, social and economic dynamics. For example, Kilani (1988) mentioned that Libya as a collective society making difference with the US and UK having individualist society, the level of uncertainty are likely to be high. The information required by the socialist government may not be thus able to provide by the Libyan accountants.

Since the early 1950s, it has been significantly influenced by the Libyan education system, the teaching of accounting academics, the preferences of international companies, and the expertise of international accounting firms and to some extent,

the rapid changes in the Libyan social, economic, political and legal environment. Accounting became a popular course of study from 1957, when the Faculty of Economics and Commerce was established at Garyounis University in Libya. For instance, Bakar and Alex (2003) mentioned that, "Professional bodies and universities in the UK and the US were the main sources of influence, providing accountancy education and training for Libyan students. It is only 37 years since the Certified Public Accountant CPA system was introduced officially by Law No. 116 of 1973 (Libya State, 1974) (Saleh Mohamad Ahmad, 2014). After this date the profession became more formally organized. A study conducted in 1985 affirmed that there is a need of connection between accounting education and economic development in order to avoid any future deficiency that is required to create for economic development (Bait El-Mal, 1990). The following were the main issues identified by previous studies like (Bait El-Mal, 1990; Bakar and Alex, 2003; Derwish and Elghli, 2006):

- shortage of skilled accountants at all levels and in all accounting fields;

- accounting information can either be unavailable, not made available as it should be or be made available but late;

- accounting information has not been sufficiently used for internal administration purposes

- lack of financial reports and appropriate auditing standards;

- lack and deficiency of national accounting systems;

- lack of appropriate accounting within the states authorities and public companies;

- lack of legislation associated with accounting and standard and auditing measures;

- the use of the accounting firm primarily to help companies to evade paying income tax and to fabricate financial lists;

- incompatibility of educational standards in the teaching of accounting subjects in colleges and institutes

As Libya is a centrally planned, politically ideologically driven country, its accounting systems and accounting profession have not been developed autonomously, but rather in response to government requirements.

Libya, like many other developing nations in recent years, has attempted to play a crucial role in the global economy in moving towards establishment and privatization of stock market by embracing the technologies and globalization, including accounting raised conflicts with national politics and identity in Libya (Cooper et al., 1998). Developing country like Libya needs to establish an appropriate accounting system that can ensure success in a global environment. Accounting system assists the economic situation of developing countries with effective decision making and policy planning. It is impossible for the country to carry out global interaction without an accounting profession capability of such system. AIS provides valuable information to a range of external users and internal users of accounting data (Romney Marshall and Steinbart, 2003). According to Suddaby et al. (2007), the issue of developing an appropriately qualified and expert accounting profession is pertinent for nations emerging into the global capital markets arena, particularly with the increasing extent of transnational rather than national professional regulation in the era of globalization. One function of AIS is to produce financial statements such as the Statement of Comprehensive Income, the Statement of Financial Position and other reports used by managers, creditors, current and potential investors and others. The data produced by AIS is considered an essential source of key information for the organization. It plays a major role in informing financial decisions, either operational or regarding investment or funding.

Several studies have analyzed the role of AIS in strategic management by examining the attributes of AIS under different strategic priorities (Bouwens and

Abernethy, 2000; Ittner et al., 1997). Furthermore, the effects on performance of the interaction between certain types of strategies and different designs of AIS have been illustrated in the academic world, which include various types of information such as accounting and non-accounting information to assist organizations to overcome short-term problems and integrate operational considerations within long-term strategic plans (Cinquini and Mitchell, 2005). In addition, such performance of the interaction strategies and design of AIS is crucial in strategy advancement and implementation in terms of financial accounting and non-financial AIS (Bhimani and Langfield-Smith, 2007). Consequently, Libya faces challenges in adopting economic policies including privatization and regulatory systems prevalent in Western nations. These challenges are similar to those experienced by the much less wealthy developing economies (Irvine, 2008).

Further, a number of prior researches have shown that AIS adoption increased performances, profitability, and operation efficiency of firms, (Estébanez et al., 2010; Gullkvist, 2002; Zakaria et al., 2011). However, control efficacy of financial information reliability has affected operating performance. Thus, since performance management is a quick maturing business discipline, management has a key role to play in improving the overall value of an organization, (Downes and Barclay, 2008). Furthermore, AIS covers the fullest various organizational things and also process and it is utilized for the goal on realizing heavy cost savings with advanced use of trustworthy options as they offer the chance to upgrade procedures and align them with perceived examples of best practice (Pollock and Cornford, 2004). In that regard, AIS encompasses a couple of business applications used to perform ordinary business functions such as accounting, human resources management, and stock management. The fundamental nature of a comprehensive AIS is to computerize business processes and primarily to produce real-time data (Nah et al., 2001; Umble et al., 2003). As shown in Figure 2.1, both internal and external actors are crucial for the acceptance of IS. IS collects the information from exter-

nal resources and the transforms the resources for data processing in the form of database management.
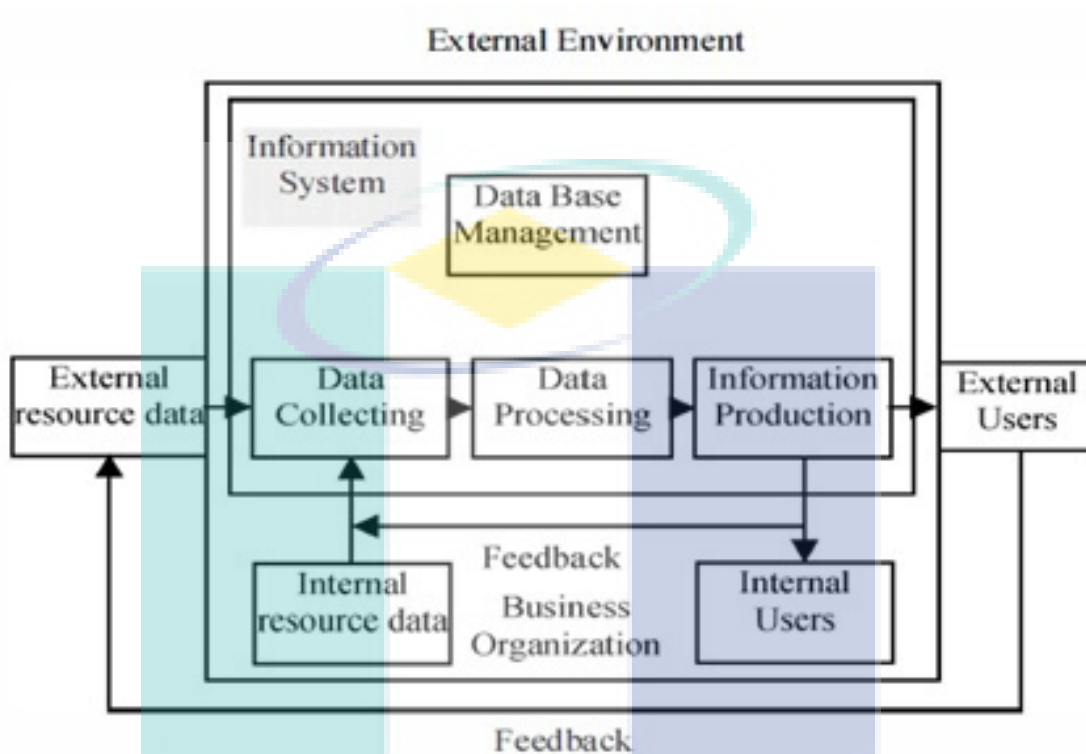
Figure 2.1: General Model for Accounting Information System

Libya as a developing country with significant differences from other developed countries including the usage of AIS at present does not play an important role in the economic development of the country. Current accounting practices in Libya are mainly based on government legislation rather than planning and decision making (Shareia, 2006). Most of the previous studies in the area of accounting system have focused on the suitability of accounting system in meeting development requirements, whereas little attention has been paid on addressing how these systems are helpful in decision making. This study acknowledges that the challenge for a developing country like Libya especially in the SMEs is adopting globalized AIS with regulatory settings. Along with the increase of expectations of decision makers from accounting, technological insufficiency needs to be solved. As a result of changing the information in a system and not changing to another system, some

differences can occur. It is also very difficult to merge the information from different systems (Allahverdi, 2011). Benefits of AIS can be evaluated by its impacts on advancement of decision-making process, quality of accounting information, performance evaluation, internal controls and facilitating the transactions of companies (Sajady et al., 2012).

2.2.1 Rationale of Accounting Information System

Several rationales can be identified for the investigation of AIS. The first one is related to the changing business environment, the increased use of IS and advances in IT. Increasing business complexity, networks, globalization, shortening product life cycles and the need for cross-functional organizing are the main reasons for companies starting to use Management Information Systems (MIS). Integration of technology is very important in a complex and turbulent environment along with facilitating and coordinating for building competitive advantage (Granlund and Malmi, 2002).

Due to actors like vendors, consultants, and highly motivated researchers in AIS, the usage of IS has increased with a massive diffusion of integrated information system that is mostly used for decision making, control and management. According to Elbashir et al. (2011), management accounting innovation has experienced good response due to solutions provided for diffusion of the system. The second rationale is that several researchers have called for further study into the area of management accounting and control and information systems other than AIS. According to Berry et al. (2009), management control and IT are emerging and under-researched areas within management control.

Granlund (2011) identified AIS as a field with little impact on either accounting or IS field. This failure of impact is attributed to both a lack of interest

and understanding of IT and its role in accounting academics, and a lack of understanding of accounting for IS academics. Dillard and Yuthas (2013) mentioned that AIS has been portrayed as a field that is dominated at the relevant cost. Due to lack of relevance, AIS research has been ignored due to the perception of technology along with accounting practices (Dechow and Mouritsen, 2005). Thus, there is a need for more research on how new technologies create new possibilities for management control and how they impact the role of accounting and controlling function. Throughout the years, there have also been numerous calls for research and contributions within the field of AIS.

2.2.2 Role of Accounting Information System

Adoption of computerized accounting can be facilitated with a uniform accounting system. In case of Libya, shortage of skilled accountants with necessary orientation unable the system to exist in wide range. Uniform accounting is very crucial in order to reduce the cost of adoption and implementation (Ball, 2006; Kilani, 1988). In addition, Kilani (1988) mentioned that "Training programmes in the case of uniformity will cost less because trainees could be trained towards one manual or computerized accounting system instead of 100 systems, and costs would be less in terms of hardware, software and the time needed for training". A uniform accounting would decrease the cost of computerized accounting system implementation and would be more adaptable due to its less accounting manpower as compared to manual accounting systems. Furthermore, intensive training programmes for Libyan accountants on the use of computers in accounting data processing are a necessity. A body of Libyan accountants must be established in order to revise the computerized system or introduce new system, if necessary.

The accounting system has been viewed in the management system as a system to ensure the numerical figures correspond to reality of the firms. Thus, AIS

process is one of the important decision elements for the decision-making process by managers. AIS records tracks of the events of the firm, transfer data for managers and contributes for the originality of the reports for managers (Tóth, 2012). AIS is in close connection with the management information department, accounting and administration department, inner control and information technology team. The harmonic and efficient activity of these areas characterizes the center of AIS, which provides the basic data of informational database.

AIS provides valuable information to a range of external users and internal users of accounting data (Romney Marshall and Steinbart, 2003). These decisions contribute to improvement of SMEs position and give competitive advantage, which is reflected in the market value of the organization, and therefore its sustainability in the marketplace. SMEs are among different economic sectors where the use of AIS has increased significantly in recent years, as it has contributed to banking operations, reduced cost and time and improved the quality of services delivered to the customers. The implementation of AIS can be a costly process, which requires a significant effort, time and money at every stage of the system's life cycle. Several studies have shown that the fit between accounting and contextual factors, or between IT and contextual factors, have a significant impact on performance (Holden and El-Bannany, 2004; Ismail and King, 2005; Melville et al., 2004). Such investment contributes to the organization's subsequent long-term productivity and profitability, effective project management in systems implementations, as well as proper training and skills enhancement for the systems users, which are among the key factors in achieving this aim (Wynn, 2008). It is also dependent on the knowledge of how to use these systems in an effective manner in order to support the information requirements of the decision makers and strategic planners.

The objective of computerized system i.e. AIS is similar to that of manual system except that it can achieve its objective with more speed and details. AIS

solves the issue of accountant shortage and reports are provided easily and speedily (Gelinas et al., 2011). The working of AIS mainly depends on the people operating it, together with their professional knowledge and experience. The change in the system goes together with the change of the elements of the system. In recent years, the demand for human factor has grown; as a consequence of the rapid development, the expected skills and abilities are different. The demands are not unified for the managers of the organization, as they greatly depend on the special features of the organization. The following are the requirements for accurate accounting information transfer in a firm:

1. Provide information for the management and create management information system that supports the decision taken by the managers efficiently and effectively

2. Apart from the functional aspects, the information system must be able to manage the outline processes of the firm

3. Development of technological environment links between inner and outer data of the firm must be created.

Thus, it is an important requirement to have a quick and reliable operating system that can be used easily and can be complemented with further elements or functions, depending on the modifications and therefore can react to changes. That is why the link among different modules for automatic and efficient co-operation has become highly important, as it promotes the calculations, planning and decisions because AIS is in direct connection with the relevant areas.

2.3   Accounting information system in SMEs

SMEs play a crucial role and are considered as the most dynamic firms in the developing economy. The role of technology acceptance has been viewed as a critical element for the development of SMEs (Cook, 2001). AIS adoption among SMEs is very low. It is wide with a lot of logic that are beyond the control of SMEs. In line with that, Woo (2007) examined the implementation of enterprise resource planning with knowledge of critical success factors and found that culture characteristics, management and style of the company have high impact of enterprise resource planning (ERP) successful implementation. In addition, Ngai et al. (2008) argued that it is not only the technological factors that affect the adoption of the system, but there are many other sub-factors like appropriate business and IT legacy system, business planning, vision, justification, top management support, teamwork, monitoring and evaluation of performance. Adoption of ERP has been the reason for the evolution of AIS. Modern AIS has a great potential to influence business performance. Moreover, Daoud et al. (2013) examined the influence of AIS in an ERP environment on firms performance empirically of 102 Tunisian firms and indicated that top management involvement and external expertise have a great impact on AIS.

There are proofs that IT has helped SMEs improve and also put business strategy into action. Accordingly, Levy et al. (2001); Seyal et al. (2000) concluded that SMEs used IT strategically when it was perceived as being intrinsic to the firm's strategy. Cragg et al. (2002); Ismail and King (2005) revealed that "a key proportion of SMEs has established a lot of strategic aspects". Several studies have also found that firms with high levels of strategic adjustments performed better than those with low levels of strategic aspects (Bergeron et al., 2004; Cragg et al., 2002). Among the ingredients identified include IT sophistication, management commitment and business environment.

Simpson and Docherty (2004) in their study provided "logics and obstacles for adoption of information system in SMEs of UK". Libyan SMEs still lack management structures supported by skills in critical areas like investment, risk management, information service quality and control systems. Moreover, Hosen et al. (2011) wrote that, "a majority of the Libyan SMEs are still dependent on old management systems, resulting in negative customer's perception and satisfaction about Libyan SMEs". Logics and obstacles for adoption of technology are provided in Table.2.1. This table identifies obstacles faced by SMEs when it comes to technology adoption. Some of the common issues highlighted were lack of skills, awareness, time, trust, knowledge, inadequate infrastructure, costs, qualified employees and most important lack of business model. This table 2.1 also discusses on the reason for adoption. Technology can be adopted in order to improve business competitiveness, better market communication, managerial motivation, increase sales, decrease costs, enhance customer relationship and so on.

The most important obstacle that Libyan SMEs are facing for adoption of technology like AIS are lack of knowledge, skills, integration of legacy system, unwillingness to technological changes, lack of awareness and lack of qualified employees which have been already accepted by studies like (Bakeer and Wynn, 2014; Twati and Gammack, 2006). Chan and Ngai (2007) suggested how "AIS adoption and application could be a highly complex task in which strong managerial and strategic productivity need to perform the best fit involving business peculiarities" and also the system itself, as well as to cope with the unavoidable organizational impact caused by AIS implementation. Both strong managerial and strategic competencies are lack of SMEs and therefore it results in the loss to adopt AIS. For Chan and Ngai (2007), a research conducted by Duxbury et al. (2002) concluded that "major perceived obstacles for the application of technologies among Canadian small business were the lack of financial facility and skilled personal". However, other studies

Table 2.1: Logics and Obstacles of Adoption

Logics for Adoption	Obstacles of Adoption
To improve business competitiveness	unwillingness of managers to be responsible for technological changes
To try new information system models	use of ICT to reduce costs and improve efficiency rather than for trading online
Management of eagerness/motivation	fear of entry into global markets
Need for better communications	readiness and adoption rates vary by industry sector
Admissions to world markets	the older the SME, the less likely they were to use information system
Great opportunities for innovation	integration of legacy system is difficult
Manage organizational structure	executive understanding is poor
Perceived benefits	ignorance surrounds technology, security concerns, costs, legislation and interoperability
Organizational readiness and external pressures	lack of profitable business models
Opportunistic and based on cost	lack of qualified employees
To increase sales	narrow resources
Impression management	costs
Company size and perceived importance	lack of awareness of what is involved
To improve communication with customers	complexity of available system services
External pressures from new type of customer value	lack of knowledge
Responding to customers	lack of skills
Advertising costs can be reduced	lack of help
Low entry costs	lack of time
To enhance customer relationships	Inadequate telecommunications infrastructure
May reduce working hours for managers or owners in some businesses	lack of trust
	lack of SME bespoke information
	lack of relevance to their particular industry sector
	Wrong type of product or service for information system

Source: Simpson and Docherty (2004)

outlined different adoption patterns based on company size and also observed that

smaller companies face only sub-group of needs and opportunities of larger organiza-

tions. Despite this, many experts have studied the factors that influence IT success

in SMEs (see, including, (Igbaria et al., 1996; Ortiz de Guinea et al., 2005; Shiels et al., 2003; Thong, 1999, 2001). However, their results are far from conclusive, in which several factors have received much support: IT sophistication, the part of owners/managers of SMEs, external expertise, and firm size. Therefore, these types of factors may well impact SMEs information system processing capacity and hence AIS adjustment.

According to Simpson and Docherty (2004), "E-business advisors suggested the logics that why some SMEs are more successful than others", which include individual circumstances, individual motivations, commitment to the technology and some people have the appropriate business for it. It was suggested that some businesses fitted well with e-commerce, particularly personal services, foods, certain manufacturers and crafts, whereas in other businesses, e-commerce did not fit well. Hughes et al. (2003) supported the view that "suitability of the product for sale was seen by SMEs as a major characteristic contributing to success".

2.4   Underpinning Theory

The origin and advancement of technology acceptance literature constitute a major issue of IS research. As the goal of this study is to gain a recognition on how and why organizations use and accept technologies, therefore, the focus is on the stream of research that makes the intention to use the system. Thus, in order to investigate the intention and technology acceptance as done previously by Venkatesh and Davis (2000), the author combines Technology Acceptance Model (TAM) and Self-determination Theory (SDT) Deci (1976) for Motivation Model (MM) together. Organizations are motivated to engage in activities or adopt system for many different reasons. The Theory of Reasoned Action broadens the motivation with self-expressive involvement and self-concept congruity. However, Self-determination Theory suggests that different determinants of intention and attitude

are crucial for motivation consequences.

2.4.1 Theory of Reasoned Action (TRA)

Acceptance model has been developed from several base theories stemming from the Theory of Reasoned Action (TRA). According to this theory, behavioral intention is able to predict performance of behaviors that are under the individual's control. According to TRA as well, external variables that influence behavior to do so directly influence attitude, subjective norms or their relative weights.
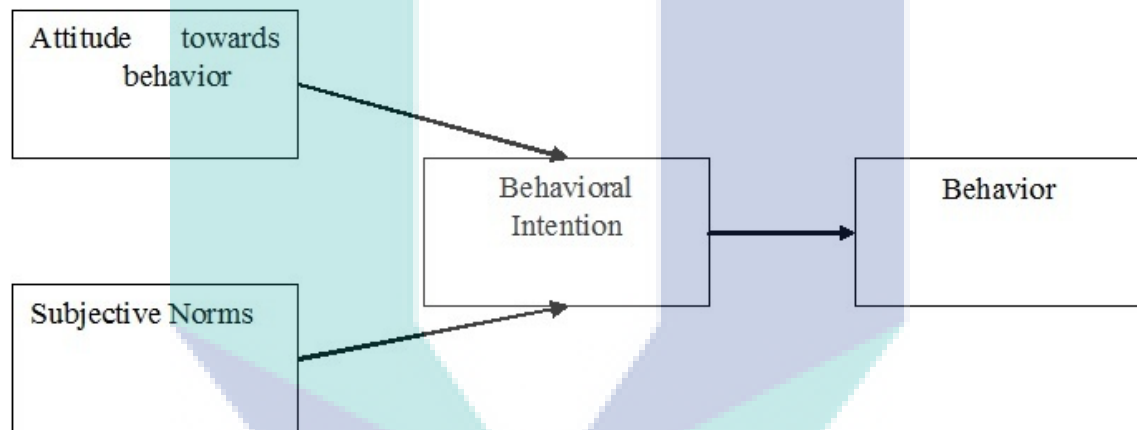
Figure 2.2: Theory of Reasoned Action
Source: (Fishbein, 1979)

According to TRA, attitude and subjective norms influence intentions to perform a behavior. Attitude is influenced by beliefs that perceptions are about the characteristics of behavior. According to Fishbein and Ajzen (1975), "the person may or may not be motivated to comply with any given referent. The normative beliefs and motivation to comply lead to normative pressures". The total normative pressures are known as subjective norms. TRA helps to predict behavioral intentions related to the acceptance of technology and assess causal links between beliefs, attitude, opinions of referent others, motivation to comply, subjective norms and behavioral intentions. According to Ajzen and Fishbein (1980), "attitude towards

subjective norms can influence behavioral intention". "Individuals are intended to perform behavior when they evaluate positively and when they believe that other crucial things should perform it". The theory was extended to two directions, leading to the Technology Acceptance Model (TAM) and the Theory of Planned Behavior (TPB). As both TAM and TPB were extracted from TRA, it makes sense to integrate both models into one and forms a decomposed model. TAM and TPB have been used in many studies for the development of new scales (Teo, 2011).

2.4.2 Theory of Planned Behavior (TPB)

The Theory of Planned Behavior postulates that human behavior is predicted through cognitive self-regulation rather than a person's disposition, such as their general social attitudes or personality traits (Ajzen, 1991). TPB was created as an extension of TRA. The theory assumes that a persons intention to perform or not to perform is the determinant of the action, while TPB extends to include the component of perceived behavioral control to conclude that TPB is more effective than the use of TRA (Servo, 2008).
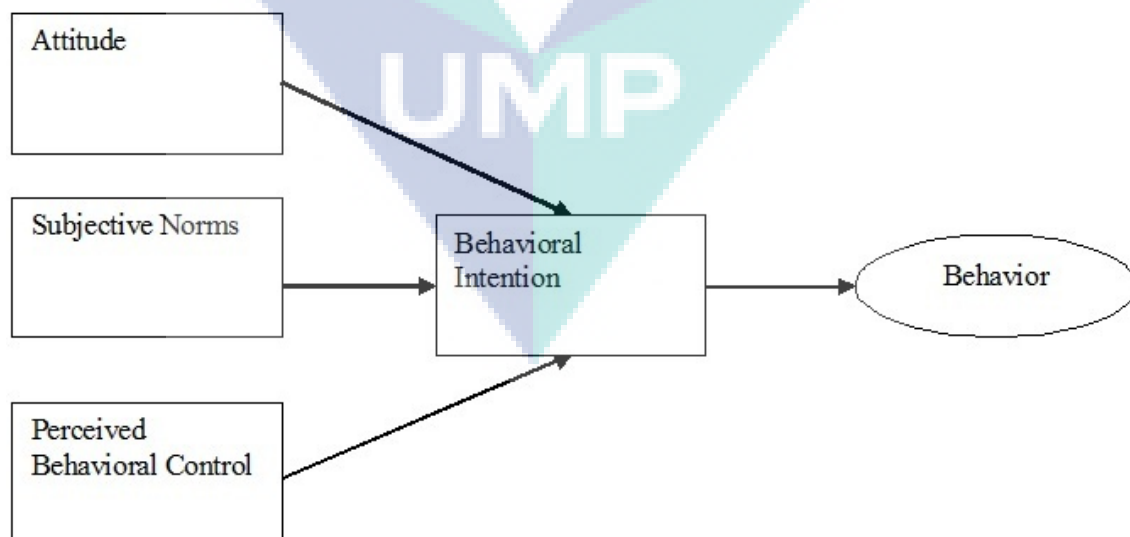
Figure 2.3: Theory of Planned Behavior
Source: (Ajzen, 1985)

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 a TPB-based model could effectively explain user's behavior. According to TRA, the main determinant of a behavior is a behavioral intention, which, in turn, is determined by attitude (A) and subjective norm (SN). Attitude captures a person's overall evaluation of performing the behavior; SN refers to the person's perception of the expectations of important others about the specific behavior. The TPB includes attitude, subjective norms, perceived behavioral control, and behavioral intentions to predict behavior as shown in Figure.2.3. Both models (TRA and TPB) were intention-based model as they use intention as a measure of acceptance, but the researcher in the current study gives more priority to attitude-based model rather than intention. In the case of technology, the usage of technology might be mandatory or voluntary without accepting it.

2.4.3 Technology Acceptance Model (TAM)

New technology has been used in a positive light in the recent decades by the people. Due to this, organization sometimes adopt new technology when it is against their best interest to do so. It is very hard to justify technological innovation economically due to its unknown implementation costs (Willis, 2008). Fichman (2004) provided a framework for the valuation of new technology implementation based on system as well as organizational factors. This framework was later transferred to individuals who are the decision makers for new technology adoption. In order to gain competitive advantage, many organizations have invested heavily in computer-based tools and information system to support the organization's decision making and planning. As technical obstacles disappear, a pivotal factor in harnessing this expanding power becomes the ability to create applications that people are willing to use. Technology Acceptance Model (TAM) was introduced by Davis (1985), in which this study attempts to examine the relationship between user acceptance of

AIS and two antecedent factors (perceived usefulness and perceived ease of use) to see if the earlier results are still valid after recent advances in system and technology affect system usage. TAM provides a theoretical base in this study for examining factors contributing to technology acceptance in organizations.

There is an ordinary tendency for people to view new technology in a positive light. Because of this, organizations sometimes adopt new technology when it is against their best interest to do so. However, the justification of any technological innovation in economic terms is problematic due to unknown implementation costs, which can be much greater than the cost of the technology itself. Information technology adoption has been a central concern in IS research and practices. Brilliant progress has been made over the past decades in disclosing and predicting acceptance of information technology in organizations. Davis (1989) developed TAM and disclosed substantial proportion of variance in intention and behavior and also compared with alternative models like TRA and TPB (Venkatesh, 1999).

TAM is tailored to IS context and was designed to predict information technology acceptance and usage on the job. The study of human decision-making has resulted in models that posit the mental processes that humans use to make decisions. Most of these have been used by organizational researchers to predict which employees are likely to accept new technology and the reason to accept it. In particular, TPB and TRA have been used to predict many types of behavior, but have been less successful in predicting technology acceptance. This led to the advancement of TAM (Willis, 2008).

As per Willis (2008), as technology becomes more intrinsic to the functioning of organizations as a whole, the ability of employees to integrate new technology into their work flow becomes an ever-larger determinant of success. Organizations that can anticipate and predict which of their workers will accept the technology
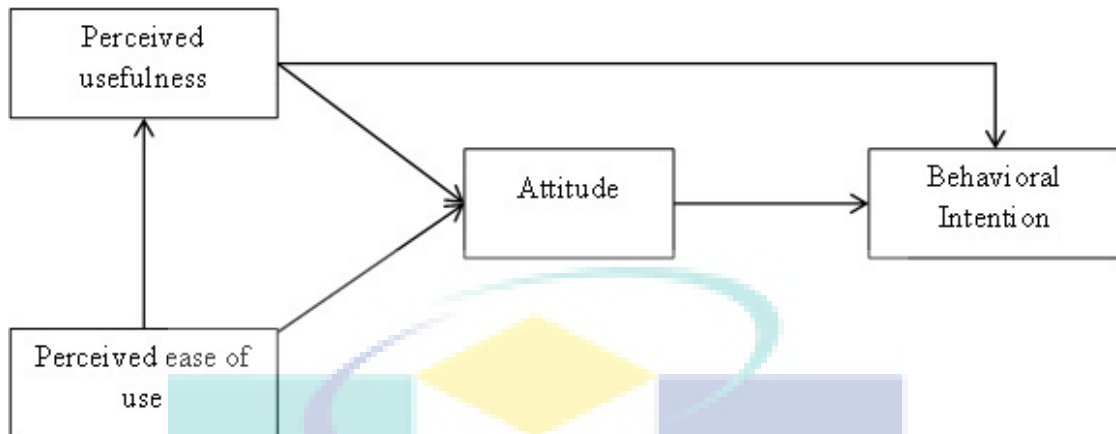
Figure 2.4: Technology Acceptance Model
Source: (Davis et al.1989; Venkatesh et al. 2003)

changes that the organization has implemented are at an advantage over those that adopt a wait-and-see approach. Communication technology is among the most visible areas where workplace technology is advancing. To one degree or another, computer-mediated communication is part of most office worker's daily activity. E-mail and other computer-mediated communication now comprise a large percentage of workplace communication, but are met with considerable resistance when they are initially introduced. This study accepts TAM as described above with the intention to use as the dependent variable and perceived usefulness, perceived ease of use, intrinsic motivation and extrinsic motivation as the independent variables from the original model of Technology Acceptance Model and Self-determination Theory (SDT).

2.4.4 Self Determination Theory (SDT)

SDT is the theory of motivation that is concerned for influencing intrinsic tendencies to behave in healthy ways. SDT is a theory based on human motivation and advancement. Motivation is the idea used for maintaining the needs, achievement, and for control. Human Needs Concept is very crucial in order to recognize

various social or interpersonal influences that control motivation. SDT was initiated by Deci and Ryan (1985a) that considered how to foster and intervene the exercise of motivation on others.

SDT has identified three key psychological needs including autonomy, relatedness and competence that are needed to increase user's satisfaction. The need for autonomy reflects the desire to self-organize experience and behavior and to have activity with an integrated self. The need for competence involves the desire to have an effect on the environment and attainment of valued customers. Finally, the need for relatedness involves the desire to feel connected and understood by others. A critical review of TAM by Davis (1989) has discovered that presently, there is actually a need to include other components to provide a bigger vision and a better explanation of IT adoption. Particularly, factors related to human and social change processes need to be incorporated. For example, Davis (1989) adapted motivational horizons and added perceived enjoyment and disclosed IT acceptance from both extrinsic and intrinsic motivational perspectives. Other researchers Teo et al. (1999); Venkatesh (1999) found the worth of both the role of enjoyment, a form of intrinsic motivation, in workplace computing. Davis et al. (1992) suggested that people spend effort with both extrinsic and intrinsic motivations. Extrinsic motivation is defined as the overall performance of an activity because it is perceived as instrumental in realizing valuable outcomes that are different from the process itself. Intrinsic motivation refers to the overall performance of an activity for no clear support other than the actual performance of the activity. Venkatesh et al. (2003) also redefined TAM within a motivational framework. The resulting model included both extrinsic and intrinsic motivations as predictors of behavioral intention to use. Motivation involves the internal processes that give behavior its energy and direction (Riva, 2001). Energy is related to the strength, intensity and persistence of the behavior concerned.

The adoption of motivation model was performed by Davis et al. (1992), where the model had employed two key constructs (extrinsic motivation and intrinsic motivation). Motivation model is used to recognize the influence of pre-training mood, i.e. how one feels at a particular time, for example, positive or negative on the adoption of technology. Venkatesh et al. (2002) suggested that in order to know and integrate two acceptance models viz., MM and TAM as a conceptual or operational model, there is a need to emphasize individual personal gain or interest associated with acceptance of technology. An explanation will probably remain based on job that suggests that introducing an extrinsic compliment will reduce the impact of intrinsic motivation on tasks that are originally pure and intrinsically motivating. Furthermore, Decis cognitive evaluation concept argues that an extrinsic reward causes a deviation beneath locus of causality for the process from internal to external and in the process, reduces feelings of competence and self-determination, which are key determinants of intrinsic motivation. Thus, the more prominent effect of perceived usefulness could have implicitly diminished the intrinsic motivational effects of perceived enjoyment.

In a motivational model Davis et al. (1992), motivations related to intrinsic personal goals are assessed with those related to extrinsic goals associated with job advancement issues. Davis et al. (1992) connected perceived usefulness with overall performance because of use (i.e. as an extrinsic motivation). However, intrinsic motivation is actually concerned with both the support and enjoyment of the process of performing a behavior. Therefore, system use is determined not only by extrinsic motives but also intrinsic motives. Several studies have confirmed that both intrinsic and extrinsic motives are key predictors for behavior usage (Ahn et al., 2007; Chang and Chen, 2008; Kim, 2013; Lee et al., 2005; Venkatesh et al., 2002).

Mitchell et al. (2012) argued that tremendous investment in IT, organization's consideration and dependence on information technology fails due to lack of

employees to adopt and use such technology. They also stated that SDT plays a crucial role towards recognizing different motivation styles and identifying motivation regarding the new IT adoption. SDT states that motivation behavior varies to some extent because it is autonomous and controlled. Behavioral regulation is autonomous to the extent that it is driven by self-directed interest and regulation is relatively more controlled through interpersonal pressures (McNelis, 2009). It is not so easy to always possible to draw a clear empirical distinction between intrinsic and extrinsic motivations. As a rule, intrinsic and extrinsic motivations go hand in hand and the difference between them is whether a goal is being pursued simply as a means of achieving another, in which the case where the first goal loses inherent values (Frey and Osterloh, 2002).

The current study examines user's motivation and beliefs towards adopting AIS and investigates the relationship and influence of IT characteristics on user's attitude and intention. Many studies Davis et al. (1992); Fagan et al. (2008); Venkatesh et al. (2002) have also investigated the reaction of motivation of employees towards acceptance and usage of new information technology.

2.5   User's Attitude (UA)

Users of information systems develop personalized attitudes toward IS in much the same way they develop attitudes toward other things (Hjørland, 2007; Jank, 2010). These attitudes result from neurocognitive reactions to situations and things, and mental assignments of personal feelings constructed within emotional and relational paradigms (Bhattacherjee, 2001; Hjørland, 2007). Such attitude formation with respect to information systems is discussed in the scholarly literature across disciplines. Examples include research on systems analysis and design Fidel (2012); Pantic and Rothkrantz (2003), human-computer interaction Pantic and Rothkrantz (2003); Stone et al. (2006), human-information interaction

Albers (2008); Dale Wagner and Flannery (2004), medical information systems Goldschmidt (2005); Miller and Sim (2004), social computing Parameswaran and Whinston (2007); Wang et al. (2007) and accounting information system (Armstrong et al., 2010; Davila and Foster, 2005). This discourse provides convergent epistemological views that frame human attitude development toward information systems largely in terms of activity-based interaction with technology, and functionality of systems.

Derived from TRA Ajzen and Madden (1986), it predicts user acceptance based on the influence of two user beliefs: perceived usefulness (PU) and perceived ease of use (PEOU). Both PU and PEOU are posited as having a significant impact on user's attitude towards using the system. Behavioral intentions to use are jointly determined by a person's attitude towards using the system and its perceived usefulness. BI then determines the actual use (AU) of the system. End user's satisfaction is the key indicator of system performance including its huge increase in acceptance (Adam Mahmood et al., 2000). IS users develop personalized attitude towards IS in the same way that have been developed in other things like human information interactions, medical information system or social computing. Ditsa and MacGregor (1997) examined a wide range of user satisfaction models and identified the key factors such as the quality of information from IS, the user interface features of IS, the support provided by employees, the involvement of the user in the planning, advancement and implementation of IS, as well as the attitude of users towards IS adoption. However, Al-Gahtani (1998) indicated that system features variable has the highest influence on IT acceptance, followed by perceived usefulness. Both constructs have significant direct effects on IT acceptance but also exhibit their indirect effects through perceptions and/or attitude towards acceptance. Ease of use and attitude towards acceptance were found to have an equivalent influence on IT acceptance.

The literature in the area of behavioral research reveals that the factors affecting IT end-user satisfaction fall into three major categories: perceived benefits and convenience, user's background and involvement, and organizational attitude and support. Users' positive attitudes toward computers have been found to be a likely indicator of software products acceptance and there is a strong support for a dependency between attitudes and satisfaction. Davis (1989) addressed the ability to predict user's computer acceptance from a measure of their intentions in terms of their attitudes.

Further, Abukhzam and Lee (2010) found that where attitudes affect systems utilization, influencing these attitudes will have an effect on utilization. Perceived usefulness, perceived ease of use, user's involvement, user's expectations, user's skills and user's participation are considered as factors involved in advancement of system, support towards organization, perceived attitude of top management and user's attitude towards IS. User's involvement was found to have the most significant influence on systems advancement, perceived usefulness, user's experience, organizational support and user's attitude towards the information system (Adam Mahmood et al., 2000). According to Fogg et al. (2002), users stick to the technology or program when there are motivational elements, as well as perceptions of credibility. Davis et al. (1992) mentioned that perceived usefulness is considered as a type of extrinsic motivation, but recent studies like Chung et al. (2014); Koo et al. (2015); Shibchurn and Yan (2015) examined these two variables separately and indicated perceived usefulness to have influence on extrinsic motivation. Similarly, the measurement instruments for both the variables were different confirming that perceived usefulness and extrinsic motivation are not similar to each other. This study following the above mentioned studies considered perceived usefulness and extrinsic motivation as two different constructs of attitude to examine its impact on behavioral intention.

Attitude results from neurocognitive reactions to the situation and things

within emotional and relational paradigms. Such attitude formation with respect to IS has been discussed and provides convergent epistemological views that frame human attitude development towards IS largely in terms of activity-based interactions with technology and functionality of systems. Anandarajan and Simmers (2002) examined the variables of attitude towards using, perceived usefulness, perceived ease of use and perceived richness in mediating the effect of system desire and found that perceived usefulness exerts similarly as attitude towards actual system usage. Lifrieri (2005) mentioned that a better understanding of student's motivation and attitude might assist more successful learners. Attitude towards using a system and its major determinants significantly impact on the decision of using or rejecting the system. Perceived usefulness and perceived ease of use played crucial roles to influence user's attitude towards adoption of system (Chuttur, 2009). According to Straub (2009), "users adoption innovations address key constructs like emotions, contextual concerns, and cognitive approach". Similarly, Al-Tamimi and Shuib (2009) outlined the relationship between attitude and motivation and found that both attitude and motivation are considered as the same concern in language learning research.

However, Lau and Woods (2008) found that "user's belief and attitude have a significant influence on behavioral intention and accurate use of the objects or systems". TAM is a specific model developed to disclose and predict user's computer usage behavior. Using different methodologies, numerous studies have found that PU and PEOU correlate well with IT acceptance across a wide range of IS (Gefen et al., 2003; Venkatesh et al., 2002). Furthermore, previous researchers like Gefen and Straub (2004); Gong et al. (2004); Guriting and Ndubisi (2006); Wei et al. (2009) confirmed the influence of perceived ease of use on intention. Ramayah (2012) found a stronger correlation between perceived ease of use and attitude, followed by perceived usefulness, user's satisfaction, social influence and user's support. Discussion of user's attitude towards IS can be framed in terms of analysis of human

behavior (Currás et al., 2012). Most of the previous studies on system adoption area were conducted in the voluntary environment following the conceptual path of determinant, attitude, and intention to actual use. The ability of attitude through leader support, technology experience and perceived fit were introduced towards the technology adoption as an important factor.

For instance, Flavián and Gurrea (2009) investigated on how there is an effect of Internet towards reader's behavior on newspaper. It was found from the investigation that reader's motivation is very important in the attitude of the users towards Internet as a digital newspaper. Thus, the variables related to user's motivation must be included in the analysis model as an antecedent of user's attitude. Furthermore, Wei et al. (2011) investigated a potential relationship between motivation and attitude towards online responses of customer's postings and found that dissatisfied customers vented their anger online and asked other customers to boycott the hotel due to their defensive behavior. In conclusion, to some extent, customer's online posting motivation is an indication of customer's attitude towards online responses to online negative comments.

Ramayah (2012) investigated the mediating effect of attitude towards parallel imports in consumer's personality linkage with purchase intention and found that in the consumer personality and purchase intention linkage, attitude towards parallel import goods mediates the relationship partially and fully mediates import channels. Hassan et al. (2012) mentioned that working attitudes mediate the relationship of person-organization fit and turnover intention. Alam and Rashid (2013) mentioned that acceptance of renewable energy is influenced by the attitude of users towards a new technology. The analysis showed that attitude positively mediates intention to use. Afshari et al. (2013) found a high correlation between perceived ease of use and attitude when investigating computer-assisted language learning for students. Furthermore, Suki and Suki (2011) mentioned that perceived ease of use is

believed to directly influence person's attitude and also found that perceived ease of use (PEOU) is significantly related to behavioral intention. Nakayima (2011) stated that adoption of a new technology is affected by PU and PEOU that influence behavioral intention to use the system.

However, Davis (1993) wrote that, "user's acceptance is often the main factor determining the success or failure of information system. TAM is used to identify why users accept or reject the system and how characteristics of users have influence on their acceptance and their attitude towards the system. Moreover, management can better understand user perceptions and their attitudes toward a given IT system. Implementing all of that via corrective technical and managerial measures will eventually lead to system success. There are many studies Adams et al. (1992); Al-Gahtani and King (1999); Igbaria (1993); Park et al. (2009); Venkatesh et al. (2003) on information system that indicated on the success of the system through user's satisfaction, their positive intention and positive system usage.

Furthermore, the characteristics of Libyan culture is prevailed by the attitude of favoritism and thus Libya is not different from other developing countries emphasizing on collective rights and obligations of families and social relationships. Thus technology adoption requires the creation of attitude of change in the accounting system in order to recognize and understand the changing surroundings by the creation of skills and the development of technical as well as organizational capabilities and capacities. Lack of attitude can certainly weaken the vital and potential positive role of accounting information system for decision making, planning and control purposes. Thus, the current study attempts to increase awareness and attitude of users for positive perception towards adoption of AIS. The study states that motivation and perception are very crucial for influencing intention of users towards adoption of AIS. In order to motivate the users, variables like intrinsic motivation and extrinsic motivation were employed. Similarly, regarding the perception of user's, variables

like perceived usefulness and perceived ease of use were extracted from TAM. Attitude is conceptualized based on the behavioral intention of the users. TAM and SDT focuses on behavioral significantly. Below are the elements of user's attitude considered for the study.

2.6 Elements of User's Attitude

2.6.1 Perceived Usefulness (PU)

Perceived usefulness is the overall usefulness of AIS in effort saving. It means that the system provides effectiveness, better performance, and productivity. According to Davis (1989), perceived usefulness is defined as the extent to which a person believes that using the system will enhance his or her job performance. Within the organization's context, people are ordinarily reinforced for good performances by raises, promotions, bonuses, and other rewards. According to TAM, perceived usefulness is also influenced by perceived ease of use because as other things being equal, the easier the system is to use, the more useful it can be.

Users of information system develop personalized attitude towards IS in the form of human information interaction towards information system. Across many empirical tests of TAM, perceived usefulness has persistently been a strong determinant of usage intentions. According to Venkatesh (1999), some research has been done to model the determinants of perceived ease of use, and the determinants of perceived usefulness have been relatively overlooked. A better way of recognizing the determinants of perceived usefulness would enable us to design organizational interventions that would increase user's acceptance and usage of new systems (Venkatesh, 1999). In addition Venkatesh and Davis (2000), mentioned that "perceived ease of use, one of the determinants of intention, has displayed a less persistent effect on

intention across studies". From the recent theoretical advancements cutting across action theory, work motivation theory, and behavioral decision theory share the view that the impetus for engaging in specific behaviors stems from a mental representation linking instrumental behaviors to higher-level goals or purposes. Following this line of reasoning, TAM2 theorizes that people use a mental representation for appraising the match between crucial work goals and the effects of performing the act of using a system as a basis for forming judgments about the use performance contingency (i.e. perceived usefulness)(Gazzani Marinelli, 2009).

Furthermore, Bugembe (2010) conferred that computer systems cannot improve organizational performance if they are not used effectively. Resistance to end-user systems by managers and professional is a big issue and lack of user's acceptance has long been an impediment to the success of a new IS. The result revealed that perceived usefulness was the most significant determinant of adoption of a new system than all the other variables. This finding is crucial for the system users and promoters of IS, confirming that overall, TAM provides an information presentation of the mechanisms that influence user's acceptance and helpful in forecasting and evaluating acceptance by users of IT. According to Polger and Adamson (2011), "since perceived usefulness is such a fundamental driver of usage intentions, it is crucial to recognize the determinants of this construct and how their influence changes over time with increasing experience using the system". In addition, Suki and Suki (2011) examined the relationship between perceived usefulness, perceived ease of use, perceived enjoyment, attitude and intention of subscribers using 3G mobile services through cross-sectional data and regression analysis. The result confirmed PU to be a key factor influencing subscriber's intention to use 3G mobile services. According to the study performed by Tavana (2012) computer self efficacy does not significantly affect perceived usefulness but the feature of such technological design have great impact on perceived usefulness which in turn affects utilization of service by employees. The study also found that perceived usefulness

have significant positive effect of utilization of ERP systems consistent with the findings of other researchers like (Hasan, 2007; Ramayah and Jantan, 2004). A research conducted by Guritno et al. (2013); Wu et al. (2007) mentioned that using a new technology in the organization could improve their performance without spending too much effort. The findings also indicated that perceived usefulness contributes heavily towards usability of technology. PU plays an important role in shaping attitude towards technology usage.

Scholars in motivation argued that motivation is an important driver of attitude (Cho and Perry, 2012). Intrinsic motivation is substantially associated with both satisfaction and intention. Intrinsic motivation like managerial trustworthiness, goal directedness and reward expectancy increases the leverage of intrinsic motivation. In managing attitude, scholars and practitioners have emphasized the importance of motivation. Grant and Sumanth (2009) demonstrated that the leverage of motivation also increases when managerial trustworthiness is high. However, human behavior depending on both intrinsic and extrinsic motivations, perceived ease of use and perceived usefulness play a necessary part in impacting the adoption of AIS by SMEs (Khalifa and Davison, 2006). Users that perceive AIS as useful and easy to use tend to utilize the technology. In support of this, Legris et al. (2003) suggested that "perceived ease of use and perceived usefulness are the two crucial factors in disclosing accounting information technology adoption". Thus, the behavioral intention of chief executive officer of SMEs to adopt accounting information technologies depends on their own perceive of characteristics of electronic means. Therefore, managers who perceive accounting information technologies as superior, compatible and easy to recognize are more ready to adopt electronic means. However, Stefanou (2006) mentioned that, "Complexity of AIS also affects the adoption of AIS by SMEs". Owners of SMEs perceive AIS as too complicated and above their needs, hence they are less likely to utilize the technology.

Past studies have validated the constructs of PU and found strong influence on intention. However the study on AIS adoption from the TAM perspective is still limited. Nevertheless the PU construct still garnered tremendous support from many other technological applications. For example, Horton et al. (2001) asserted the existence of a positive influence of PU on intention. Additionally, Agarwal and Prasad (1999); Chau and Hu (2001); Davis (1989); Hu et al. (1999); Ramayah et al. (2003) also reported that PU is significant and positively influences the behavioral intent. After reviewing previous studies on the role of PU and its influence on behavioral intention and attitude, it is conceptualized that perceived usefulness directly impacts behavioral intention to use the technology because people form intentions to use a device that they believe will increase their job performance, regardless of their personal feelings towards the technology. A person believes that system use will elevate the individual's status in the organization, which will enable to increase productivity since the individual has more power and influence to accomplish tasks, hence improving perceived usefulness. Essentially, it is one's perception of the compatibility between work demands and technological capabilities that is proposed to impact perceived usefulness, because when a system supports key job tasks, than the individual is likely to believe that job performance will increase.

2.6.2 Perceived Ease of Use (PEOU)

According to Davis (1989), PEOU is termed as "the user's assessment that the system requires less effort and is easy to use". Perceived ease of use is defined as the extent to which a person believes that using the system will be free of effort. Venkatesh (2000) provided PEOU as cognitive instrumental processes that influence the technology acceptance of users and initiate recognizing on adoption behavior of users. PEOU is significantly impacted towards influencing behavioral intentions directly or indirectly. Davis et al. (1989) found a significant impact and quoted that less effortful a system is to use, the more using it can increase job

performance. Venkatesh (2000), mentioned that, "PEOU describes the individual's perception of how easy the innovation is to learn and to use". Users believe that a given application may be successful, but at the same time, they may believe that the technology is too hard to use and that the performance benefits of usage are outweighed by the effort of application. Ma and Liu (2004) concluded that "TAM model can be accustomed to predict IT usage but that ease of use is not a strong predictor of intent". However, usefulness was shown to predict intent, and ease of use was associated with usefulness. TAM model has been broadly researched and empirically established across various domains.

Moreover, Bugembe (2010) assumed that there is a high contribution of perceived ease of use towards the system for improving user's performance. There is a need to deploy fewer efforts by the users to accomplish other tasks. It was also assumed by Bugembe (2010) that "a user's overall attitude towards using the given system is hypothesized to be a major determinant of whether or not he actually uses it". Attitude and perceived usefulness influence the individual to actually use the system. Claar (2011) confirmed that "major premise of TAM is that the perceived usefulness and perceived ease of use of technologies will directly correlate to technology, which is accepted and used in the work environment". User's intention is the key for better predictor of system usage than competitive predictors like expectations. From the result of previous studies, based on PEOU measured, it was found that before the hands on experiences, the system characteristics do not play a significant role in the formation of early ease of use perceptions. According to Shroff et al. (2011) criteria like robust integrated technology architecture, lifelong support, standardized and transportability are the important tool for the successful ease of use. Empirical studies like Currás et al. (2012); Yong Wee et al. (2011) have shown that perceived usefulness has a strongly impact on usage than ease of use. According to Yong Wee et al. (2011)behavioral intention to use the system is largely influenced by user's perceived usefulness and attitude towards the system. User's

attitude towards the use of the technology are influence by the perceived usefulness and perceived ease of use. In addition, using structural equation modeling approach PU and PEOU are the main factors of their attitude.

From previous research, perceived ease of use has been established to be a crucial factor influencing user's acceptance and usage behavior of IT. Only a few studies found a significant influence of perceived ease of use on attitude and behavioral intention. Thus, due to differences in intelligence, competence, adaptability of new technologies and the nature of job tasks, there has been inconsistency between perceived ease of use and IS acceptance. PEOU has played an important role in affecting technology adoption decisions. Thus, it is postulated that PEOU to be a predictor of behavioral intentions to use the technology. The belief about using the technology affects the usage intentions and behavior via their impact on a potential adopter's attitude. In addition, it can be conceptualized that an individual with high attitude regarding the new technology has a strong belief in his ability to use the technology. As the technology enables the individual to fulfill the tasks with less effort and allowing the saved efforts to use for other work related tasks, it is believed that perceived ease of use ultimately results in a more positive attitude towards the technology.

2.6.3 Intrinsic Motivation (IM)

Intrinsic motivation describes the fact of taking an activity for its own sake: the process itself is fascinating, interesting, or in some way satisfying (Rabideau, 2005). With the involvement of Lawler et al. (1968), who rooted in the theory of motivation model of intrinsic and extrinsic motivations, stated that intrinsic motivation includes people performing their work or activity as they find satisfying and interesting doing the activity itself, whereas extrinsic motivation includes an instrumentality between the activity and effects like tangibility or rewards that does

not come from the activity itself, but also from the effects that the activity leads. According to the self-efficacy theory proposed by Bandura (1977, 1982), it can be concluded that perceived ease of use influences intrinsic motivation. That is, if a person has a higher amount of self-skills (and therefore seems this as easy to use), he/she is more likely to have an enjoyable experience of using it. The desire to handle IT may also be partly depending on intrinsic motivation. Strong evidences have been provided by Davis et al. (1992); Venkatesh et al. (2002) that intrinsic and extrinsic motivations influence to use a technology in an additive manner. Davis (1989) posits that there is no provision for intrinsic motivation and extrinsic motivation or any other related constructs on TAM.

Intrinsic motivators rooted on emotional feeling, such as happiness and depression, excitement and anger, pity and also frustration, and others, also perform a crucial role in disclosing user's acceptance and usage. Davis et al. (1992); Igbaria et al. (1997); Teo et al. (1999); Venkatesh (1999) conferred that the adoption of a new technology depends particularly on both extrinsic and intrinsic motivators. Thus, the main objective of this study is to examine the role of both extrinsic and intrinsic motivators in disclosing SMEs acceptance of AIS. If intrinsic motivation arises as a result of a combination of self-determination and a sense of competence, this also gives rise to a pleasant flow experience and a sense of competence.

For instance, Davis et al. (1992) adapted the motivational horizons, developed perceived enjoyment and disclosed IT acceptance from both extrinsic and intrinsic motivational perspectives. Venkatesh et al. (2002) also redefined TAM within a motivational framework. The resulting model found both extrinsic and intrinsic motivations as predictors of behavioral intention to use. A lot of IS researchers have suggested the need to include intrinsic motivation describing IT adoption and usage. As per Moon and Kim (2001), intrinsic motivation describes the performance of an activity for no apparent support other than the activity. Fok (2001) utilized TAM,

which entails self-efficacy and its determinants as factors involving perceived ease of use, perceived usefulness and the use of the Internet.Venkatesh et al. (2002) investigated the relationship and influence of perceived ease of use on intrinsic motivation. On the other hand, in the case of intrinsic motivation, the activity itself or the corresponding end goal satisfies a direct need in its own right (Frey and Osterloh, 2002). Intrinsic motivation was considered as a predictor for influencing the intention to use technology concerning more importance with enjoyment (Saadé and Bahli, 2005).

Lee et al. (2005) investigated the acceptance of Internet-based learning medium (ILM) by integrating motivational perspective into TAM. The findings indicated that both "intrinsic and extrinsic motivations possess a strong impact on student's attitude and intention to use ILM". Flavián and Gurrea (2009), investigated the user's motivation as a key determinant of the attitude and interpreted its impact on attitude. The result revealed that there is a positive and significant relationship between motivations with the favorable attitude. Furthermore, Wongsim and Gao (2011) extended TAM model by examining the "effect on extrinsic and intrinsic motivational ingredients in impacting individual's acceptance of Internet job search".

Several previous studies hypothesized and confirmed that extrinsic rewards were undermined by intrinsic motivation and enhanced by verbal rewards. SDT was introduced, which disclosed various aspects of motivation with the sense of violation and experience of choice. There are many consequences of intrinsic motivation addressed by many academicians in relation to intrinsic rewards, intrinsic motivation in work, sense of choice, managing own management, enjoying the job and others. In today's job environment, employees need to show different kind of motivation. Employee engagement in the work creates power and new innovative ideas on it. Intrinsic motivation enables the employee to drive such engagement and it comes to the employee directly from the work they do. Moreover, despite focusing on the work engagement, this study utilizes intrinsic motivation as an activity of interest of

users towards using a new technology. When the users expect that adopting a new technology would provide a good result as compared to other technology or system, the intrinsic motivation of the user would increase to accept such system. When the user is intrinsically motivated for the system, the user would consider it as a challenge and enjoy learning to use such system. Sometimes, users accept the new technology as a challenge to show his or her ability to others. Thus, the conclusion is that intrinsic motivation is the critical factor to encourage the users to adopt a new technology. Intrinsic motivation reflects the natural human propensity to learn and assimilate. Intrinsic motivation is an important motivator that affects adaptation, acceptance and competencies of the technology. Thus, the question arises is to what extent does intrinsic motivation influence user's intention to adopt AIS in Libyan SMEs.

2.6.4 Extrinsic Motivation (EM)

Extrinsic motivation is defined as the performance of an activity in achieving valued outcomes from the same activity (Igbaria et al., 1997; Moon and Kim, 2001). Extrinsic motivation pertains to behaviors that are engaged in response to something apart from its own sake, such as reward or recognition or the dictates of other people. The decision to use IT is determined partly on a rational calculation of the benefits. Extrinsic motivation is argued to vary considerably in its relative autonomy and thus, can either reflect external control or true self-regulation. In SDT, Deci and Ryan (1985a) distinguished between different types of motivation based on the different logics or goals that give rise to an action. The most basic distinction is between intrinsic motivation, which refers to doing something because it is inherently interesting or enjoyable, and extrinsic motivation, which refers to doing something because it leads to a separable outcome. Ryan and Deci (2000) suggested that in order to decrease the effect of intrinsic motivation on tasks that are originally intrinsically motivating, there is a need to introduce extrinsic reward.

Extrinsic reward shifts the activity from intrinsic to extrinsic and reduces the feelings of competence and self-determination.

According to Frey and Osterloh (2002), "extrinsic motivation serves to satisfy indirect or instrumental needs". Extrinsic motivation stems from the desire to satisfy directly one's non-work related needs. However, equally crucial in the current review is the explication of the very different types of motivation that fall into the category of extrinsic motivation. Intrinsically motivated behavior, which is initiated by people's interest in the activity itself, is prototypical autonomous. However, a crucial aspect of SDT is the proposition that extrinsic motivation can vary in the degree to which it is autonomous versus controlled. According to Gagné and Deci (2005) activities that are not intrinsically motivating need extrinsic motivation, so their initial achievement depends upon the perception of a contingency between the behavior and a desired effect such as implicit approval or tangible rewards. Within SDT, when a behavior is so motivated, it is said to be externally regulated, initiated and maintained by contingencies external to the person. This is the classic type of extrinsic motivation and is a prototype of controlled motivation. When externally regulated, people act with the intention of obtaining a desired effect or avoiding an undesired one, so they are energized into action only when the action is instrumental to those ends. External regulation is the type of extrinsic motivation that is considered when extrinsic motivation contrasted with intrinsic motivation (Sørebø et al., 2009).

In the classic literature, extrinsic motivation has typically been characterized as a powerful form of motivation than that of intrinsic motivation (Fagan et al., 2008). Fagan et al. (2008) found that "there is a positive impact of extrinsic motivation on the behavioral intention to use computer". They also investigated the relationship between intrinsic and extrinsic motivations and found a positive relationship between them. However, SDT proposes that there are various types of

extrinsic motivation, some of which do, indeed, represent impoverished forms of motivation and some of which represent active, agent states. Teo (2011) found that "extrinsic motivation is stronger than intrinsic motivation". They also provided many other factors like computer experience and anxiety, computer skills, support of organization, social pressure, self-efficacy and user training. Extrinsic motivation provides highly motivated actions with interest or disinterest or with an attitude of willingness towards acceptance of the tasks or its utilization. Extrinsic motivation stands for the external action of feeling that in later case is considered as extrinsic goal when adopted with sense. Proper recognizing of extrinsic motivation has been considered as crucial issues for managers who cannot always rely on intrinsic motivation to increase their motivation and sophisticated information (Duvall, 2012).

Extrinsic motivation deals with performing something that leads to valued outcomes in job tasks and productivity. Consequently, organization often overestimates the effects of extrinsic motivation in adopting technology. In other words, being motivated to do something in order to achieve a utilitarian outcome is as important as feeling enjoyable by completing the task although early literature defined extrinsic motivation as an impoverished form of motivation. This study conceptualizes extrinsic motivation as a factor that affects user's behavior, such as the desire to perform the task quickly, improving work performance, increase effectiveness of job tasks, and increase the quality of work performed. Previous studies have concluded that extrinsic motivation is an influential factor for the acceptance of technology, but it remains inconclusive whether extrinsic motivation affects user's behavior to accept the system more than others. Thus, this study utilizes extrinsic motivation as a factor in investigating its influence on behavioral intention to adopt AIS in Libyan SMEs. In the context of technology adoption, it is expected that the presence of extrinsic motivation might prevent users from participating in computer-based tasks that are challenging and enjoyable.

2.7 Factors Influencing User's Attitude and Intention

This study discloses the impact of external variables (IT knowledge, IT innovativeness and trust on technology) on the determination of IS usage and adoption. Management support has been studied previously as an external variable that affects usage through perceived usefulness and perceived ease of use. Management support was identified as one of the key factors that affect system success (Nah et al., 2003).

2.7.1 IT Knowledge

Knowledge is the extent of theoretical knowledge of an individual that can be used to improve ability and skills and best perform individual tasks (Stevens and Campion, 1994). In the case of technologies, knowledge about how to operate, install and modify software documents is crucial on the acquisition of skills. An owner with more IT knowledge is able to assess the benefits of a new technology and is more likely to adopt innovation. Lack of IT knowledge creates uncertainty and it is only the awareness through knowledge that creates confidence in new innovation, which facilitates adoption (Rogers Everett, 1995).Chuang et al. (2009); Drew (2003); Ghobakhloo et al. (2011); Thong (1999) suggested that an owner's IT knowledge and experience of IT is another trait affecting IT adoption in SMEs. It is suggested that the greater knowledge of owner will reduce the degree of uncertainty entangled with IT, which will result in lower risk of IT adoption. Similarly,Ghobakhloo et al. (2012) suggested that users IT knowledge and experience of IT affect the adoption of IT in SMEs.

Larsen (1993) studied the effect of middle managers age, middle managers tenure in position and middle managers education or IT knowledge that contributed to implementing IT innovation in organizations. Thus, small businesses with owners who are more knowledgeable about IT are more likely to adopt it (Thong and Yap,

1995). Moreover, owners with higher levels of computing skills are more satisfied with the implementation of IS rather than those having inferior skills, given that satisfaction with IS/IT is one of the most applied measures of IT success in organizations. These views are consistent with the results of other studies, which found that sufficient knowledge of IT and its consequent influences over organization could be provocative and supportive for IT adoption in SMEs (Nov and Ye, 2008).

Knowledge of user plays an important role in the adoption and assimilation of IT in organizations. Among these owners, IT knowledge was found to have a strong correlation with IT innovation adoption (Chan and Ngai, 2007; Jeon et al., 2006; Thong and Yap, 1995). Meanwhile, attitudes such as knowledge structures are considered to be relatively stable, as they can change over time or as a result of various influences. Long tenured executives have more experience and may have more intimate knowledge of the organization. Indeed, results reported elsewhere suggest CEOs with either conservative or liberal attitudes towards change could be successful in leading United Ways that achieved high fund raising and stakeholder service goals. Therefore, experience factors must be counter-balanced with attitude towards change differences in appraising executives for IS adoption. Kassim et al. (2011) mentioned that increased focus on knowledge leads organizations to introduce new roles and implement various technologies. Without knowledge transfer, it is very difficult for technology transfer. Thus, knowledge is the key control of technology that enables the individual to adopt the technology in their operations. Usually, the owner of the SMEs is the entity responsible for the adoption of a new technology in their operations. However, Orens and Reheul (2013) found that due to positive attitude of users towards change and innovation, the factors like experience, CEO's tenure, and CEO education do not have any association with the level of holding cash. Thus, it is crucial to identify the attitude of the owners or users and their motivation towards the adoption of AIS in SMEs of Libya.

According to this study, IT knowledge stands for technology-specific knowledge to specify abilities of the users to understand the relevance of technology in the organization. Abilities of the users for companies involve effective investment decisions and company performance. There are many theories that model owners running SMEs and have ability and talent along with strong observation skills. Similarly to the theoretical literature, empirical work in economics and finance suggests that owners matter, but that work is just beginning to consider what particular abilities or skills are important. Skills and abilities of technology are the main concern to conceptualize this study and include IT knowledge as characteristic of users influencing AIS adoption in Libyan SMEs. To perceive an overall view of the knowledge level of respondents, a closed interval survey questionnaire is developed regarding the improved technique usage for improved IS adoption.

2.7.2 IT Innovativeness

Innovation for the firms is central for the success and survival, and owners are the primary charge for such innovation (Yadav et al., 2007). Furthermore, Tolba and Mourad (2011) elaborate the concept of innovation by quoting that, "Diffusion of Innovation (DOI) theory highlights that innovation or technological factors affect the adoption". Recently, researchers in IS have begun to rely on the theories of innovation diffusion to study implementation problems. A major focus of these studies has been how potential user's perceptions of an IT innovation influence its adoption (Al-Gahtani, 1998). Thong and Yap (1995) considered CEOs innovativeness, CEO's attitude towards change and CEO's IT knowledge amongst others. CEO's can influence IT adoption by virtue of their innovativeness and interest towards change. Due to the dominant role of CEO in small businesses, these aspects are essential in the adoption of IT. CEO willingness to innovate notably dictates the adoption of IT (Thong and Yap, 1995). In the firms, IT adoption has been focused heavily by academicians and researchers as decision to accept and use the innovation (Grandon

and Pearson, 2004; Premkumar and Roberts, 1999).

Venkatesh et al. (2003) provided empirical evidence to demonstrate that IT use behavior was well disclosed by the UTAUT, and they suggested future experts to continue validating their model. The owner's perception of a new innovation plays an important role in the adoption of IT. CEO's innovativeness and favorable attitude of a new technology affect in a positive way for the adoption of IT. Owners are frequently so ingrained in their day-to-day schedule that they are unable to recognize that the technological environment has turned to them (Finkelstein, 2005). Yadav et al. (2007) argued that CEOs have a direct, positive and long-term impact on innovative outcomes of the firms. CEO's attention is very critical driver for innovation even when the target of attention is not innovation.

Furthermore, Hameed et al. (2012) mentioned that in small businesses, the CEO is usually the owner and the sole decision maker and CEOs innovativeness and involvement contribute to the success of any IT adoption process (Poon and Swatman, 1999). Innovative CEOs are willing to take risks and would prefer solutions that have not been tried before (Thong, 1999). Past literature found CEOs innovativeness significantly and positively influenced the adoption of IT (Mirchandani and Motwani, 2001a). Generating new and innovative approaches for accurate IT and offering creative solutions to accounting usage are very crucial for the SMEs in order to increase their performance. It is believed that managing innovation activity with a new method or technology to perform new tasks and differentiate policies in the organization. Thus, it is important to investigate the role and behavior of the owner to innovate their firms with the adoption of AIS, followed with the main theme of the study. AIS adoption is a new innovation for the SMEs in Libya that would shift the quality and reliability of accounting information and improve productivity and technological advantage. The term adoption is used in depicting individual's behavior towards a new innovation. When the Libyan SMEs begin to use AIS as a specific

technology, they will enable to penetrate the potential market to a larger extent for long and short period of time. Adoption of technology requires a fixed cost that varies over time. Thus, it is important to understand the behavior and attitude of the decision maker in Libyan SMEs towards the acceptance of new innovation.

2.7.3 Trust in Technology

Trust is a primary factor in explaining and predicting the intention to adopt a system (Bahmanziari et al., 2003; Dahlberg et al., 2003; Ratnasingam, 2000). Trust is important prior to adoption and during the management of the outsourcing relationship. As trust is risky, the question of when it is warranted is of particular importance. Trust is important as it allows us to form a relationship with others and depends on others, but it can be dangerous too that people we trust will not pull through for us. Furthermor, McKnight (2005) mentioned that, "Trusting technology has also the same meaning as trusting people". Pavlou (2003) stated that, "it makes sense to involve trust in e-commerce because of the high degree of uncertainty and risk present in most online transactions". If the owners of SMEs have trust on technology, they are more likely to accept the technology and would be dependent on others, whereas if there is no trust on technology, it would also lead to non-acceptance of it. It has been suggested that trust is crucial for all business relationships as it enables more open communication, increased performance, higher quality deliverable and greater satisfaction in the decision-making process (Kim et al., 2007). Zhu et al. (2009) mentioned that trust reduces perceived risk and increases intention to adopt the system.

Trust is identified as a psychological state that people have the intention to accept vulnerability based on their beliefs that transactions with sellers will meet their confident transactions expectations due to the sellers competence, integrity, benevolence, and predictability (Al-Somali et al., 2009; Corritore et al., 2003; Sukkar

and Hasan, 2005). Establishing trust is especially important for e-vendors to enhance consumer's attitude and purchase intention (Djamchid and Dmitry, 2006). Trust also has positive influences on PU because it allows consumers to willingly become vulnerable to e-vendors (Pavlou, 2003).

It is usually difficult to define trust because of its various meanings. Lack of trust in technological component is considered as one of the main reasons for crashing high-tech companies. Researches have shown that trust is a key element in technology success. However, the question of how trust is achieved and maintained has not been answered appropriately. Lack of trust in technology has provided a major challenge in understanding the relationship between business and technology. One of the challenges for technology adoption success is facing the user's trust (Aghdaie et al., 2011).

Jurison (2002) mentioned that IS researchers did not focus heavily on technology while highlighting issues on implementation of IS. Similarly, Walker et al. (2002) mentioned that customer's needs and wants sense of risk and desire for control, behavioral and cultural norms can be fulfilled with technological means of service delivery, its complexity or ease of use and access and its technical reliability. It must be noted that modern organizations rely heavily on the use of AIS for their accounting processes. There is a growing need for research to provide insights into issues and solutions related to trust.

Lal (2005) established that "accounting information technology adoption by the SMEs has a relatively low success rate due to various logics, such as the relatively low advancement degree of the marketization, economically backwardness, apart from the characteristics of SMEs, including small-size, poor credit reputation, and weak innovation capability". According to Chin and Gopal (1995); Davis (1989) the crucial logics of TAM remain to supply a reason for finding the impact

of external factors on internal beliefs, i.e. PU and PEOU, and to link that to actual use. Chin and Gopal (1995) suggested that "greater recognizing may be garnered in explicating the casual relationship among beliefs and their antecedent factors". The implication is that without improvement in recognizing the antecedents of PU and PEOU, practitioners are unable to know which levers to pull to affect these beliefs and, through them, the utilization of technology. The first external variable included in TAM was output quality Davis et al. (1992) and since then, researchers have proposed a lot more than 70 external variables for PU and PEOU. Trust in technology is very crucial for ensuring successful adoption of information rendered through the technology itself. In this study, trust in AIS by the SMEs is very important for the vulnerable action of others. Several studies have been conducted on the technology adoption in Libya and ensured its importance of adoption in various fields. Previous studies have addressed the factors influencing the intention to adopt technology but they did not address the issue of trust. Lack of trust in technology is one of the most frequently cited reasons for the users not using the system. Thus, this study investigates the importance of trust in AIS towards its continuous adoption and loyalty of customers to the company.

2.8 Behavioral intention of users and its Consequences

Behavioral intention is defined as the individual's likelihood to engage in a given behavior. It is similar to the concept of the desire of a person or its willingness to perform the behavior. Behavioral intention is the most appropriate predictor of behavioral acceptance. Individual's behavior is in pursuit of a larger goal and can be elaborated in terms of plan of behavior specifying the situations. Research has shown that specification in planning is associated with a greater likelihood to perform the behavior. Furthermore, FADARE et al. (2011); Park et al. (2012) investigated the factors affecting student's behavioral intention to use mobile learning based mainly on TAM. Several studies were conducted to understand the factors affecting adop-

tion so far. In the study of Agarwal et al. (2007), the researchers have examined the interplay of actors in the adoption process of 3G and the impact of external variables like convenience, self-efficacy, service quality, price and variety of service on user's adoption of this technology. From the findings of the study, price, convenience and service quality are all essential to perceived value.

Based on TRA, TAM posits a link from attitude to behavioral intention and behavioral intention to actual use. This causal chain of constructs implies that a more positive attitude towards the system creates a stronger behavioral intention towards using the system. In addition, when an employee believes that an IT system will positively impact his or her work performance, they form a stronger behavioral intention to use the device. Ultimately, a stronger behavioral intention to use the technology tends to result in more actual technological use. According to this study belief, the user plays an important role for strengthening and creating more business opportunities. It is believed that the adoption of AIS in the Libyan SMEs will create competitive advantage and customer loyalty. Finally, as a proxy for willingness to try and motivate to perform a behavior, BI has useful potential application. Depending on the type and context of a behavior, information about willingness and motivation may focus one's intervention on the subset population with higher BI strength, and another intervention on influencing variables that affect intention. Thus, the users in Libyan SMEs who have belief in the competence, integrity, predictability and intent are more likely to show willingness to depend on the technology. There is a need for the SMEs to be dependent on AIS and vulnerable in the future.

The consequences of this study show that user's intention to use AIS as an accounting tool is determined by the perception of its usefulness and how convenient it is to use and access its technological functions. Lastly, in order to measure the outcome of the effects of AIS, user's attitudes and behavioral intentions need to be completely understood. The result of the research will add to the existing IS

literature theoretical, as well as managerial. On the basis of the identified variables, the study aims to understand the intention of user for the adoption of technology. Behavioral intention is the target variable. In order to understand user's behavioral intention about the AIS usage, opinions about the issues such as quality, supported activities, and usefulness of AIS were asked about. AIS offers a vertically integrated top-down accounting information to delivering time and reliable access.

2.9   Previous studies on Information System adoption

This research aims to examine the user's attitude and intention towards AIS. Below are some of the previous studies on IS adoption with the help of motivation and perception in the form of attitude.

Moon and Kim (2001) in the context of world wide web (WWW) and using survey questionnaire as methodology found that the implication of WWW technology can be successful with intrinsic belief of the users. It was also found that perceived usefulness and perceived ease of use were important factors to user's perceptions of the WWW system. Furthermore, playfulness was found to be an important component of attitude that provides more concentration, curiosity and enjoyment.

However, Venkatesh et al. (2002) approached to the understanding the formation of user's perception about technology and developed an integrated model that examines the influence of pre-training and training environment to understand the implementation of system. The result found that the integrated model emerged to explain users behavior effectively. Intrinsic motivation, perceived usefulness, perceived ease of use played a mediating effect for predicting behavioral intention.

In addition, Venkatesh and Bala (2008) investigated how employees makes a decision on adoption and usage of information technologies. From the organiza-

tional point of view it was found that managers with well informed decisions leads to greater acceptance and utilization of IT. The findings of the study revealed that perceived usefulness and perceived ease of use have a comprehensive influence on individual level IT adoption and use. IT implementation in organizations is highly implicated with manager's decisions.

According to Legris et al. (2003) implementation of information system is costly and are relatively low success rate. Thus the identification of factors that facilitates the usage of IS becomes crucial. This study reanalyze the TAM model investigated by Davis (1985) using perceived usefulness and perceived ease of use as mediating effect on usage of information system. The study concluded that TAM is a useful model and suggested to include human and social change processes and the adoption of innovation model.

Furthermore, Holden and El-Bannany (2004) investigating the determinants of bank profitability using IS system in the UK found that investing in information technology system for long term increases bank profitability. Study performed by Graffeo et al. (2004) aimed to investigate the factor affect attitude and trust of the users on determining the purchase showed that trust is significantly determined by perceived competence, truthfulness and experiential attitude. It was also found that trust have no direct influence on purchase intentions.

Vallerand (2004) provided an overview of intrinsic and extrinsic motivation along with discussing factors affecting it. The study found that motivation is a complex and multidimensional phenomena that is influenced by numerous factors and can lead to the host of consequences. This self-determined form of motivation leads to higher level of achievement and successful participation. However, Ismail and King (2005) examined accounting information system effectiveness and its influence in SMEs in Malaysia. The proposed model investigated the impact of AIS

sophistication, managerial participation, and manager AIS knowledge, manager accounting knowledge and accounting firms in AIS implementation. The study found that SMEs should engage with qualified vendors who understand the unique characteristics of SMEs to over their lack of AIS knowledge.

Park (2006) examined the acceptance of intranet in restaurant franchisee system using TAM model. Using 3500 questionnaire and modifying the original TAM model by including external variables, this study confirmed that TAM is still a valid model for evaluating the acceptance of intranet system. It was also revealed that organizational support, perceived usefulness, perceived ease of use, attitude towards using internet, and behavioral intention are antecedents of intranet usage.

Yousafzai et al. (2007) further extended the TAM model by performing its meta-analysis and identifying gaps for its implementation in the management contexts. External variables like personal characteristics, social characteristics and environmental characteristics were utilized in the TAM model. The result revealed that external characteristics like knowledge, support, culture, demographic factors and many more have high impact on acceptance of the system. It was also found that perceived behavior and motivational attitude of users play an important role for the implementation of technology in the workplace.

Yousafzai et al. (2007) again in part 2 extended the meta-analysis of TAM following Hedges and Olkins procedures and regression method. The result confirmed that TAM has been on modeling intention for its effect on self-reported usage behavior, while the attitudinal construct has been neglected. User acceptance of information technology remains a complex, elusive, yet extremely crucial phenomenon.

Siegel (2008) further extended the technology acceptance research using motivation and acceptance model empirically through survey questionnaire and the

result found that motivation and acceptance model is significant to perception and their use.

In addition, Chuttur (2009) provided overview of the TAM by discussing its origins, advancements and future directions and found that Research in Technology Acceptance Model lacks sufficient rigor and relevance that would make it a well-established theory for the information system community.

However, Aghdaie et al. (2011) in the field of technology acceptance identified the factors affecting the attitude of trust in Internet purchasing from the perspective of consumers. The descriptive survey research using participants of online members revealed that payment method and information quality have high influence on perceived ease of use.

Claar (2011) analyzed users behavior for home personal computer following Health Belief Model. Cross sectional study using a self-reported web-based survey to test the theoretical model derived from the Health Belief Model revealed that most significant contributors to the usage of computer security were the perceived vulnerability of a security incident and the prior experience with a security incident. These two constructs corresponded significantly with each other.

Wongsim and Gao (2011) explored the issue of quality of information for AIS adoption. The study approached qualitative method of data collection with preliminary design. The study found that IQ dimensions provide assistance in all processes of decision making. IQ affects decision making in adopting AIS in order to improve the effectiveness of AIS.

Similarly, Al-Eqab and Ismail (2011)using contingency factors in Jordanian companies for investigating AIS design investigated relationship between three con-

tingency factors and AIS sophistication. The result found that Business strategies, cost leadership were significant to AIS design, while environmental condition and differentiation strategy were not significant to AIS design.

One more study on AIS adoption performed by Soudani (2012) investigating the usefulness of an AIS for effective organizational performance through quantitative approach found that although AIS is very useful and have effect on organizational performance to listed companies in Dubai financial market (DFM) but, there is no relationship Between AIS and performance management.

Similarly, Daoud et al. (2013)investigated importance of AIS in the ERP environment and firm performance of Tunisia empirically with 102 firms adopting ERP system. The result revealed that top management involvement and external expertise have impact on AIS adoption.

In the study performance by Al Zoubib et al. (2014) on adoption of e-learning successfully among adult workers in Arab Open University empirical using DOI model with a total of 502 workers pursuing study in Arab open university found that technological and organizational factors have strong influence on learning adoption level by different groups.

Furthermore, study performed by Xiong et al. (2014) for the adoption of Massive Open Online Courses (MOOC) among the students quantitative found that human capital is important factor for UTAUT model.

An exploratory study investigated by Chen and Hamdan (2014) for IT adoption by SMEs in Brunei Darussalam quantitatively having 163 SMEs as participants found that IT as a key part of business success and have great impact on IT adoption. A strong support system and training is important for effective understanding

and application of IT.

Investigating the relationship between E-commerce and AIS AHMAD et al. (2014) in Medium Scale Organizations including quantitative research where sample involves medium scale organizations revealed that using e-commerce tackles the issue of providing information access security by requiring a user name and password which prevents unauthorized system entrances.

Even Awosejo et al. (2014) investigating the adoption of AIS in the organizations of South Africa quantitatively using accounting firms as respondents found that the use of AIS is relatively accepted within accounting firm, this is as a result of the change that comes with the use of such application. In addition, study performed by Huang and Kuo (2014) on Travel Information Adoption Intention in the Online Social Community with the perspectives of customer experience and Information Adoption Model revealed that customer experience and information usefulness increase Internet user's information adoption intentions and that the quality and credibility of Internet tourism information have a positive effect on customer experience and information usefulness.

Finally, investigating the determinants of accounting information technology adoption in micro financial institutions of Syria using PLS model Ngadiman et al. (2014) found that system quality, relevance, and compatibility important determinants in perception of usefulness and ease of use.

After reviewing on the studies related to technology adoption and importance of AIS majority of them confirmed that human behavior and user's characteristics play an immense role for technology adoption. These studies have been referred in this study due to their immense acceptance of TAM and were in the area of technology acceptance. Furthermore, some studies still confirmed that TAM is an

important concept for the acceptance of technology and their usage.

2.10   Summary

In this chapter, the focus is on the review of existing literature. A review and evaluation of key studies that are related to this study is undertaken to show the gaps in the literature and how the experiences of these contribute to the present endeavor. The literature review has also reviewed the level of user's characteristics, which include IT knowledge, IT innovativeness and trust in technology, which would influence the perception and motivation of users for adoption of AIS in SMEs of Libya. Hence, the necessity of controlling these factors becomes crucial when investigating other relationships that also have impact on behavioral intention of users.

CHAPTER 3

RESEARCH METHODOLOGY

3.1   Introduction

This chapter discloses the research design and methodology. The chapter begins with the explanation of research paradigm, followed by the description of the research process. It focuses on the empirical aspects addressing the research framework to examine the link between IT characteristics, perceived usefulness, perceived ease of use, intrinsic motivation, extrinsic motivation, user's attitude and behavioral intention to use AIS in small and medium scale industries in Libya. Research hypothesis description, unit of analysis, population, survey questionnaire design, measurement, administration of data collection, and finally the statistical tools that are used to test the hypothesis are presented in this chapter.

3.2   Research Paradigm

The concept of research paradigm was first introduced by Kuhn in 1960 for the value judgment of peoples, norms, standards, theories, reference frames and approved process. With the selection of research paradigm, the design of the research is performed (Creswell, 2013). According to Chisick (2008), research that is respected is anchored in the scientific research. Scholars begin to argue against positivism as

an appropriate approach to be adopted in social science research.

Most of the social science research deals with action and behavior, which are generated within the human mind and therefore need to be interpreted by the respondents. Furthermore, Lincoln et al. (2011) in the constructivist paradigm, several characteristics of the respondents emerge gradually. Creswell (2012); Creswell and Clark (2007) epistemologically mentioned that the objectivity and impersonality that contribute to validity and reliability claims in positivist research are not possible in the interpretive epistemology, as it is impossible to separate the interrelationship between the researcher and what is being investigated. As a result, social science researchers who seconded this argument started to adopt the constructivist paradigm in their studies, and sometimes employed sociological perspectives such as phenomenology and symbolic interactionism. The following Table 3.1 shows the main features of quantitative and qualitative paradigms provided by (Collins and Hussey, 2003).

Table 3.1: Main features of research paradigm

Positivist paradigm	Constructivist paradigm
Applies scientific principles	Applies understanding principles
Uses prediction	Uses exploration
Values objectivity	Values inter-subjectivity
Aims to produce quantitative data	Aims to produce qualitative data
Uses large (statistical) samples	Uses small (theoretical) samples
Concerned with hypothesis testing	Concerned with generating theories
Data is highly specific and precise	Data is rich and descriptive
The location is artificial	The location is natural
Reliability is high	Reliability is low
Validity is low	Validity is high
Can claim generalization from sample to population	Can claim transferability from context to similar context

Source: adapted from Collins and Hussey (2003)

This research applied positivist paradigm using epistemology and quantita-

tive methodology. Positivism could be viewed as a research philosophy assuming the phenomena being studied have a stable reality and is measurable from the outside by an objective observer (Lincoln et al., 2011). With regards to technology adoption studies, significant numbers of previous studies Acemoglu et al. (2007); Brown and Russell (2007); Koundouri et al. (2006); McAfee (2002); Straub (2009) apply the quantitative approach. Therefore, there is already a significant body of literature, known variables and existing theories to support the work undertaken in this research. Rather than exploring in an interpretive way, this study attempts to confirm, support or challenge the findings of other scholars in a different research context. This is the reason that quantitative paradigm is utilized in this study. The application of scientific methods as a part of advantage is also one of the reasons to employ quantitative positivist paradigm.

Thus, impersonal and formal types of language are used, where all the constructs are defined based on the assumption of keeping the researcher's value out of the quantitative study report (Cetina, 2009). In the quantitative approach undertaken, hypothesis testing was performed based on the conceptual framework presented. Concepts, variables and hypotheses were chosen and developed before the research began and remained fixed throughout the research. The main concern is to develop generalizations that contribute to theory, as well as providing better prediction, explanation and understanding of the phenomena under study.

3.3 Research Process

Research process was employed in this research, which is commonly used and discussed in all the investigation scientifically. The research process consists of seven stages, starting with the literature review where research gap or research problem is developed by identifying gap from the literature.

Relevant literature was depicted in Chapter 2 and the research questions
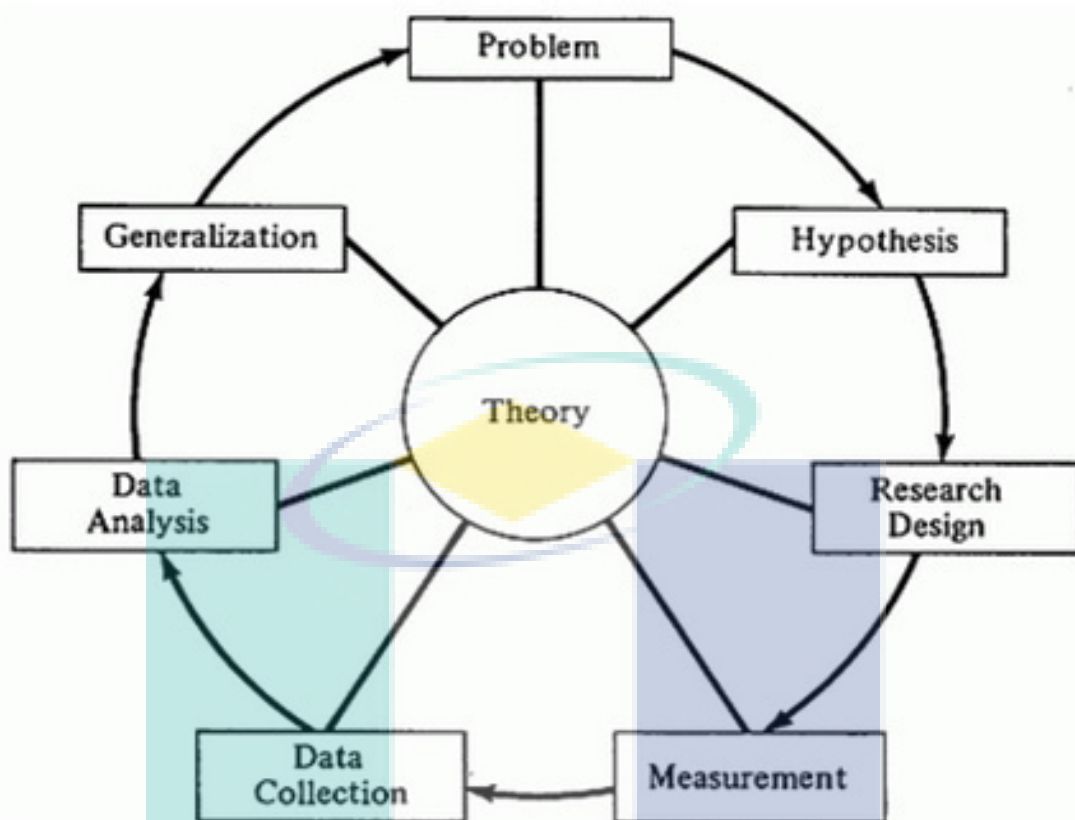
Figure 3.1: Main stages of research process

Source: Adapted from Johnson and Onwuegbuzie (2004)

for the study were highlighted in Chapter 1. Review of literature further led to the identification of relevant theories, which acted as a platform in developing the theoretical framework and hypotheses for this research. Chapter 3 describes the theoretical framework and theoretically justified hypotheses of this research.

The purpose of the next phase was to determine the most suitable research design to be employed in this research. First, the researcher needed to identify the suitable research paradigm as described in the earlier section of this chapter. An appropriate research design was employed by deciding an appropriate research paradigm. In the measurement phase, careful attention was given in the process of developing the survey questionnaire. A pilot study was conducted in order to identify the reliability and the face validity of the survey questionnaire in the final stage of this phase. Necessary adjustments were made from the research of the afore-

mentioned phase. Data analysis was performed in a two-stage process. In the first stage, preliminary data analysis was performed along with descriptive respondent data, followed by the model confirmatory process in the second stage of data analysis. Analysis and interpretation of the result were then explained. In the final stage of research process, conclusions and discussions on the implication of findings were provided. Relevant literature and theories were conferred with detailed discussion and explanation of findings.

3.4   Research Framework

Figure 3.2 illustrates the theoretical framework for this study. This theoretical framework was proposed based on TAM Davis (1989) and SDT (Deci and Ryan, 1985a). The framework identifies user's IT characteristics like IT knowledge, IT innovativeness and trust in IT as antecedent factors for behavioral intention of users with the mediating effect of attitude. Supported with SDT, the framework links user's attitude with IT characteristic factors and behavioral intention. Since IT characteristics are asserted to have an influence on behavioral intention, user's attitude was used as the mediating effect between the relationship of IT characteristics and behavioral intention. The framework of this study was based on two theoretical approaches. According to Ryan and Deci (2000), the most basic distinction is between intrinsic motivation that refers to do something because it is interesting and enjoying and extrinsic motivation refers to doing something because it leads to separable outcome. They also added that intrinsic motivation results in high quality learning and creativity and deals with the factors and forces that undermine the motivation practices.

Figure 3.2 presents the proposed framework for the research study. Intention to use AIS is the dependent variable. It includes the intention of users (i.e. managers or owners) towards accepting AIS in their workplace. Perceived usefulness,
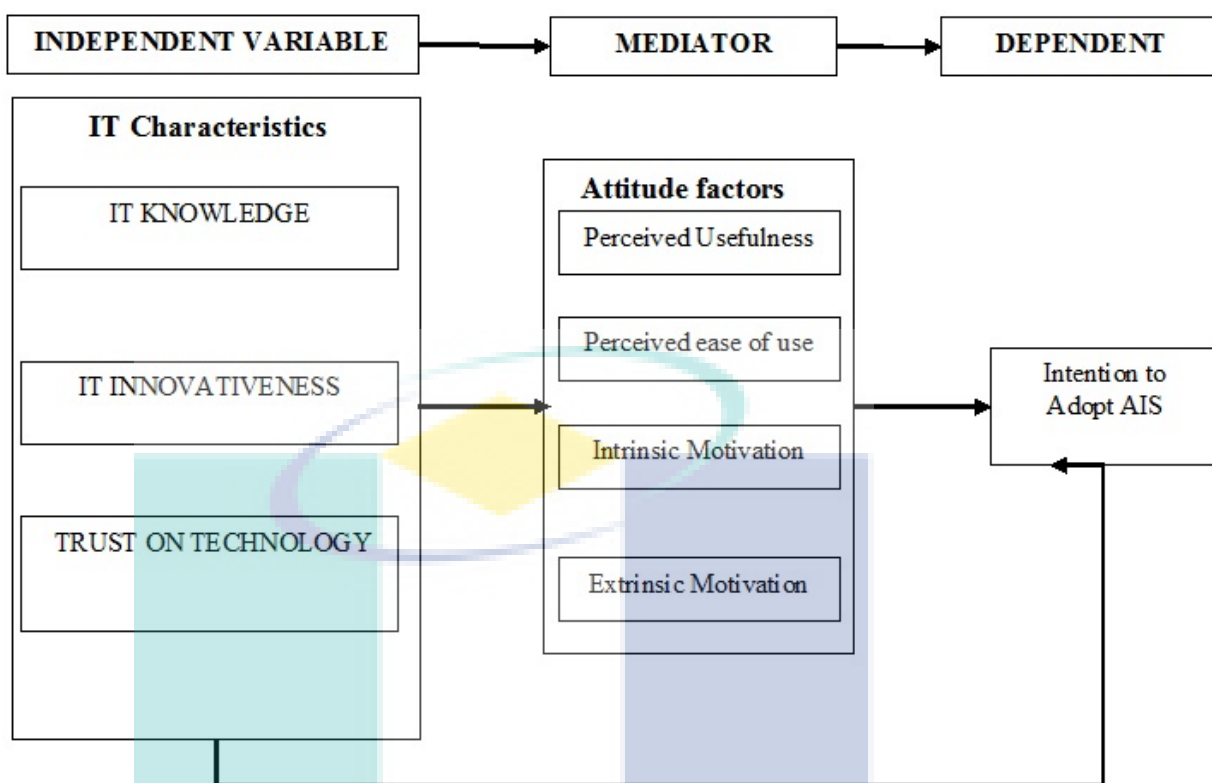
Figure 3.2: Research model

perceived ease of use, intrinsic motivation, and extrinsic motivation are considered as dimensions of attitude and work as the mediating effect between IT characteristics and behavioral intention. IT characteristic variables like IT knowledge, IT innovativeness and trust in IT work as independent variables that disclose the mediating variable (attitude) and the dependent variable of user's behavioral intention to adopt AIS.

3.5   Research Hypothesis

General theories like TAM and MM were used to generate propositions that are operationalized as hypothesis and are subjected to empirical testing. At the methodological level, positivist researchers believe that large-scale sample surveys are suitable research methods, as they allow researchers a certain amount of control over data collection and analysis through manipulation of research design param-

eters and statistical procedures. Hypotheses should be testable and provide the opportunity for confirmation and falsification. Thus the hypothesis are formulated concerning the nature of the research domain. The theoretical framework includes six main hypotheses. These hypotheses formulated from the theoretical framework for empirical verification are provided as below:

- H1: There is a positive influence of user's attitude on behavioral intention to adopt AIS

Attitude formation with respect to information systems has been discussed in the scholarly literature across various disciplines. Behavioral intentions to use are jointly determined by a person's attitude towards using the system and its perceived usefulness. BI then determines the actual use (AU) of the system. End user's satisfaction is the key indicator of system performance including its huge increase in acceptance (Adam Mahmood et al., 2000). Thus it can be said that positive user's attitude would lead to positive behavioral intention of the users to adopt the information system. This study posits that user's attitude that includes perceived usefulness, perceived ease of use, intrinsic motivation and extrinsic motivation would enhance user's behavioral intention to adopt AIS in Libyan SMEs. Below are the sub hypothesis depicted for the relationship between user's attitude and behavioral intention.

H_{1a}: There is a positive influence of perceived usefulness on user's behavioral intention to adopt AIS

H_{1b}: There is a positive influence of perceived ease of use on user's behavioral intention to adopt AIS

H_{1c}: There is a positive influence of intrinsic motivation on user's behavioral intention to adopt AIS

H_{1d}: There is a positive influence of extrinsic motivation on user's behavioral

intention to adopt AIS

- H2: There is a positive influence of IT characteristics on user's behavioral intention to adopt AIS

The literature in the area of behavioral research reveals that the factors affecting IT end-user satisfaction fall into three major categories: perceived benefits and convenience, user's background and involvement, and organizational attitude and support. Furthermore, the characteristics of Libyan culture is prevailed by the attitude of favoritism and thus Libya is not different from other developing countries emphasizing on collective rights and obligations of families and social relationships. Thus it is obvious that the user's IT characteristics will have influence on their behavioral intention. Thus, the second hypothesis in this study was about investigating positive influence of IT characteristics on user's behavioral intention to adopt AIS. IT characteristics includes three dimensions (IT knowledge, IT innovativeness and IT trust) that is depicted in the below sub hypothesis.

H_{2a}: There is a positive influence of IT knowledge on user's behavioral intention to adopt AIS

H_{2b}: There is a positive influence of IT innovativeness on user's behavioral intention to adopt AIS

H_{2c}: There is a positive influence of IT trust on user's behavioral intention to adopt AIS

- H3: There is a positive influence of IT characteristics on user's attitude to adopt AIS

Technology adoption requires the creation of attitude of change in the accounting system in order to recognize and understand the changing surroundings by the creation of skills and the development of technical as well as organizational capabilities and capacities. Lack of attitude can certainly weaken the vital and potential positive role of accounting information system for decision making, planning and control purposes. Thus, the current study attempts to increase awareness and attitude of users for positive perception towards adoption of AIS. Attitude of the users is equally important when it comes to the decision making of adopting system. Thus this study expected that IT characteristics will have positive influence on user's attitude. Below are the sub hypothesis investigated on user's attitude to adopt AIS.

H_{3a}: There is a positive influence of IT knowledge on user's attitude to adopt AIS

H_{3b}: There is a positive influence of IT innovativeness on user's attitude to adopt AIS

H_{3c}: There is a positive influence of IT trust on user's attitude to adopt AIS

- H4: Attitude mediates the relationship between IT knowledge and user's behavioral intention

According to the study performed by Venkatesh et al. (2002) approaching to the understanding of the formation of user's perception about technology and developed an integrated model that examines the influence of pre-training and training environment to understand the implementation of system found that the integrated model emerged to explain user's behavior effectively. Intrinsic motivation, perceived usefulness, perceived ease of use played a mediating effect for predicting behavioral intention. Thus this study initiates to investigate

the mediating effect of user's attitude on the relationship between IT knowledge and user's behavioral intention. Below are the sub-hypothesis developed to investigate such relationship in the contexts of Libyan SMEs.

H_{4a}: Perceived usefulness mediates the relationship between IT knowledge and user's behavioral intention

H_{4b}: Perceived ease of use mediates the relationship between IT knowledge and user's behavioral intention

H_{4c}: Intrinsic motivation mediates the relationship between IT knowledge and user's behavioral intention

H_{4d}: Extrinsic motivation mediates the relationship between IT knowledge and user's behavioral intention

- H5: Attitude mediates the relationship between IT innovativeness and user's behavioral intention

Implementation of information system is costly and are relatively low success rate. Thus the identification of factors that facilitates the usage of IS becomes crucial. The literature review has also reviewed the level of user's characteristics, which include IT innovativeness in technology, would influence the perception and motivation of users for adoption of AIS in SMEs of Libya. Thus the following sub-hypothesis were developed for this study.

H_{5a}: Perceived usefulness mediates the relationship between IT innovativeness and user's behavioral intention

H_{5b}: Perceived ease of use mediates the relationship between IT innovativeness and user's behavioral intention

H_{5c}: Intrinsic motivation mediates the relationship between IT innovativeness

and user's behavioral intention

H$_{5d}$: Extrinsic motivation mediates the relationship between IT innovativeness and user's behavioral intention

- H6: Attitude mediates the relationship between IT trust and user's behavioral intention

Scholars like (Cho and Perry, 2012; Grant and Sumanth, 2009) mentioend that motivation is substantially associated with both satisfaction and intention. Motivation like managerial trustworthiness, goal directedness and reward expectancy increases the leverage of motivation. In managing attitude, scholars and practitioners have emphasized the importance of motivation. The leverage of motivation also increases when managerial trustworthiness is high. Thus the final hypothesis investigated the influence of attitude as mediating between IT trust and behavioral intentions. Below are the sub-hypothesis developed for the study.

H$_{6a}$: Perceived usefulness mediates the relationship between IT trust and user's behavioral intention

H$_{6b}$: Perceived ease of use mediates the relationship between IT trust and user's behavioral intention

H$_{6c}$: Intrinsic motivation mediates the relationship between IT trust and user's behavioral intention

H$_{6d}$: Extrinsic motivation mediates the relationship between IT trust and user's behavioral intention

3.6   Research Design

This study describes the research methods and procedures implemented to test the model and related hypotheses presented. The measurements for the constructs were designed to appraise the intention of users to adopt AIS. This study is a descriptive study utilizing quantitative methodology for data collection and analysis. The research design was taken into consideration by keeping view the research questions and other different strategies for data collection. According to Creswell et al. (2003), research design for quantitative methods includes cross-sectional and longitudinal study. Furthermore, Hair (2007) mentioned that it depends upon the research questions and objectives for selecting the correct research design. It is very important to choose the right research design appropriately in order to provide a framework for the collection and analysis of data, and it will reflect decisions about the priority being given to a range of dimensions of the research process.

The following figure shows the research onion that was proposed by Saunders et al. (2011) that consists of six layers for designing the research. These layers show the direction of the research and are connected and complement each other. In the former section, research goal, objective, question, purpose and significance are discussed, whereas in the following section, the layer of research onions starting with research philosophies, strategies, time horizon, research technique and finally research process are discussed.

3.7   Unit of Analysis

In this study, the unit of analysis is the SMEs and the respondents are top management or owner of the SME. The respective respondents to the questionnaire were required to answer the questions specifically based on the adoption of AIS on
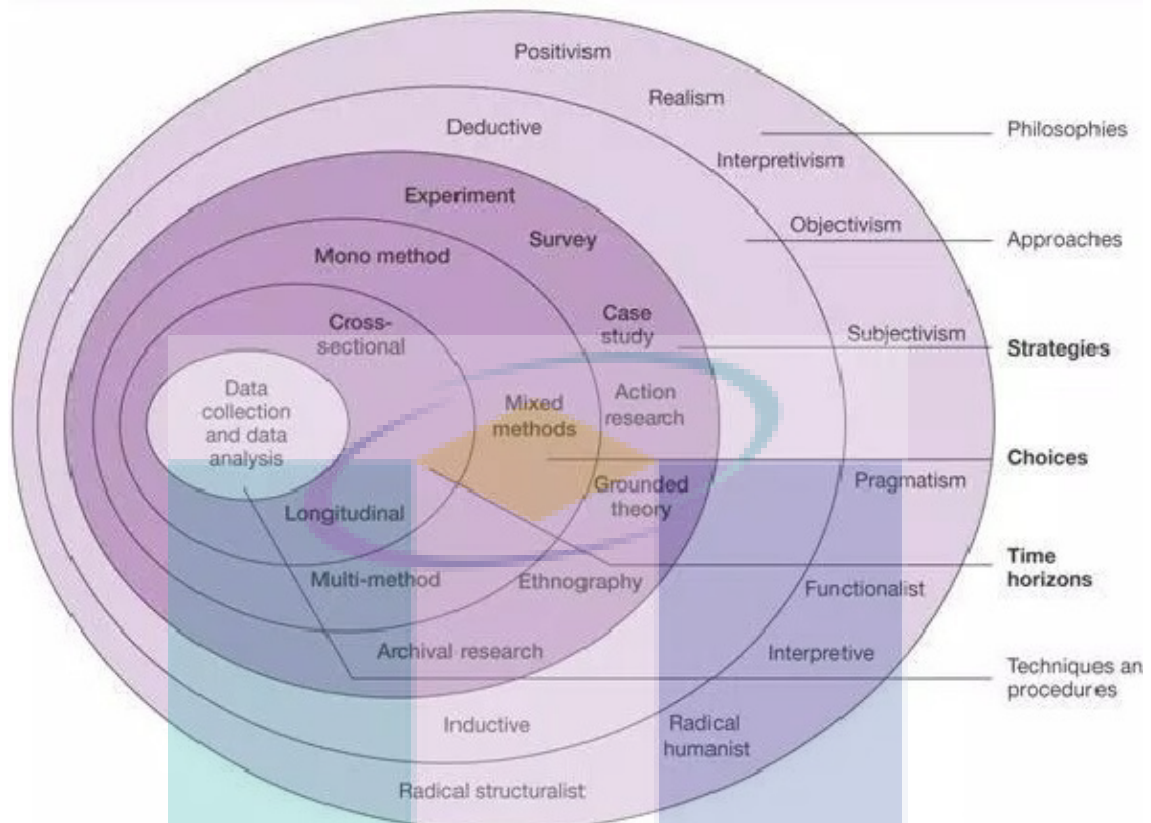
Figure 3.3: Research onion
Source: Adapted from Saunders et al. (2011)

the respective SMEs. Lamb and Kling (2003) appraised "the use of the individual end-user as the unit of analysis in conducting studies is related to information and communication technologies adoption". In order to determine the unit of analysis, the researcher needs to conduct a pilot study and refine the data collection instruments. The unit of analysis of this study is at the organizational level because the decision for the adoption of technology or system is narrowed to the owners or top management of the organization. Emphasis was placed on each company's accounting department with some emphasis on the human resource department. Through the examination of these units, the researcher expects to identify, provide and recognize the impact of perceived and motivational factors towards adopting AIS.

3.8   Population and Sampling

The focus of this study was on AIS adoption in SMEs of Libya. Small firms, i.e. less than 10 employees, were also excluded in order to increase the probability of sampling. To achieve this, face-to-face, closed-ended self-administered survey questionnaire was constructed and was pre-tested with academics and research students prior to pre-testing with firm's managers and pilot testing with firm managers. The questionnaire was addressed to the managing directors (MD) or the owner of the firms as the participants by the researcher because they were more likely the decision makers for adoption of AIS. Furthermore, the owner commonly makes decisions to structure their staff according to their firm's objectives and strategies. Non-probability purposive sampling technique was utilized for collecting the sample targeted for this study. Purposeful sampling is defined as, "the process of identifying a population of interest and developing a systematic way of selecting cases that is not based on advanced knowledge of how the outcome would appear". The usage of purposive sampling increases the credibility of sample (Patton, 2005) as the target is specific people having knowledge of answering the measured items. The total samples received after the data collection was 467 and 119 samples were unusable due to unanswered items. Thus, after excluding the unusable questionnaires, finally 348 samples were considered for the study.

3.9   Variable Descriptions

3.9.1 Information Technology Knowledge

Technological knowledge refers to the knowledge and skills that an individual acquires through education, training, and experience. Some technology is common knowledge–after one person uses it, everyone becomes aware of it. Several stud-

ies have shown that the fit between accounting and contextual factors, or between IT and contextual factors, have a significant impact on performance (Holden and El-Bannany, 2004; Ismail and King, 2005; Melville et al., 2004). Such investment contributes to the organization's subsequent long-term productivity and profitability, effective project management in systems implementations, as well as proper training and skills enhancement for the systems users, which are among the key factors in achieving this aim (Wynn, 2008). It is also dependent on the knowledge of how to use these systems in an effective manner in order to support the information requirements of the decision makers and strategic planners. Below Table 3.2 shows the measurement items considered for this study to investigate the influence of IT knowledge on user's attitude and behavioral intention to adopt AIS.

Table 3.2: Measurement items of Information Technology knowledge

S.N	Items of Measurement variables	Questions
	IT KNOWLEDGE (Huy & Filiatrault, 2006; Jeon, Han, & Lee, 2006)	
CK1	I have information system experience	
CK2	I am capable of using computer software	**(28 - 32)**
CK3	I am able to sit long hours using information system	
CK4	I have good knowledge of information system	
CK5	I have good understanding of the potential of information system	

3.9.2 Information Technology Innovativeness

The innovation of electronic control system has been the revolution of technology fusion between accounting and accounting system all over the world. Academicians and researchers in the accounting field have claimed the advent of the digital 'revolution' has created a society that is increasingly dependent on information and the technology to process it. However, it is yet to be seen how well the society will accept and assimilate these technologies. The traditional innova-

tion adoption/diffusion literature examines a wide variety of innovations in different contexts and provides a rich foundation for studies on adoption of information technologies. The innovation adoption/diffusion literature examines the various factors that influence the adoption of innovation, the characteristics of the adopters, the process of adoption decision making and the diffusion of innovation in the population. This study utilizes measurement items provided by Premkumar and Roberts (1999); Thong and Yap (1995) in order to measure the influence of IT characteristic on user's attitude and behavioral intention to adopt AIS.

Table 3.3: Measurement items of Information Technology Innovativeness

S.N	Items of measurement variables	Questions
	IT Innovativeness (Premkumar & Roberts, 1999; J. Y. Thong, 1999)	
CI1	I have original ideas	
CI2	I will create something new rather than something existing	
CI3	I would risk doing things differently	
CI4	AIS will allow us to better communicate with our business partners	**(33 - 41)**
CI5	AIS will allow to cut cost in our operations	
CI6	AIS adoption increase profitability	
CI7	AIS adoption provide accurate information for decision making	
CI8	AIS adoption would benefit more than its cost	
CI9	Adoption of AIS is compatible with firm's value and beliefs	

3.9.3 Trust in Information Technology

Advances in technology have enabled organizations to offer effective service to their customers. By considering the rapid increase in competition in all areas of business, those institutions which give their customers better services, are more successful. Today, high productivity, improved communication with customers, effective business processes, quality management and strategic management are features and characteristics of many institutions to seek success in this competitive

area (Fernando Sentanin et al., 2008).

Table 3.4: Measurement items of Information Technology Trust

S.N	Items of measurement variables	Questions
	Trust in information technology (Maduku, 2013)	
CT1	I think AIS is trustworthy	
CT2	I think AIS keeps promises and commitments	**(42 - 47)**
CT3	I think AIS has enough safeguards to make me feel comfortable to use it	
CT4	I feel assured that legal structures adequately protects from problems associated with using AIS	
CT5	I feel confident that technological advances on the information system make it safe to use AIS	
CT6	In general the AIS is a safe environment in which to transact accounting activities	

Above Table 3.4 shows the measurement items of IT trust taken from (Maduku, 2014). According to Al-Somali et al. (2009), customer's trust in Internet banking significantly affects their attitudes, which play an essential role in enhancing their behavioural intention to use or continue using Internet banking. Liu et al. (2005) noted that the lack of trust represents a significant obstacle to the market penetration. Furthermore, recent researchers emphasize the critical influence of trust on customer's attitude towards online banking (Al-Somali et al., 2009; Alsajjan and Dennis, 2010; Maduku and Mpinganjira, 2012).

3.9.4 Perceived Usefulness

Perceived usefulness is defined as Davis (1989) "the degree to which a person believes that using a particular system would enhance the job performance of the user". Perceived usefulness is considered as an internal variable of TAM introduced by (Davis, 1989). According to Venkatesh and Davis (2000), perceived usefulness is defined as "the extent to which a person believes that using the system will enhance his or her job performance". In order to recognize how managers or owners of small and medium scale industries in Libya perceive AIS to enhance and predict their

firm's performance, perceived usefulness in TAM was applied to the research method of the study. According to Grandon and Pearson (2004); Saadé and Bahli (2005), perceived usefulness is a crucial factor than perceived ease of use in determining use of system.

Table 3.5: Measurement items of Perceived Usefulness

S.N	Items of measurement variables	Questions
	Peceived usefulness (Chuttur, 2009; F.D. Davis, 1989)	(1 - 6)
PU1	Using AIS gives me greater control over work	
PU2	Using AIS improves job performance	
PU3	Using AIS saves time	
PU4	AIS usage enables to accomplish tasks more quickly	
PU5	Using AIS reduces the time spend on manual accounting	
PU6	Using AIS increases productivity	

Review of existing literature Davis (1989); Subramanian (1994) in relation to technology acceptance and relevant literature based on perceived usefulness had resulted in 10 sources being identified. However, after the review and modification to TAM by Venkatesh and Davis (2000), to 6 items were finalized. The frequency for each of the items for perceived information of users was measured on a 10-point rating scale (1 - strongly disagree to 10 - strongly disagree).

3.9.5 Perceived Ease of Use

According to Venkatesh and Davis (2000), perceived ease of use refers to "the extent to which a person believes that using this system will be free of efforts". In order to recognize how managers or owners of small and medium scale industries in Libya perceive AIS to enhance and predict their firm's performance, perceived ease of use in TAM was applied to the research method of the study. Review of measures of perceived ease of use Bajaj and Nidumolu (1998); Chau (1996); Jackson et al. (1997) results to 10 items measuring perceived ease of use. However, after revision, the measurement items Venkatesh and Davis (2000) were finalized with 6 items for

measuring perceived ease of use. The frequency for each of the items for perceived ease of use was measured on a 10-point rating scale (1 - strongly disagree to 10 - strongly agree).

Table 3.6: Measurement items of Perceived Ease of Use

S.N	Items of measurement variables	Questions
	Perceived ease of use (Chuttur, 2009; F.D. Davis, 1989)	
PEOU1	Interaction with AIS is easy to understand	**(7 - 12)**
PEOU2	It is easy to remember how to perform tasks using AIS	
PEOU3	AIS provides helpful guidance to perform tasks	
PEOU4	AIS is rigid and flexible to interact with	
PEOU5	It takes lots of skillful efforts to use AIS	
PEOU6	Overall, I find the AIS useful in my job	

3.9.6 Intrinsic Motivation

Chang and Chin (2011) defined intrinsic motivation as "the performance of an activity for no apparent reinforcement other than the process of performing the activity". Lawler et al. (1968) proposed a model of intrinsic and extrinsic work motivations. Intrinsic motivation involves people doing an activity because they find it interesting and derive spontaneous satisfaction from the activity itself. Other researchers (Webster, 1989; Webster and Martocchio, 1992) ascertained the importance of the role of enjoyment, a form of intrinsic motiv- ation, in workplace computing. Davis (1989) proposed that people expend effort due to both extrinsic and intrinsic motivation. Below are the measured items considered for this study extracted from (Moskovsky and Alrabai, 2009):

Specifically, early studies testing the additive hypothesis found that tangible extrinsic rewards undermined intrinsic motivation, whereas verbal rewards enhanced it Deci (1971), thus implying that intrinsic and extrinsic motivations can be both positively and negatively interactive rather than additive. Based on several early

Table 3.7: Measurement items of Intrinsic Motivation

S.N	Items of measurement variables	Questions
	Intrinsic motivation (Moskovsky et al., 2009)	
IM1	Getting good result from AIS usage is more important than getting such result from other system tools.	
IM2	It is important to learn AIS in order to be able to be fiction in the usage of it	**(13 - 17)**
IM3	Usage of AIS is a challenge	
IM4	I would learn to use AIS even if it is not important for organization	
IM5	I want to know about AIS as it is important to show my ability to others	

experiments, cognitive evaluation theory (CET) Deci (1976); Deci and Ryan (1980) was proposed to disclose the effects of extrinsic on intrinsic motivations. The frequency for each of the items for intrinsic motivation was measured on a 10-point rating scale (1 - strongly disagree to 10 - strongly agree).

3.9.7 Extrinsic Motivation

Extrinsic motivation, in contrast, requires an instrumentality between the activity and some separable effects such as tangible or verbal rewards; hence, satisfaction comes not from the activity itself but rather from the extrinsic effects to which the activity leads. As found by Ryan and Deci (2000), when rewards were contingent on high quality performance and the interpersonal context was supportive rather than pressuring, tangible rewards enhanced intrinsic motivation relative to a comparison condition with no rewards and no feedback. However, notably, these performance-contingent rewards did lead to lower intrinsic motivation than a control group that got positive feedback comparable to that conveyed by the rewards.

The frequency for each of the items for extrinsic motivation was measured on a 10-point rating scale (1 - strongly disagree to 10 - strongly agree).

Table 3.8: Measurement items of Extrinsic Motivation

S.N	Items of measurement variables	Questions
	Extrinsic motivation (Ansari, Channar, & Syed, 2012)	
EM1	Using AIS in accounting practices would enable to accomplish the work more quickly	**(18 - 22)**
EM2	Using AIS would improve work performance	
EM3	Using AIS would enhance effectiveness in the daily life	
EM4	Using AIS would enhance effectiveness in the work	
EM5	Using AIS increases the quality of work	

3.9.8 User's Attitude

Despite the importance of attitude in predicting an individual's behavior, research on IT adoption has discounted the role of attitude in explaining technology acceptance behavior. Additionally, the attitude construct has often been omitted in research on IT acceptance. User's attitude is defined as Al-Gahtani (1998) the degree of evaluative effect that an individual associates with using the target system of his or her job.

According to Lule et al. (2012), there is a need to focus on identifying the acceptance level of users in order to influence their intention to use the technology. Davis, et al. (1989) found that attitudes have little impact mediating between perceptions and intention to use. According to Abukhzam and Lee (2010), attitude towards new technology adoption is a crucial element and the performance cannot be utilized until the technology is adopted and implemented. Thus, it would be a critical task for the researcher to investigate the role of user's attitude towards the adoption of AIS. The frequency for each of the items for user's attitude was measured on a 10-point rating scale (1 - strongly disagree to 10 - strongly agree).

3.9.9 Behavioral Intention to Adopt

According to Theory of Reasoned Action (TRA), intention to use is linked directly to the actual behavior of the users (Ajzen, 1985). Intention to use was originated from TAM as a predictor and dependent variable in order to test the validity (Turner et al., 2010).

Furthermore, Suki and Suki (2011) investigated the relationship between perceived usefulness, perceived ease of use and attitude towards subscriber's intention to use 3G mobile service and found that all the three factors were responsible for determining the subscriber's intention to use 3G mobile service. Venkatesh et al. (2003) suggested that attitude towards computer use acts as a significant predictor of the intention to use when the use of technology was perceived by the user to be volitional. In other words, user's intention to use technology was significantly influenced by their attitude towards computer use when they felt that they had a choice to use or not to use technology. The frequency for each of the items for behavioral intention to adopt was measured on a 10-point rating scale (1 - strongly disagree to 10 - strongly agree).

Table 3.9: Measurement items of Behavioral Intention

S.N	Items of measurement variables	Questions
	Behavioral intention to adopt AIS (Fagan et al., 2008; Saad & Bahli, 2005)	
BI1	Assuming I had access to AIS, I intend to use it	**(23 - 27)**
BI2	Given that I has access to AIS, I predict I would use it	
BI3	I plan to use the AIS in the near future	
BI4	I intend to show others this AIS	
BI5	I intend to take more understanding and knowledge using AIS in the future	

3.10   Questionnaire Design

Based on the extensive review of literature, a combination of existing validated measurements was utilized to develop the research instruments. These instruments were translated to Arabic with a profession Arabic translator and was later endorsed performing preliminary testing of such translated questionnaire. The selected validated measurements were then modified slightly to accommodate the sample of this research. This is a common approach used in developing a survey instrument. This approach has two major advantages, such as the existing instruments have already been assessed for validity and reliability, and also by using the existing instruments, it enables comparison to be made between the new results with the previous results from other studies (Kitchenham and Pfleeger, 2002). A Survey can work as an accurate means of assessing information about the sample and enables the researcher to draw conclusions about generalizing the findings from a sample of responses to a population (Carson et al., 2001; w Creswell, 2009). However, this method is suitable for research with a large sample size Hair et al. (2003) as a survey is quick, inexpensive and efficient to be administered (Iacobucci and Churchill, 2009; Sekaran, 2003; Zikmund and Babin, 2006). Finally, a survey is suitable when asking about respondents thoughts, opinions and feelings Hayes (2009), as well as collecting data relating to beliefs, attitudes and motives (Burns and Bush, 2006).

Some of the constructs were adopted from previous studies while others were developed by the researcher for the purpose of the study. According to Hair (2009), if the standardized loading of individual items is above 0.50, it is considered as reliable. Thus, the criteria of item selection were kept in mind while considering them from previous studies. Furthermore, these items were very much suitable for the theme of this study as only the previous studies focusing on technology adoption were considered.

Using a survey strategy should give the researcher more control over the re-

search process, and when sampling is used, it is possible to generate findings that are representative, designing and piloting a data collection instrument and trying to ensure a good response rate. However, questionnaire is not the only data collection technique that belongs to the survey strategy. Structured observation and structured interviews also often fall into this strategy. Careful attention has been paid in designing the instrument, especially in the wording used and ordering of the questions. Questionnaires should be simple, straight to the point and easy to read (Lorelle Frazer and Lawley, 2000).

Followed by the constructs provided in TAM model, this study adopted measurement items from Venkatesh and Davis (2000) on technology adoption. Before the actual data collection, the self-administered survey questionnaire was reviewed by experts and associate professors in order to refine the questionnaires. The design of the questionnaire is divided into three sections. The first section outlines the demographic information of the respondents in addition to the information on their organizational background. The second section is related to insights, in which the questions can be answered according to their opinion towards their knowledge and experience in accounting system, as well as their importance and requirements. Finally, the third section is related to collecting information on the variables and recognizing the specific items of the constructed variables. A closed-ended questionnaire was formulated by keeping in view of the prime responsibility for intention to use AIS in their firm.

3.11   Pilot Study Analysis

A pilot study was performed by targeting owners of SMEs as the respondents. In total, 52 responses were collected within two weeks of time, in which 46 completed questionnaires were used for pilot study analysis with a response rate of 88%. A pilot study was conducted to determine the validity and refine the instrument used

in the survey. The pilot study included leaders having managerial experience and experience of decision making. Each owner was asked to provide their views on the survey instrument. In addition, account managers were also asked to provide comments on the information system usage of the instruments. The main purpose of pilot study is to identify limitations, if any, in the survey questionnaire developed. Pilot study also helps the researcher to know whether the respondents understand the measurement items properly. Furthermore, it helps by permitting preliminary testing of the hypotheses that leads to test more precise hypotheses in the main study. The researcher also received ideas, approaches and clues that have not been foreseen before the pilot study.

Based on the observation, reliability was utilized as an indication of dependability and accuracy of the data. The scale for dimensions of the constructs was expanded to a selection of one (strongly disagree) to ten (strongly agree).

Table 3.10: Number of survey items and reliability scale

Variables	Number of items	Cronbach's Alpha
Perceived Usefulness	6	0.898
Perceived Ease of Use	6	0.854
Intrinsic Motivation	5	0.865
Extrinsic Motivation	5	0.928
Behavioral Intention	5	0.805
IT Knowledge	5	0.847
IT Innovativeness	9	0.803
Trust in IT	6	0.778

Table 3.10 shows the reliability scores for the items of perceived usefulness, perceived ease of use, intrinsic motivation, extrinsic motivation, user's attitude, behavioral intention, and characteristic variables like IT knowledge, IT innovativeness, and trust in IT. The constructs showed that cronbachs alpha of above 0.70 revealed that the internal reliability of the constructs is valid (Hayes and Krippendorff, 2007).

3.12   Data Analysis Techniques

Quantitative research method was applied to get an appropriate view of the managers towards the adoption of AIS in their firm. In addition, SPSS 21.0 & AMOS 21 used for Structural Equation Modeling (SEM) would offer statistical evidence that the adoption of AIS would influence the intention to adopt AIS. Moreover, the use of AMOS 21.0 to test the study hypothesis can be viewed as a crucial methodological contribution. Finally, the study suggested avenues for further research.

Secondary data is collected by someone other than the user. Common forms of secondary data include censuses, organizational records, surveys and others. Secondary data analysis involves the use of existing data collected for the purposes of prior study. Secondary data is the accessible data that prior scholars and researchers collect to satisfy previous research objectives (Longhofer et al., 2012). For this research, the secondary data was collected from academic journals, conference papers, reference books and information in the Internet. Journals, conference papers and reference books contribute to the context of literature review. For the present study, the secondary data from the sources mentioned below was pooled up and analyzed by making use of various statistical tables, line graphs, bar graphs, pie charts, and others. The following method and statistical tools were used to analyze the data and test the hypotheses:

1. Descriptive statistics

2. Reliability

3. Correlation analysis

4. Confirmatory factor analysis

5. Squared multiple correlation

3.12.1 Descriptive Statistics

Descriptive statistics is an analysis without drawing any conclusions. Data collected is tabulated and assembled according to the categories utilized in the survey questionnaire. Descriptive statistics focuses on the data that are enumerated and organized, and then is represented graphically. Data that is collected and gathered is compiled in the form of a table or a graph (Aletaha et al., 2008). Descriptive statistics is concerned with collecting, organizing, and summarizing the raw score in more meaningful ways. Descriptive statistics also deals with procedures or techniques that can be used to study a segment of the population called a sample, and make generalizations about the population from which the sample was obtained with the help of probability theory (Ibe, 2005).

3.12.2 Reliability Analysis

Reliability analysis is undertaken to calculate coefficient alpha. Coefficient alpha provides an estimate of the proportion of variance in the scale score that is attributable to the true score and thus is the key indicator of the scale's quality. According to Stephens (2012), in the analysis of reliability matters, data plays an extremely important role, and hence the data collection should be well planned and carried out. The field of reliability also involves many considerations of management, administrative procedures and methods. Hence, probability and statistics play an important role in reliability analysis. Reliability studies often involve the design of a test to obtain information to make decisions about components and systems.

3.12.3 Correlation Analysis

Correlation is a way of appraising the relationship between variables. Pearson's correlation coefficient is used to express the strength of the relationship when

the variables are quantitative in nature. Correlation analysis provides the extent to which the two quantitative variables X and Y go together. When the value of X is associated with a high value of Y, a positive correlation exists.

3.12.4 Confirmatory Factor Analysis

This study adopts confirmatory factor analysis that was introduced first by researchers like Anderson and Rubin (1956); Jöreskog (1970) that allowed hypothesis testing regarding the number of factors and the pattern of loading. From the historical perspective, these advancements led to a rigorous statistical approach. SEM is a melding factor analysis and path analysis into a comprehensive statistical methodology. The path analysis origins of SEM were first introduced in the work of (Wright, 1960). Four standard measures are chi-square (x2), goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI)Hair et al. (2012), and root mean square residual (RMSR) (Jöreskog and Sörbom, 1993). If the model is correct and the sample size is sufficiently large, the chi-square measure may be used as a test statistic for testing the model against the alternative hypothesis that the observed covariance matrix is unconstrained. However, the chi-square statistics is a function of sample size and must be interpreted with respect to the sample size. Bentler (1986) suggested that R-square is only appropriate for comparison of models, and thus advocated an incremental fit index analogous to ordinary least square. GFI and AGFI are also measures of fit with an analog to ordinary least square (OLS) regression. RMSR is a measure of the average of the fitted residuals and should only be interpreted in relation to the sizes of the observed variances and co-variance in the data matrix. It is also helpful to inspect the normalized residual plots for any anomalies in the fit. If no large residuals are found, then any alternative model specification could not because error variance ensures a better fit with respect to the $R^2 statistics$.

3.13   Overview: Data Analysis

This study utilized Statistical Package for Social Science (SPSS) version 21.0 to analyze the first phase of the data. According to Zikmund and Babin (2006), SPSS is widely used as a data analysis technique by various researchers. In the first phase, SPSS software was used for data screening, coding and detecting outliers. Furthermore, this software was also used for several descriptive analyses like mean, standard deviation, non-response bias, skewness and kurtosis.

In the second stage, CFA was performed for SEM in order to test the provided hypotheses in the third chapter. Previous studies have claimed SEM to be more reliable and valid for social science studies. SEM methodology is claimed to be useful in the behavioral and social sciences where many constructs are unobservable (Stevens, 2012). SEM helps researchers to assess the unidimensionality, reliability and validity of each construct. Besides, SEM provides an overall test of model fit and individual parameter estimate tests simultaneously (Hair et al., 1998; Kline, 2011). Recently, SEM becomes a common statistical tool applied in academic research (Hatcher and O'Rourke, 2014; Kline, 2011; MacCallum and Austin, 2000; Shook et al., 2004). Moreover, literature confirms that SEM is the pre-eminent method of multivariate data analysis (Hershberger, 2003). In addition, applying SEM to test hypothesized relationships between factors allows a complete investigation of all hypothesized relationships simultaneously including relationships among multiple dependent variables in a study (Byrne, 2013).

Figure 3.4 provides the process of data analysis applied in this study. Two phases, which are preliminary analysis and structural equation modeling, were performed in the data analysis process, where the first deals with data screening, and the latter performs two-stage structural equation modeling process that is more popular in existing studies (Hair et al., 2013). The first stage in SEM includes uni-

dimensionality analysis, reliability and validity analysis and measurement model. Prior to the first stage in SEM, common method variance analysis was performed in order to interpret the data and measure the response bias and multi-collinearity issues. Covariance-based software namely AMOS version 21.0 was chosen ahead of other covariance-based software like LISREL and EQS or variance-based software like Smart-PLS or PLS-Graph (Chin and Newsted, 1999). Consequently, only validated measurements that were well supported by theory were applied to measure all constructs. As such, the conceptual model in this research could not be categorized as prediction-oriented modeling.
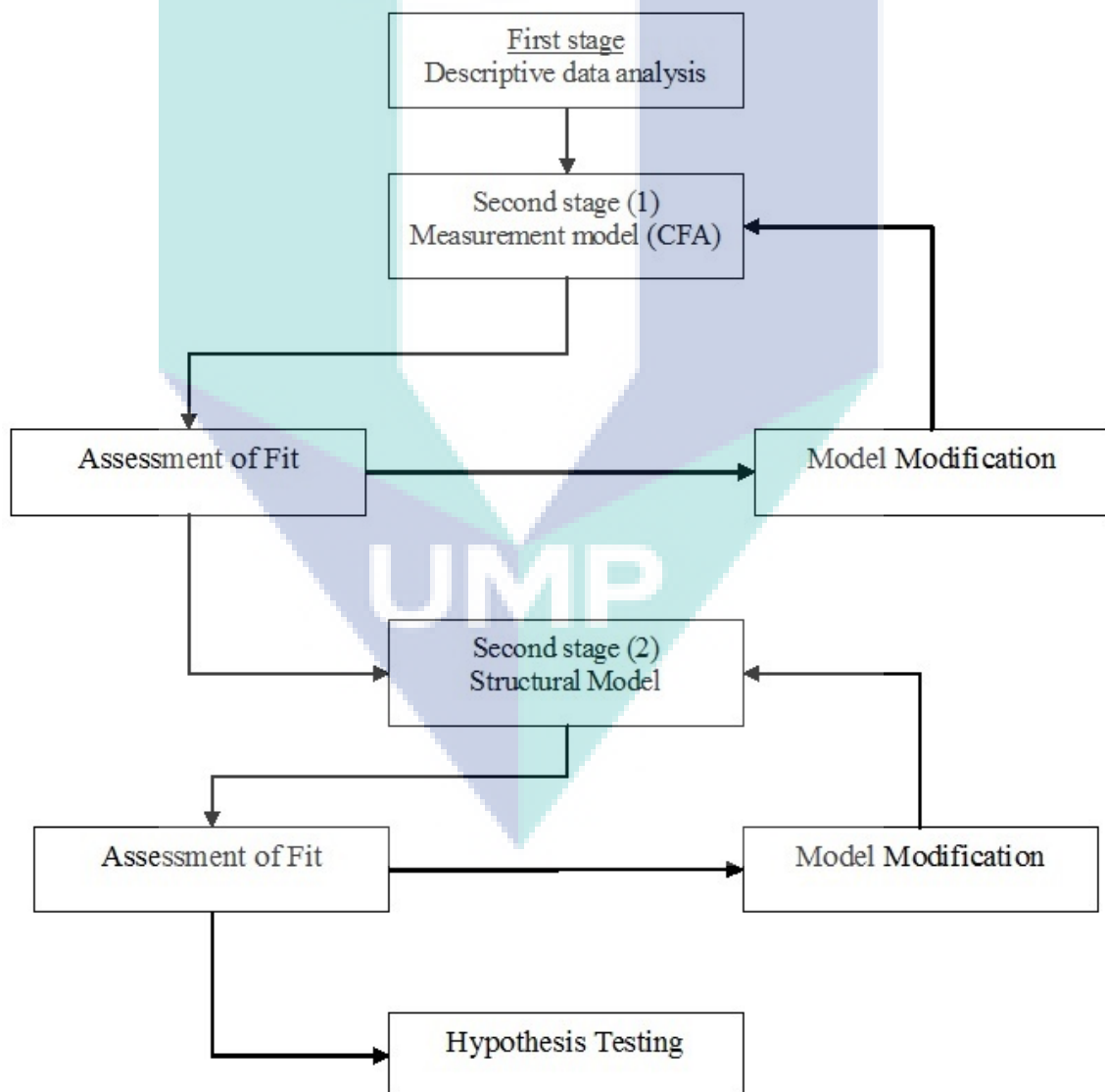
Figure 3.4: Summary of Data analysis process

3.13.1 Structural Equation Modeling Expectations

By applying SEM, it is important to ensure that the data meets several assumptions such as normality and having adequate sample size. As for sample size, SEM requires the sample size to be adequate because covariance and correlations are less stable when estimated from small sample sizes (Kline, 2011; Tabachnick et al., 2001). Moreover, small sample sizes provide less power to detect significant path coefficients and have tendency to produce instability (sample error) in the covariance matrix, frequently resulting in inadmissible solutions and less than satisfactory goodness-of-fit indices (Quintana and Maxwell, 1999). According to Hair et al. (1998, 2013), 100 is the minimum sample size in order to ensure the appropriate use of maximum likelihood estimation in SEM. On the other hand, other researchers asserted that the maximum likelihood estimation in SEM could only be used when the sample size is at least 200 (Boomsma and Hoogland, 2001). Another criterion for sample size recommendation is to assess the complexity of the model estimated.

Since there is no agreement among the scholars about the sample size, the sample size collected of 467 in this study is considered as a sufficiently large sample size Boomsma and Hoogland (2001); Krejcie and Morgan (1970) and therefore deem appropriate in using SEM analysis.

3.13.2 Estimation of Maximum Likelihood

Maximum likelihood (ML) yields estimates that seek to maximize the likelihood that the observed data comes from a population consistent with the implied model. An advantage of ML is that it is a full-information method, which means that all of the model's parameter estimates are calculated simultaneously. The fit

function of an estimation method is the statistical criterion that the method aims to minimize. In ML, the fit function is the difference in covariance between the observed data and the population data specified by the model being estimated.

SEM is a family of statistical models that seek to explain the relationships among multiple variables. In doing so, it examines the structure of interrelationships expressed in a series of equations, similar to a series of multiple regression equations (Hair et al., 2006). SEM is an extension of the general linear model, and it has several common statistical methods as special cases, for example multiple regression, path analysis, factor analysis, time series analysis, and analysis of covariance.

The SEM function computes the maximum likelihood estimation for SEM using the specification of the model. Maximum likelihood is a traditional method of estimation available for estimating structural equation models. Specifically, this research focuses on the estimation of the structural relationships of a path model with a small sample and multiple groups. The analytical process for this project comprised of the following steps: 1) a theoretical model was simplified, 2) the revised model was estimated for the multiple subgroups existing within the data, and 3) alternative estimation procedures were used to evaluate the final model for the overall group and each subgroup.

3.13.3 Goodness-of-Fit Assessment

In order to determine the fit of the model, various goodness fit indices have been produced in this study. Accordingly, Hair et al. (1998) recommended the use of at least three fit indices: 1) absolute fit indices, 2) incremental fit indices and 3) parsimonious fit indices. An absolute fit index includes chi-square, goodness-of-fit (GFI) and root mean square error (RMSEA). Absolute fit indices measures how well the model accounts for observed covariance in the data (Hu and Bentler, 1995).

The incremental fit indices include comparative fit index (CFI) and normed fit index (NFI). Incremental fit indices compare how well the proposed model fits the data in relation to a baseline model that assumes independence among all of the variables (Bentler, 1990). Lastly, parsimonious fit indices can be measured by normed chi-square (chi-square/df).

3.13.4 Reliability Analysis

In order to assess the reliability of the constructs, two methods were employed in this study. According to Ghauri and Grønhaug (2005), reliability is "the degree to which measures are free from random error and therefore yield consistent results". Furthermore, Yin (2014) mentioned that the main objective of the reliability test is to minimize the errors and bias in the research.

The internal consistency in this research was also assessed using CFA. This is important to ensure that all measures used in this study are reliable and at the same time provide greater confidence to the researcher that the individual items are consistent in their measurements (Hair et al., 2012). The two methods used were composite reliability (CR) and average variance extracted (AVE) as suggested by (Fornell and Larcker, 1981b).

3.13.5 Validity Analysis

Validity is defined as "the ability of a scale to measure what is intended to be measured" (Ghauri and Grønhaug, 2005). Two types of validity analysis, which are content validity and construct validity, were measured in this study. According to Malhotra et al. (1996), content validity is the assessment of the content of a scale measures of the construct. Careful attention is given for the development process

Table 3.11: Acceptable value of fitness indices

Goodness-of-fit indices	Acceptable value	Comments
Absolute fit indices:		
Chi-square	$p > 0.05$ Byrne (2013); Kline (2011)	Indicates exact fit of the model. A non-significant p-value indicates an adequate representation of the data. This measure is sensitive to large sample size.
Goodness-of-Fit (GFI)	GFI > 0.90 Hair et al. (1998); Kline (2011)	Value close to 0 indicates a poor fit, while value close to 1 indicates a perfect fit. GFI indicates the amount of covariance between the latent variables in the model.
Root mean square error of approximation (RMSEA)	RMSEA < 0.08 Browne et al. (1993); Kline (2011)	Values of less than 0.05 are generally considered good fit. Values between 0.05 and 0.08 are considered adequate fit. A value up to 0.10 is considered acceptable and represents the lower bound of fit.
Incremental fit indices:		
Comparative fit index (CFI)	CFI > 0.90 Bentler (1990); Kline (2011)	Compares the hypothesized model against a null model.
Normed fit index (NFI)	NFI > 0.90 Kline (2011)	Value close to 0 indicates a poor fit, while value close to 1 indicates a perfect fit.
Adjusted goodness-of-fit index (AGFI)	AGFI > 0.80 Hair Jr et al. (2013)	Value close to 0 indicates a poor fit, while value close to 1 indicates a perfect fit. GFI indicates the amount of covariance between the latent variables in the model.
Parsimonious fit indices:		
Normed chi-square (x^2/df)	$1.0 < x2/df < 5.0$ Cunningham (2008); Kline (2011)	Lower limit is 1.0, upper limit is 3.0 or as high as 5.0.

of questionnaire in order to approve the content validity. For instances, the items for the questionnaire were only considered if they were derived from the literature used in this study. Comments from expert practitioners and academicians on the wording of the items were considered and corrected during this process.

In the construct validity, the instruments are measured that reflect the latent constructs (Hair et al., 1998). Construct validity is examined by analyzing both convergent and discriminant validity. Convergent validity examines whether the measures of the same construct are highly correlated, whereas discriminant validity determines the measures of a construct that have not been correlated too highly with other constructs (Sekaran, 2003). In order to assess convergent and discriminant validity, CFA was conducted. For approving the convergent validity, the factor loading must be statistically significant with the estimated standardized loading higher than 0.50 (Hair Jr et al., 2013). AVE was also used to confirm the convergent validity. Furthermore, Hooper et al. (2008); Kline (2011) provided the validity criteria for discriminant validity as the correlation between the constructs not to be higher than 0.85.

3.14   Structural Equation Modeling

Structural equation modeling (SEM) is a multivariate technique that simultaneously analyzes the relationship among the measured variables and latent constructs. Maximum likelihood estimation (MLE) is widely used as an estimation technique in SEM analysis. According to Hair et al. (2006), MLE is the most efficient and unbiased estimation method. SEM is not a single statistical model, but rather a collection of models originated in different disciplines at different times and brought together a special cases of generated model. Hoyle (1995) mentioned that SEM is a comprehensive statistical approach to test hypothesis about relations among observed and latent variables. There are two components in the general

SEM: the measurement model and the structural model. The measurement model is a component where latent variables are prescribed. Latent variables are often referred to as factors and are free of random errors and uniqueness associated with their indicators. The structural model is the component of the general model that prescribes the relations between latent variables and observed variables that are not the indicators of latent variables.

3.14.1 Average Variance Extracted (AVE)

Average variance extracted (AVE) is a summary indicator of convergent validity of constructs. According to Hair et al. (2006), AVE for all constructs above 0.50 indicates that latent constructs can account for at least 50% of the variance in items and the measurement scale has adequate convergent validity. AVE reflects the overall amount of variance in the indicators accounted for the latent constructs. AVE is more conservative than Cronbach's alpha as a composite reliability measure and its accepted value is 0.50. Fornell and Larcker (1981b) suggested that AVE can also be used to evaluate discriminant validity. To demonstrate the discriminant validity of the constructs, AVE for each construct should be greater than the squares of the correlations between the construct and all other constructs.

3.14.2 Composite Reliability (CR)

Composite reliability (CR) assesses whether the items are sufficient in representing their respective construct and a common lower threshold value is 0.70 (Hair et al., 1998). CR is considered as a more rigorous estimate of reliability than Cronbachs alpha Chin (1998), assessing whether the specific indicators are sufficient in their representation of respective constructs (Fornell and Larcker, 1981a).

3.14.3 Goodness-of-Fit Index (GFI) and Adjusted Goodness-of-Fit Index (AGFI)

Sörbom and Jöreskog (1981) introduced the goodness-of-fit and adjusted goodness-of-fit indices by describing these indices as the proportion of variance accounted for. However, their interpretation was not transparent using their formula. Goodness of fit increases with improving fit. In order to assess the goodness of fit of SEM, researchers generally rely on subjective indices of fit. Marcoulides and Schumacker (2013) in their book mentioned that the non-normed fit index (Tucker Lewis index) and relative non-centrality index (comparative fit index) should be preferred when evaluating goodness of fit of SEM. Jo (2009) mentioned that goodness of fit indices are applied to assess the model validity. GFI shows the similarity of the observed and estimated covariance matrices. If there is a similarity in covariance, then it can be said that the measurement model is represented really well. CFA was applied to test the goodness of fit of each indicator, structural model and relationship between the constructs.

3.14.4 Chi-square (x^2)

A chi-square test with $p>0.05$ indicates that there is no statistically significant difference between the covariance. Chi-square value is sensitive to the sample size and is influenced by the difference in covariance matrices (Hair et al., 2006). Evaluation of model fit is typically carried out on the basis of inferential GFI, as well as other alternative indices. Such inferential index is called the chi-square value. Raykov and Marcoulides (2012) mentioned that the chi-square index and its p-value alone cannot be fully trusted as means for model evaluation. There is a need for examination of other fit indices to obtain a better model fit.

3.14.5 Root Mean Square Error of Approximation (RMSEA)

The popular parameter estimated by RMSEA is often designated as epsilon. RMSEA is employed as a tool to assess data model fit and to plan sample size accordingly. RMSEA can be used to plan not just for the test of data model fit, but also for the precision of the estimate of the population's data model fit. Additionally, RMSEA can be used for modeling with mean structures or multi sampling models using the fit functions associated with those more complex models in an extension of the methods. The value of RMSEA less than 0.08 is an acceptable fit and the value of RMSEA less than 0.05 is a good fit (McDonald and Ho, 2002).

3.14.6 Bootstrapping

Bootstrapping is a form of a larger class of method that resample from the original data set. Bootstrapping is also known as re-sampling procedure (Chernick, 2011). Bootstrapping is a computer-based method of re-sampling developed by Efron (1979), in which it stimulates the drawing of numerous random sample from a population. It is important to realize that bootstrapping is not a magical technique that can somehow compensate for small or unrepresentative samples. Bootstrapping methods are also applied in SEM to estimate standardized errors for non-normal or categorical data and when there are missing data (Kline, 2011).

3.15   Summary

This chapter attempted to disclose the theoretical framework, relevant hypothesis, advancement of questionnaire, research design and statistical methods and tools used to verify the hypotheses. This chapter identified essential components in designing the method procedures for the survey study.

CHAPTER 4

DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter provides the testing and assessment of the proposed theoretical model using structural equation modeling. The process of analysis consists of two phase: measurement phase for testing model fit and validity based on statistical results and the second stage proceeds with hypothesis testing. The purpose of this research is to determine the importance of IT characteristics towards behavioral intention on adoption of accounting information system in Libyan small and medium enterprises. This chapter presents the results from the collection and analysis of the data. Regression analysis and other statistical analysis were used to measure the overall impact of IT characteristics and mediating variable on adoption of AIS in Libyan small and medium enterprises. For measuring firm's business activity, and other demographic information of respondents, frequency statistics was employed.

According to Hair Jr et al. (2013) in order to present good measures of constructs two step approach using structural equation modeling has good advantage. Similar view was reported from Weston and Gore (2006) for accepting a two-step model building approach: a measurement model followed by the structural model. The measurement model provides an assessment of convergence and discriminant

validity, and the structural model provides an assessment of nomological validity. The data set is screened first for the multivariate analysis for confirming the model engaging with confirmatory factor analysis and structural testing. The next section provides the overview of data analysis.

4.2 Response Rate

In order to achieve appropriate response rate, in total 750 questionnaires were distributed to the SMEs in Libya randomly. Of the 750 questionnaires distributed 467 questionnaires were received with an equivalent percentage of 62.27%. However, 119 questionnaires were found to be unusable due to missing data or provided same responses to all the questions. Thus overall, 46.40% of the total questionnaires were usable concluding with an effective sample of 348.

Table 4.1: Summary of response rate of questionnaires

	Number of Questionnaire	Percentage
Total Questionnaire distributed	750	100%
Completed Questionnaire Received	467	62.27%
Unusable Questionnaire	119	More than 20% unanswered items
Usable Questionnaire	348	46.40%

The response rate in this research is considered as appropriate as it comes under the range of 21 to 50 percent response rate provided by Randall and Gibson 1990).

4.3 Demographic profile of Respondents

A sample of managers owners of SMEs in Libya were asked to complete an 47 items survey consisting of ten point likert scale index including demographic

questions and descriptive question on their views towards AIS adoption. Of the total 750 samples surveyed, 467 responded. Surveys with incomplete information were removed from the sample. A total of 348 surveys with 46.40% response rate were complete and used in the analysis. The frequency of response from the above mentioned companies shows that food and beverage companies are in large numbers in Libya. Thus it is necessary for the author to focus heavily on the issue AIS adoption in such companies that can contribute heavily for economic growth of Libya.

Table 4.2: Profile of respondents

Demographic profile	Number of Respondents (N=348)	Valid (%)	Percentage
Age			
18 to 29 years	16		4.60
30 to 39 years	66		19.00
40 to 49 years	172		49.40
50 and above	94		27.00
Major Background			
Management	159		45.70
Finance	7		2.00
Accounting	54		15.50
Engineering & Technology	128		36.80
Gender			
Male	331		94.00
Female	17		6.00

Qualification

Bachelor	109	31.32
Masters	158	45.40
Doctorate	28	8.05
Professionals	53	15.22

Business Activity

Manufacturing	109	31.30
Trading	150	43.10
Service	89	25.60

Table 4.2 shows the demographic profile of the selected sample population. The sample is spread out among all age groups, although 49.4% of the respondents are between 40 to 49 years. About 27% were under 50 years and above, 19% were 30 to 39 years and about 4.6% were 18 to 29 years of age. As shown in table the major area of focus of the respondents, 45.7% of them were having major of management followed by 36.8% highly focused on technology whereas, 15.5% were from accounting background and 2% were having finance background. The reason to ask this question to the respondent is to know their focus area in order to valid their validity of understanding the questionnaire.

When investigated the gender of the respondents it was found that males out numbers female in the sample population, more than ten to one (98% to 2%). 331 respondents were male from the total 348 respondents whereas only 17 respondents were found to be female. Regarding the qualification, approximately half of the respondents held masters degree, 109 respondents were having bachelor degree or equivalent followed with 28 respondents having doctorate degree and finally 53 respondents were having professional qualification. Qualification plays crucial part for the demographic section of the questionnaire as it is important for the study

that the questionnaire must be understood by the respondents. Of the 348 respondents participated in the survey, 109 were engaged with manufacturing along with 150 companies engaged to trading activities and finally 89 respondents engaged to service companies.

Table 4.3: Technological activities by SMEs

SME Sector		
Food & Beverages	101	29.02
Textile	68	19.54
Wood and paper	58	16.67
Automobile	43	12.35
Iron and steel	38	10.91
Petrochemical	10	2.87
Aluminum & fertilizers	16	4.60
Pharmaceuticals	14	4.02
Owner of the company		
Yes	136	39.1
No	212	60.9
Decision taken in the firm		
Yes	166	47.7
No	182	52.3
Business Established		
Less than 6 months	2	0.6
6 to 12 months	3	0.9
1 to 3 years	23	6.6
4 to 6 years	164	47.1
7 years and above	156	44.8
Internet Access		
Yes	259	45.7
No	89	54.3
Communication by email		
Yes	116	33.3
No	232	66.7

Food and Beverages companies responded highly with the total of 29.02% as shown in table.4.3, followed by textile industry with 19.54%, wood and paper with 16.67%, automobile companies by 12.35%, iron and steel sector by 10.91%, petro chemical companies by 2.87%, aluminum and fertilizers by 4.6% and Pharmaceuticals by 4.02%.Then the question asked to the participants was whether they are

the owner of the company. In return it was noted that 136 participants were the owners of the SMEs whereas 182 participants were either employee or manager or in top management of the firm. Similarly, when asked about the whether they are the decision maker in the firm, 166 participants agreed to the question by saying yes they are the decision makers in the firm whereas; 182 participants were having negative answer to this question. The result of business establishment showed that majority of the firms were very old and have good touch in their business. Around 44.8% of the firms have been performing their business since more than 7 years, whereas; 47.1% of the businesses were from 4 to 6 years.

Furthermore, very few firms were newly established with 6.6% of them running their business from 1 to 3 years followed with 0.9% between 6 to 12 months and 0.6% with less than six months. This statistics shows that majority of the SMEs are having good experience and knowledge of running their business. Finally the descriptive statistics related to the technology usage were asked. Availability of internet in the SMEs was 159 whereas in 189 SMEs still dont have access to internet. Thus in order to make the SMEs use accounting information system, they must make the usage of internet uniformly.

4.4 Preliminary analysis

4.4.1 Data coding and editing

After the process of data collection editing of the raw data was performed in order to ensure that the data has no missing issues. The data collection was checked in the form of omissions, legibility and its consistency (Zikmund and Babin, 2006). According to Sekaran (2006) respondents who have answered 75 percent of the questionnaire are considered for sampling purpose of this research.

The data collected through survey were entered into SPSS manually. According to Berg and Lune (2004) pre coding and post coding are the two major ways to enter the data. This research applied the pre coding method whereby all question items are pre-coded with numerical values. Frequency analyses are conducted for each variable to screen for out-of-range values. Any out of range values are revisited and corrected where appropriate.

4.4.2 Data screening

Screening of the data is very important in order to ensure that the data is entered correctly without any outliers and to confirm that the distributions of variables are normal. Confirmation to normality is very important as it is the assumption need to fulfill in applying SEM Cooper et al. (2006); Hair Jr et al. (2013); Shah and Goldstein (2006); Tabachnick et al. (2001) and thus, the data file is examined thoroughly. Approving data for further analysis, research instruments were evaluated using SPSS statistical package for data entry accuracy, missing values, outliers and normality. Pre analysis screening was performed which is very important for the assessment of multivariate analysis. The following table shows the descriptive statistics including the normality test using skewness and kurtosis for the univariate effect of the measured items. Univariate and multivariate outliers were examined using the residual analysis and was found that the outliers have little effect on the variables. According to Hair et al. (2006), influential observations strongly influence the regression results; however, they are not necessarily bad in the sense that should be deleted. The descriptive statistics provided in table.4.4 revealed that the skewness and kurtosis of the univariate normality were within the acceptable value of +/- 1.

Furthermore, the normal probability was performed to assess multivariate normality and the normal P-P plot of the regression standardized residual looks
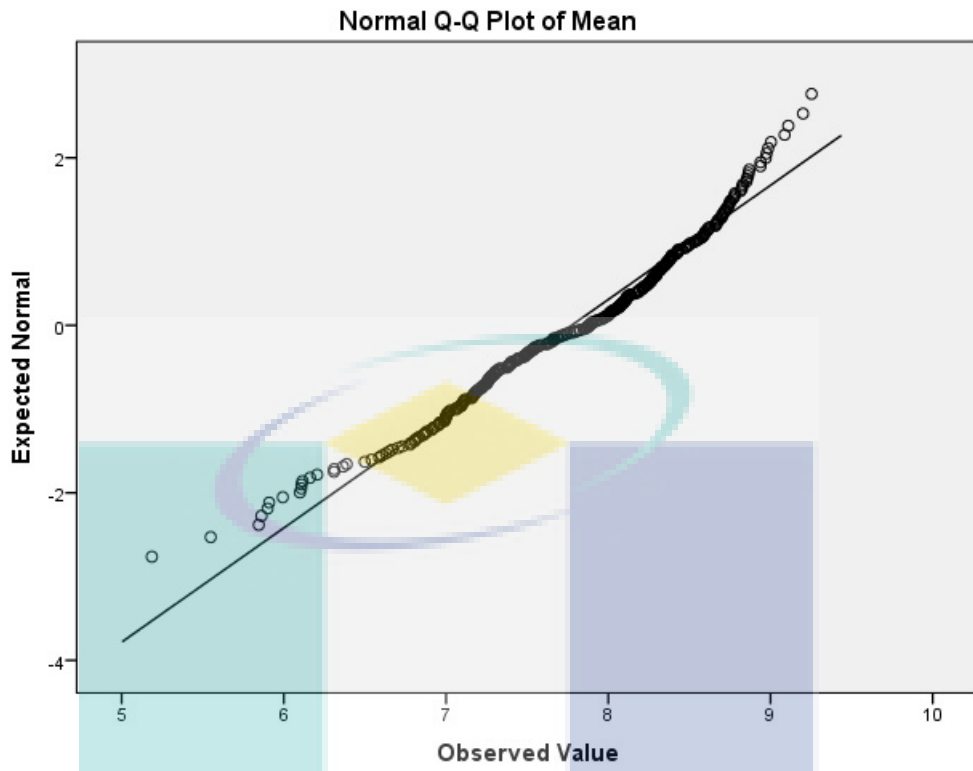
Figure 4.1: Normal P-P plot of regression standardized residual
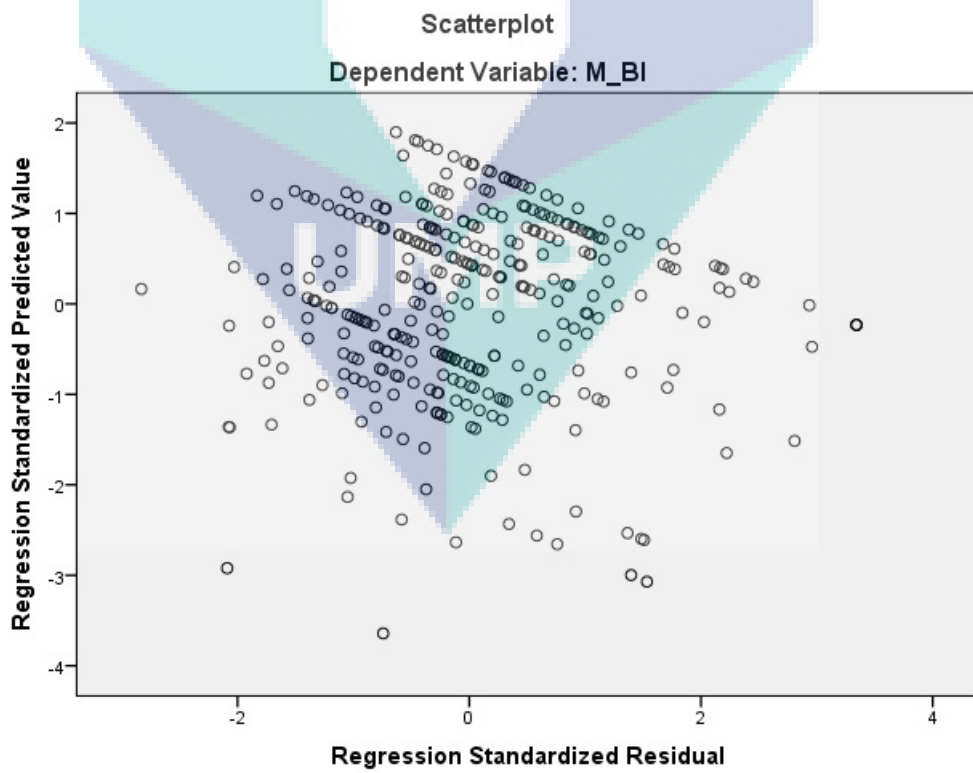
Figure 4.2: Scatter plot of regression standardized residual

normal. From the examination of the residuals scatter plot provides a test for assumptions like normality, linearity and homoscedasticity between the dependent variable (DV) scores and errors of predictions. Linearity is diagnosed when residuals have a straight-line relationship with predicted DV scores. If nonlinearity is present, the overall shape of the scatter plot would be curved instead of being linear. Produced bivariate scatter plots for independent variables (IVs) and the DV all showed a straight line relationship (Tabachnick and Fidell, 2007). From the scatter plot of residual it was revealed that the linearity between the variables was accepted and also it was noticed that the there is no heterscedasticity issue. There is heteroscedasticity when the variables are skewed that can result on the interaction of IVs on other variables that are not part of the regression equation (Hair et al., 2006).

Table 4.4: Measurement of Descriptive statistics

Sr.no	Items	Mean	SD	Skewness	Kurtosis
Perceived Usefulness					
1	Using AIS gives greater control over work	7.74	1.251	-0.683	1.003
2	Using AIS improves job performance	7.74	1.26	-0.539	0.801
3	Using AIS saves time	7.8	1.288	-0.538	0.245
4	AIS usage enables to accomplish tasks more quickly	7.78	1.182	-0.386	0.427
5	Using AIS reduces the time spend on manual accounting	7.8	1.233	-0.399	0.289
6	Using AIS increases productivity	8.05	1.359	-0.627	0.386
Perceived Ease of Use					

7	Interaction with AIS is easy for me to understand	7.66	1.178	-0.386	0.14
8	It is easy to remember how to perform tasks using AIS	7.69	1.241	-0.276	-0.216
9	AIS provides helpful guidance to perform tasks	7.75	1.18	-0.161	-0.173
10	AIS is rigid and flexible to interact with	7.89	1.247	-0.321	-0.071
11	It takes lots of skillful efforts to use AIS	7.91	1.316	-0.356	-0.115
12	Overall, I find the AIS useful in job	8.31	1.303	-0.376	-0.843

Intrinsic Motivation

13	Getting good result from AIS usage is more important than getting such result from other system tools.	8.54	1.177	-0.85	0.606
14	It is important to learn AIS in order to be able to be fiction in the usage of AIS	8.61	1.294	-1.411	3.283
15	Usage of AIS is a challenge	8.57	1.351	-1.07	1.202
16	I would learn to use AIS even if it is not important for my organization	8	1.524	-0.894	1.22
17	I want to know about AIS as it is important to show my ability to others	7.63	1.613	-0.883	0.405

Extrinsic Motivation					
18	Using AIS in accounting practices would enable to accomplish the work more quickly	7.84	1.283	-0.604	0.289
19	Using AIS would improve work performance	7.77	1.224	-0.523	0.2
20	Using AIS would enhance effectiveness in the daily life	7.73	1.371	-0.521	0.457
21	Using AIS would enhance effectiveness in the work	7.67	1.307	-0.342	-0.088
22	Using AIS increases the quality of work	7.7	1.365	-0.903	1.301
Behavioral Intention					
23	Assuming I had access to AIS, I intend to use it	8.53	1.147	-0.436	-0.4
24	Given that I has access to AIS, I predict I would use it	8.69	1.122	-0.566	-0.168
25	I plan to use the AIS in the near future	8.63	1.118	-0.557	-0.208
26	I intend to show others this AIS	8.45	1.33	-1.097	1.572
27	I intend to take more understanding and knowledge using AIS in the future	8.74	1.197	-1.177	1.713
IT Knowledge					
28	I have information system experience	7.4	1.265	-0.496	0.041

29	I am capable of using computer software	7.6	1.235	-0.397	0.154
30	I am able to sit long hours using information system	6.4	1.79	-0.555	0.103
31	I have good knowledge of information system	6.34	1.507	-0.484	0.173
32	I have good understanding of the potential of information system	6.86	1.415	-0.64	0.479

IT Innovation

33	I have original ideas	7.93	1.42	-0.748	0.154
34	I will create something new rather than something existing	7.54	1.492	-0.861	0.477
35	I would risk doing things differently	7.58	1.668	-0.68	0.352
36	AIS will allow to better communicate with business partners	7.48	1.494	-0.54	0.075
37	AIS will allow to cut cost in the operations	7.49	1.323	-0.536	0.692
38	AIS adoption increase profitability	7.23	1.534	-0.651	0.165
39	AIS adoption provide accurate information for decision making	7.54	1.423	-0.444	-0.008
40	The cost of adoption is far greater than benefits	7.68	1.389	-0.343	-0.499

41	Adoption of AIS is compatible with firms value and beliefs	7.65	1.468	-0.786	1.104

IT Trust

42	I think AIS is trustworthy	7.31	1.646	-0.311	-0.3
43	I think AIS keeps promises and commitments	7.94	1.444	-0.5	-0.085
44	I think AIS has enough safeguards to make me feel comfortable to use it	7.73	1.46	-0.494	0.832
45	I feel assured that legal structures adequately protects from problems associated with using AIS	7.75	1.525	-0.352	-0.378
46	I feel confident that technological advances on the information system make it safe to use AIS	7.64	1.429	-0.477	0.667
47	In general the AIS is a safe environment in which to transact accounting activities	7.66	1.468	-0.399	0.177

4.5 Common Method Variance (CMV) analysis

Common method variance refers to the variance that is attributable to the measurement method rather than to the constructs the measures are supposed to

represent. Method biases are one of the main sources of measurement error, and most researchers agree that common method variance is a potential problem in behavioral research (Podsakoff et al., 2003).
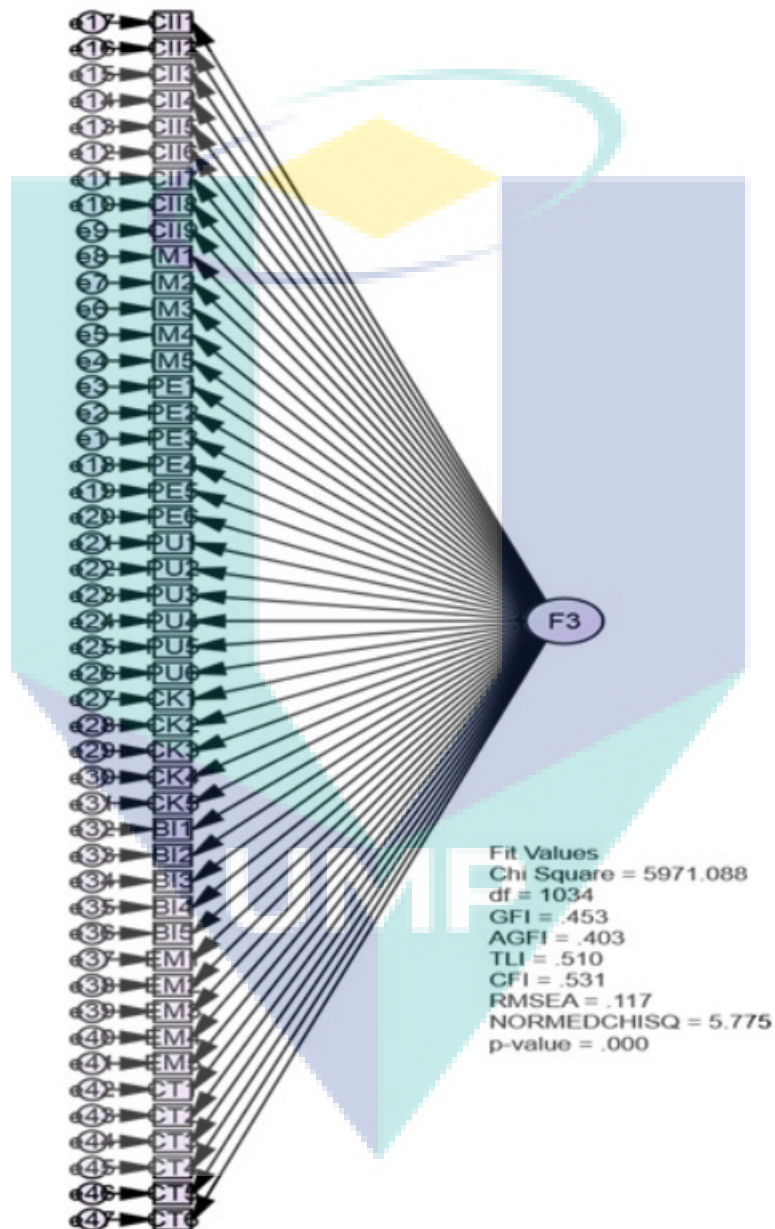
Figure 4.3: Common Method variance for the items

This section is followed by a review of techniques for controlling common method variance. During this review, a model for controlling method variance in AMOS is conceptually developed. The study is concluded by discussing several as-

pects, strengths, weaknesses of the proposed approach and by presenting further guidelines for diagnosing and controlling for common method variance with AMOS. Method variance is the issue in the research because they are one of the major measurement errors. Measurement error threatens the validity of the model and about the relationship between the constructs having both random and systematic components (Bagozzi and Yi, 1988; Hair et al., 2013).

Most of the studies agree that common method variance is the potential problem in the intention research. The model estimation shown in the figure highlights that more worst the model is, the more the model is free from multicollnearity issue (Blasius and Thiessen, 2012; Campbell and Fiske, 1959). From the common method covariance analysis in figure 4.3, it was notices that the model was not fit and was worse. This indicates that there are no multicollinearity or response bias issues. Thus the research can proceed with further analysis.

4.6 Measurement model analysis

In the measurement model (CFA), previously developed items are observed variables and appear as rectangle and factor (latent variable) as oval. There are single headed arrows linking the factor to their indicators and single headed arrows linking the error terms to their respective indicators. The double-headed arrows show correlations between these factors. The values appear on the arrows connecting factors with their items are the standardized parameter estimates or also known as factor loading. The values appearing next to the edges of the items are squared multiple correlations between the latent variables. The value next to the curved double-headed arrows shows correlation between these factors. According to Ahire and Devaraj (2001) there are three approaches for the assessment of model: exploratory factor analysis, confirmatory factor analysis and hybrid approach. How-

ever, Hair et al. (2006) mentioned that confirmatory factor analysis is not same as exploratory factor analysis that extracts factors based on statistical results and not theory and can be performed without specific knowledge of the factors whereas, CFA enables to confirm or reject the preconceived theory with an assessment of fit.

4.6.1 Uni-dimensionality of the constructs

First section for the analysis through SEM is the measurement model for the underlying constructs that is provided with the path diagram. Unidimensionality is the statistical technique used in scale development and maximize the confidence that the resulting scales are valid and reliable (De Vaus, 2002). In order to achieve the unidimensionality test, low factor loading items are deleted and the analysis is repeated until the fitness index is achieved.

In each of the measurement models, multiple items are used to measure each underlying factor. However, if items become redundant, the measurement model needs to be re-specified by removing the redundant items (Arbuckle, 2005; Hair et al., 2006; Kline, 2005). By doing this, parsimonious uni-dimensional constructs will be achieved (Anderson and Gerbing, 1988). In order to achieve uni-dimensionality of the constructs, first, indicators or items specified to measure a proposed underlying factor should have relatively high-standardized loadings (0.50 or greater) on that factor (Hair et al., 2006). Second, the estimated correlations between the factors should not be greater than 0.85 (Kline, 2005). From the measurement model figure.4.4 it was noticed that none of the constructs have correlation above 0.85. Similarly, the factor loading of all the measurement items of the variables were greater than 0.50. Thus it is confirmed that the uni-dimensionality level is achieved.

4.6.2 Reliability and Validity of the measurement model

After the analysis of uni-dimensionality of the constructs with total 47 measured items is achieved each of the constructs is assessed for their reliability and validity (Hair Jr et al., 2013). Reliability is assessed using composite reliability (CR) and average variance extracted (AVE) whilst for validity using construct, convergent and discriminant validity analysis. The composite reliability for all the constructs meet the benchmark of 0.70 (Hair et al., 2013). According to Grandzol and Gershon (1997) reliability is the set of latent construct indicators that are consistent with their measurements. Reliability represents the degree at which two or more indicators share in their measurement of constructs.

Composite reliability is the criteria to measure the reliability and internal consistency for a latent construct. A value of composite reliability greater than 0.7 is required in order to achieve composite reliability for a construct. Average variance extracted is the average percentage of variation as explained as explained by the measuring items for a construct. Using confirmatory factor analysis, construct reliability (CR) and average variance extracted (AVE) are calculated based on formulas by Fornell and Larcker (1981b) to further confirm on the reliability of the constructs. Composite reliability was used as an indicator to determine the reliability of the measurement scale of IT Innovativeness, IT knowledge, Trust in IT, Perceived usefulness, perceived ease of use, intrinsic motivation, extrinsic motivation and behavioral intention. The value of composite reliability was above (0.70) and AVE was above 0.50 as recommended by Bagozzi and Yi (1988), suggesting further support of the reliability of the constructs.

Confirmatory factor analysis is also used to assess the validity of the constructs. Construct validity is vital for theory testing (Bagozzi 1980). Accordingly, construct validity is confirmed based on goodness-fit-indices Hsieh and Hiang (2004)

reported in the earlier section. Evidence of convergent validity is found based on high factor loadings (greater than 0.50) of all factors (Anderson and Gerbing, 1988; Holmes-Smith et al., 2006). In addition, the results of AVE provide further support for convergent validity. In the case of discriminant validity, the correlations between factors in the measurement model do not exceed 0.85 as recommended by (Kline, 2005).

Table 4.5: Validity Criteria for measurement model

Validity Analysis	Criteria
Construct Validity	All fitness index for the model meet the required level
Discriminant Validity	The redundant items are either deleted or constrained as free parameter. Also the correlation between the variables less than 0.85

4.6.3 Construct Validity

This validity for the measurement model with items is achieved when all the fitness index for the construct is achieved as the required level. The below Table 4.6 provides the fitness index value with its level of acceptance.

Table 4.6: Name of Index and its level of Acceptance

Name of Index	Index Value	Level of Acceptance (Hair et al 2006)
RMSEA	0.046	The value less than 0.08 is acceptable
CFI	0.933	0.90 is a good fit
TLI	0.927	0.90 is a good fit
Chisq/df	1.749	The value should be less than 5
AGFI	0.815	0.80 is a good fit

From the above table 4.6 it is confirmed the fitness index level for the measurement model is achieved. Thus the construct validity is achieved. Discriminant validity is assessed through examination of the correlation coefficient to determine whether factors are distinguished (Sinn, 1997). From the measurement model of the

constructs, the discriminant validity criteria is confirmed as the correlation between the constructs does not exceeded 0.85.
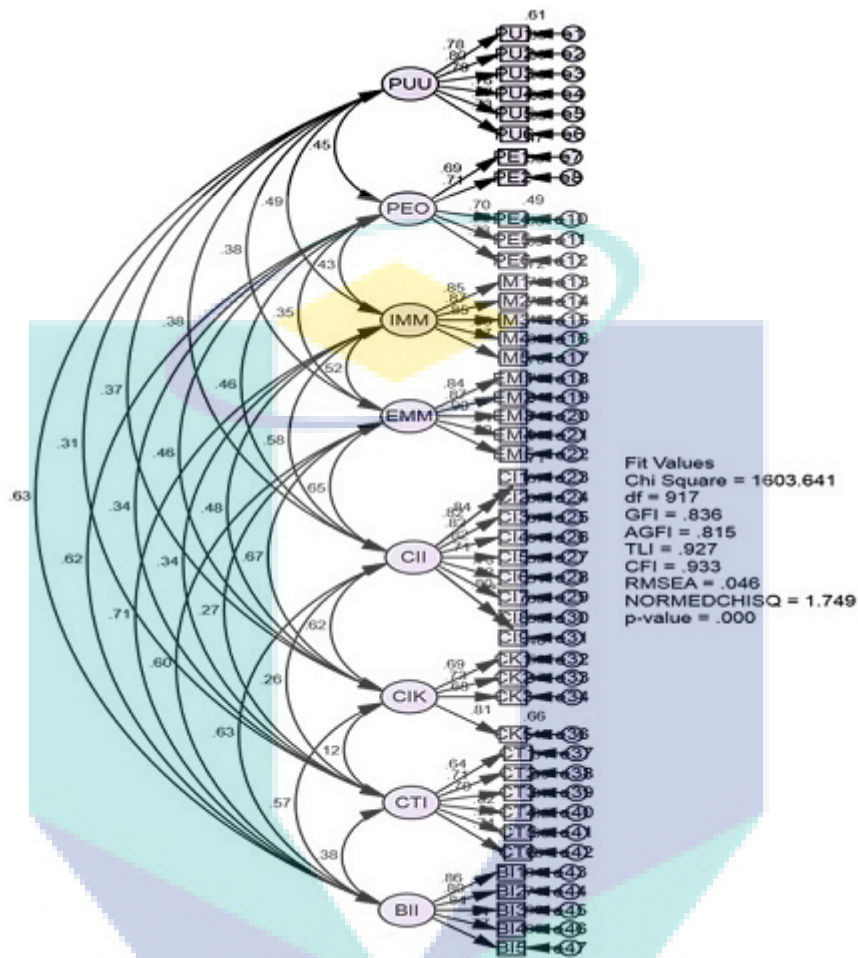
Figure 4.4: Measurement model of the constructs

Table 4.7 depicts the standardized regression of each item of the constructs (IT knowledge, IT innovativeness, Trust in IT, Perceived usefulness, perceived ease of use, intrinsic motivation, extrinsic and Behavioral intention). The report highlights beta coefficient of the components and noticed that all the items were above 0.50 that exhibits positive factor loadings and indeed possess high model fit. In this study, IT knowledge, IT innovativeness and Trust in IT serves as an exogenous construct which aimed to capture main characteristic and elements of AIS adoption in SMEs of Libya. All the items shows high beta coefficient of above 0.60 and confirms to be having high factor loading. Furthermore, the correlations between the

variables are not higher than 0.85 which means there are no multicollinearity issues between them. Thus overall the 2nd order measurement model between exogenous constructs and endogenous construct is confirmed and fit.

Table 4.7: Standardized regression weight for measurement model

Exogenous	Path	Endogenous	Estimate	Composite Reliability	AVE
PU1	< −−	PUU	0.782	0.899	0.596
PU2	< −−	PUU	0.796		
PU3	< −−	PUU	0.792		
PU4	< −−	PUU	0.760		
PU5	< −−	PUU	0.772		
PU6	< −−	PUU	0.730		
PEOU1	< −−	PEO	0.688	0.841	0.514
PEOU2	< −−	PEO	0.710		
PEOU4	< −−	PEO	0.699		
PEOU5	< −−	PEO	0.759		
PEOU6	< −−	PEO	0.726		
IM1	< −−	IMM	0.849	0.879	0.597
IM2	< −−	IMM	0.872		
IM3	< −−	IMM	0.847		
IM4	< −−	IMM	0.680		
IM5	< −−	IMM	0.571		
EM1	< −−	EMM	0.837	0.928	0.722
EM2	< −−	EMM	0.868		
EM3	< −−	EMM	0.899		
EM4	< −−	EMM	0.845		
EM5	< −−	EMM	0.795		
CII1	< −−	CII	0.845	0.948	0.612
CII2	< −−	CII	0.817		

CII3	< −−	CII	0.824		
CII4	< −−	CII	0.817		
CII5	< −−	CII	0.712		
CII6	< −−	CII	0.731		
CII7	< −−	CII	0.717		
CII8	< −−	CII	0.805		
CII9	< −−	CII	0.751		
CIK1	< −−	CIK	0.690	0.82	0.533
CIK2	< −−	CIK	0.727		
CIK3	< −−	CIK	0.683		
CIK5	< −−	CIK	0.814		
CTI1	< −−	CTI	0.636	0.875	0.54
CTI2	< −−	CTI	0.714		
CTI3	< −−	CTI	0.702		
CTI4	< −−	CTI	0.819		
CTI5	< −−	CTI	0.786		
CTI6	< −−	CTI	0.739		
BI1	< −−	BII	0.865	0.911	0.672
BI2	< −−	BII	0.803		
BI3	< −−	BII	0.841		
BI4	< −−	BII	0.813		
BI5	< −−	BII	0.773		

In the measurement model, it was noticed that the AVE for perceived ease of use and IT knowledge was below the required level of 0.50. Thus the items of these constructs having low factor loading were removed. Respondents does not agree to the measurement items of CIK4 and PEOU3, because according to

them these questions cannot be agreed without the adoption of AIS. PEOU3 (AIS provides helpful guidance to perform tasks) was found to have low factor loading. Theoretically it cannot be confirmed that AIS is helpful without its usage. This this question was disagreed by the respondents. CIK 4 (I have good knowledge of information system) was found to have no significant influence. This item states that majority of the respondents lacks knowledge of information system.

4.6.4 Normality test

In this research normality of distributed date and normality of data can be shown by testing the measurement items of the constructs. According to Hair et al. (2006) fundamental assumption in multivariate and univariate analysis is normality. The scale data after exclusion of missing data was assessed following Hair et al. (1998); Kline (2005) to check the normally distribution of the variables that are used in the study. In order to check the normality, kurtosis and skewness are the most effectively use to observe distribution. Normality is the degree to which the distribution of the sample data corresponds to a normal distribution. Normality test was performed through the structural equation modeling of structural model in order to validate the model along with the measured constructs of characteristics, attitude and behavioral intention. Normality test is carried out on all attained to ensure that the further testing is not violated any assumptions. Although Normality test is more widely used it is very important to confirm skewness and kurtosis for the measured items. Absolute value of kurtosis above 10.0 is considered an approach to problem and the value greater than 20.0 confirms a serious issue. The recommended absolute value for skewness and kurtosis as recommended by Kline (2011) should not be above three and ten. However, to confirm the univariate normality, skewness and kurtosis values smaller than an absolute value of 2 and 7 respectively, is taken as demonstrating sufficient normality (Cunningham, 2008; Kline, 2011).

From the analysis of normality for the measurement model it was noticed that there is no issue of univariate normality test, but the multivariate result was above the acceptable level as it was found to be 201.841. Thus it was confirmed that there is type I error and there is a need of bootstrapping the measurement model in order to deal with the measurement error issues.

Table 4.8: Regression estimated weights with bootstrapping standardized errors

Exogenous	Path	Endogenous	Estimate	S.E.	C.R.	P
PU1	< −−	PUU	1			
PU2	< −−	PUU	1.029	0.066	15.686	***
PU3	< −−	PUU	1.044	0.067	15.546	***
PU4	< −−	PUU	0.921	0.062	14.827	***
PU5	< −−	PUU	0.977	0.065	15.116	***
PU6	< −−	PUU	1.021	0.072	14.202	***
PEOU1	< −−	PEO	1			
PEOU2	< −−	PEO	1.09	0.094	11.621	***
PEOU4	< −−	PEO	1.093	0.096	11.433	***
PEOU5	< −−	PEO	1.298	0.106	12.232	***
PEOU6	< −−	PEO	1.286	0.109	11.783	***
IM1	< −−	IMM	1			
IM2	< −−	IMM	1.116	0.054	20.594	***
IM3	< −−	IMM	1.149	0.057	20.122	***
IM4	< −−	IMM	1.045	0.072	14.502	***
IM5	< −−	IMM	0.948	0.08	11.847	***
EM1	< −−	EMM	1			
EM2	< −−	EMM	0.989	0.048	20.466	***
EM3	< −−	EMM	1.146	0.053	21.647	***
EM4	< −−	EMM	1.027	0.053	19.536	***
EM5	< −−	EMM	1.01	0.057	17.771	***

CII1	< −−	CII	1			
CII2	< −−	CII	1.017	0.054	18.791	***
CII3	< −−	CII	1.147	0.06	19.074	***
CII4	< −−	CII	1.019	0.054	18.827	***
CII5	< −−	CII	0.786	0.051	15.291	***
CII6	< −−	CII	0.937	0.059	15.912	***
CII7	< −−	CII	0.852	0.055	15.465	***
CII8	< −−	CII	0.934	0.051	18.388	***
CII9	< −−	CII	0.921	0.056	16.561	***
CIK1	< −−	CIK	1			
CIK2	< −−	CIK	1.031	0.087	11.838	***
CIK3	< −−	CIK	1.399	0.125	11.184	***
CIK5	< −−	CIK	1.318	0.102	12.875	***
CTI1	< −−	CTI	1			
CTI2	< −−	CTI	0.983	0.089	11.1	***
CTI3	< −−	CTI	0.978	0.089	10.958	***
CTI4	< −−	CTI	1.191	0.097	12.272	***
CTI5	< −−	CTI	1.068	0.09	11.897	***
CTI6	< −−	CTI	1.033	0.091	11.383	***
BI1	< −−	BII	1			
BI2	< −−	BII	0.921	0.05	18.528	***
BI3	< −−	BII	0.95	0.048	19.633	***
BI4	< −−	BII	1.105	0.058	18.897	***
BI5	< −−	BII	0.955	0.054	17.712	***

4.7 Structural Model Result and Analysis

It is very important for the researchers to deal with the fundamental issues of measurement. Structural equation modeling highlights good understanding on the principles of multiple correlations or regressions, the correct interpretation of results from statistical tests and data screening techniques. Values of regression coefficients are interpreted. There are many statistical tests in SEM and the correct interpretation is required.

The hypothesized or causal relationship in SEM is in the form of path diagram. The CFA figures provided in the chapter shows the path diagram of the thesis that consists of observed and unobserved variables, measured errors, single headed arrows representing relationship between observed variables and covariance having double headed arrow for the correlation between the constructs. Constructs like behavioral intention, IT innovativeness, IT Knowledge, trust on IT, perceived ease of use, perceived usefulness, intrinsic motivation and extrinsic motivation were represented as oval also known as unobserved variables, whereas the measured items of the constructs were represented as observed construct or rectangles.

The single headed arrows between the constructs are used for the linear relationship between the constructs explaining the dependence of one construct the other. Direct relationship between IT innovativeness, IT Knowledge, trust on IT and behavioral intention constructs with mediating variables perceived usefulness, perceived ease of use, intrinsic motivation and extrinsic motivation represents the hypothesized relationship between the two variables, (e) represents the measurement error that is enclosed by circle and is linked to each observed and unobserved constructs.

This section aims to investigate the relationships between the exogenous con-

structs (IT innovativeness, IT Knowledge, trust in IT) and (perceived usefulness, perceived ease of use, intrinsic motivation, extrinsic motivation and behavioral intention) endogenous constructs. The main advantage of SEM is that the path one way coefficients provides direct relationship between the constructs (Holmes-Smith et al., 2006). In order to confirm that the structural model fit the data, the model was evaluated in the terms of goodness of fit indices. According to Cunningham (2008) a good fit to the sample data provides support for the hypothesized model.

For hypotheses testing purposes, parameter estimates together with coefficient values were examined. Parameter estimates are used to generate the estimated population covariance matrix for the model (Tabachnick et al., 2001). Coefficient values are derived by dividing the variance estimate by its standard error (S.E). When the critical value (C.R) or z-value is greater than 1.96 for a regression weight (standardized estimates), the parameter is statistically significant at the .05 levels.

4.7.1 Structural model One of Perceived usefulness as mediator

Measurement model discussed above in stage one, validated the models of each latent constructs and were validated a satisfactory fit achieved. In the type of structural model one, perceived usefulness (PU) and behavioral intention (BI) was taken as endogenous construct whereas IT knowledge (CIK), IT innovativeness (CII) and trust in IT (CTI) were taken as exogenous constructs.

For the evaluation of fit of the model, in SEM through AMOS there is a series of goodness of fit indices for specifying the model fit. According to Kline (1988), the four major fitness indices like GFI, TLI, RMSEA or CFI are used for evaluating the model fit. Similarly, Holmes-Smith et al. (2006) stated that there must be at least three fitness indices significant in order to confirm the model fit. This study adopts the major fitness indices that are commonly used in research. The absolute values

like GFI and RMSEA, incremental values includes CFI, TLI and parsimonious values like chisquare/df were used to confirm the model fit.

According to Anderson and Gerbing (1988); Hair et al. (1998); Holmes-Smith et al. (2006); Kline (2005) a structural model can then be tested and presented as a second and main stage of the analysis. The structural model has been defined as "the portion of the model that specifies how the latent variables are related to each other". The main purpose of the structural model is to underline the hypothesis outlined in order to answer research questions provided in chapter one.
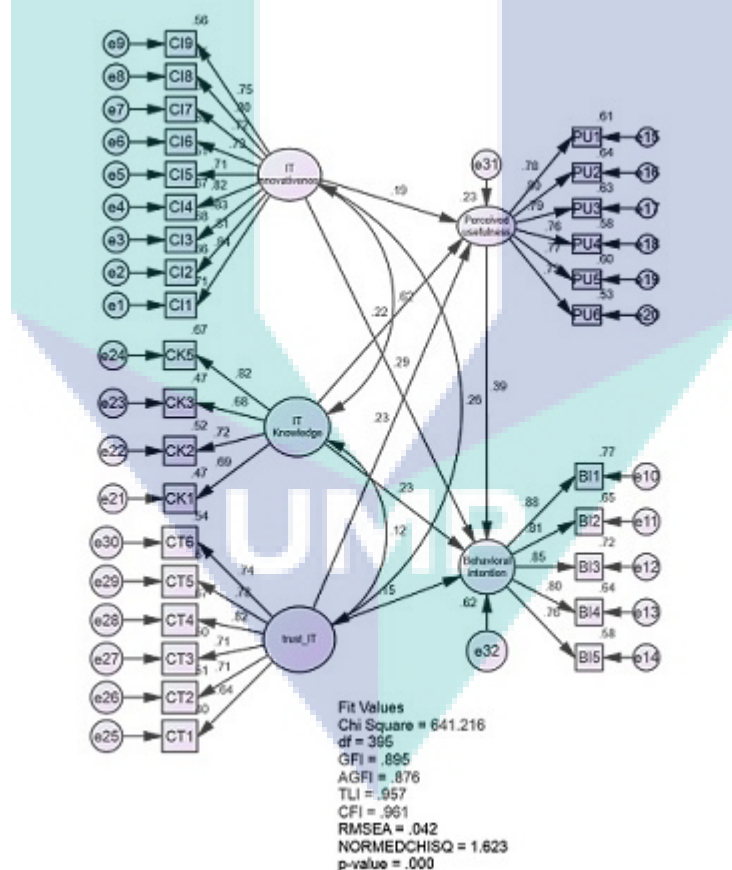
Figure 4.5: Structural model of perceived usefulness as mediator

The structural analysis was conducted to determine the behavioral intention measurement as a latent construct and to confirm the mediating factor, perceived usefulness, used in the present study with three independent constructs. The struc-

tural model as shown in Figure 4.5 was run on the 30 items of the factors. The results of the CFA succeeded in configuring the significant factors of the perceived usefulness in the present study.

An examination of the path coefficients and t values for the initial structural model indicated that the hypothesized path related to the perceived usefulness and behavioral intention was statistically significant, as shown in Figure 4.5. Square multiple correlations also confirmed that user's IT characteristics (IT knowledge, IT innovativeness and trust in IT) were indicators for predicting the perceived usefulness and behavioral intention. Therefore, the path analysis in the form of re-specified structural model was assessed. Figure 4.5 displays the path coefficients of the re-specified model of perceived usefulness.

Table 4.9: Standardized regression weights of perceived usefulness as mediator

Endogenous	Path	Exogenous	Estimate	Beta	S.E.	C.R.	P
PU	$<--$	CII	0.153	0.187	0.062	2.481	0.013
PU	$<--$	CIK	0.248	0.221	0.087	2.834	0.005
PU	$<--$	CTI	0.218	0.234	0.056	3.914	***
BI	$<--$	CII	0.248	0.293	0.049	5.074	***
BI	$<--$	CIK	0.269	0.232	0.070	3.845	***
BI	$<--$	CTI	0.149	0.154	0.044	3.375	***
BI	$<--$	PU	0.401	0.387	0.053	7.620	***
CII1	$<--$	CII	1.000	0.843			
CII2	$<--$	CII	1.015	0.814	0.054	18.669	***
CII3	$<--$	CII	1.150	0.826	0.060	19.095	***
CII4	$<--$	CII	1.022	0.819	0.054	18.834	***
CII5	$<--$	CII	0.787	0.712	0.052	15.274	***
CII6	$<--$	CII	0.938	0.731	0.059	15.865	***

CII7	< −−	CII	0.854	0.718	0.055	15.467	***
CII8	< −−	CII	0.935	0.805	0.051	18.335	***
CII9	< −−	CII	0.921	0.751	0.056	16.495	***
BI1	< −−	BI	1.000	0.876			
BI2	< −−	BI	0.924	0.805	0.049	19.015	***
BI3	< −−	BI	0.956	0.846	0.046	20.751	***
BI4	< −−	BI	1.060	0.802	0.056	18.883	***
BI5	< −−	BI	0.917	0.760	0.053	17.268	***
PU1	< −−	PU	1.000	0.781			
PU2	< −−	PU	1.029	0.797	0.065	15.715	***
PU3	< −−	PU	1.044	0.792	0.067	15.581	***
PU4	< −−	PU	0.918	0.759	0.062	14.811	***
PU5	< −−	PU	0.976	0.773	0.064	15.140	***
PU6	< −−	PU	1.017	0.731	0.072	14.159	***
CIK1	< −−	CIK	1.000	0.689			
CIK2	< −−	CIK	1.027	0.724	0.088	11.635	***
CIK3	< −−	CIK	1.403	0.683	0.127	11.075	***
CIK5	< −−	CIK	1.325	0.816	0.105	12.672	***
CTI1	< −−	CTI	1.000	0.636			
CTI2	< −−	CTI	0.983	0.713	0.089	11.058	***
CTI3	< −−	CTI	0.983	0.705	0.090	10.962	***
CTI4	< −−	CTI	1.195	0.821	0.098	12.249	***
CTI5	< −−	CTI	1.069	0.784	0.090	11.864	***
CTI6	< −−	CTI	1.033	0.737	0.091	11.341	***

The goodness of fit indices show that the model was acceptable; with a (chisq = 641.216, DF = 395, chisq/DF = 1.623, P=0.000, GFI=0.895, TLI = 0.957, CFI

= 0.961 and RMSEA=0.042) as shown in Figure 4.5. The path coefficients were all significant to the perceived usefulness and behavioral intention to adopt AIS, indicating that the perceived usefulness was positively related to behavioral intention and user's IT characteristics. Consequently, Figure 4.5 confirmed the constructs and the items of IT knowledge, IT innovativeness and trust in IT, perceived usefulness and behavioral intention in the hypothesized paths. Factor analysis and hypotheses were tested in the same analysis. The SEM techniques used also provided full information about the extent to which the research model was supported by the data.

4.7.2 Structural model two for perceived ease of use as mediator

Mediating analysis estimates the total, direct and indirect effects of causal constructs on outcome construct through a proposed mediating construct. Here, IT knowledge, IT innovativeness, and trust in IT are causal constructs whereas; behavioral intention is the outcome variable. Furthermore perceived ease of use is the mediating construct.

This model discusses on the influence of user's IT characteristics on behavioral intention to adopt AIS using perceived ease of use as mediator. Figure 4.6 provides the structural model of variables with perceived ease of use as mediator. Table.4.10 shows the standardized regression weights and square multiple correlations of the items and variables i.e. IT knowledge, IT innovativeness, Trust in IT, perceived ease of use and behavioral intention. From the square multiple correlation results it was noted that the model fit criteria are solved and there is a high correlation between the perceived ease of use and the behavioral intention with 0.57 i.e.57%. IT knowledge was found to be main factor when it comes to perceived ease of use as mediating between IT knowledge and behavioral intention.
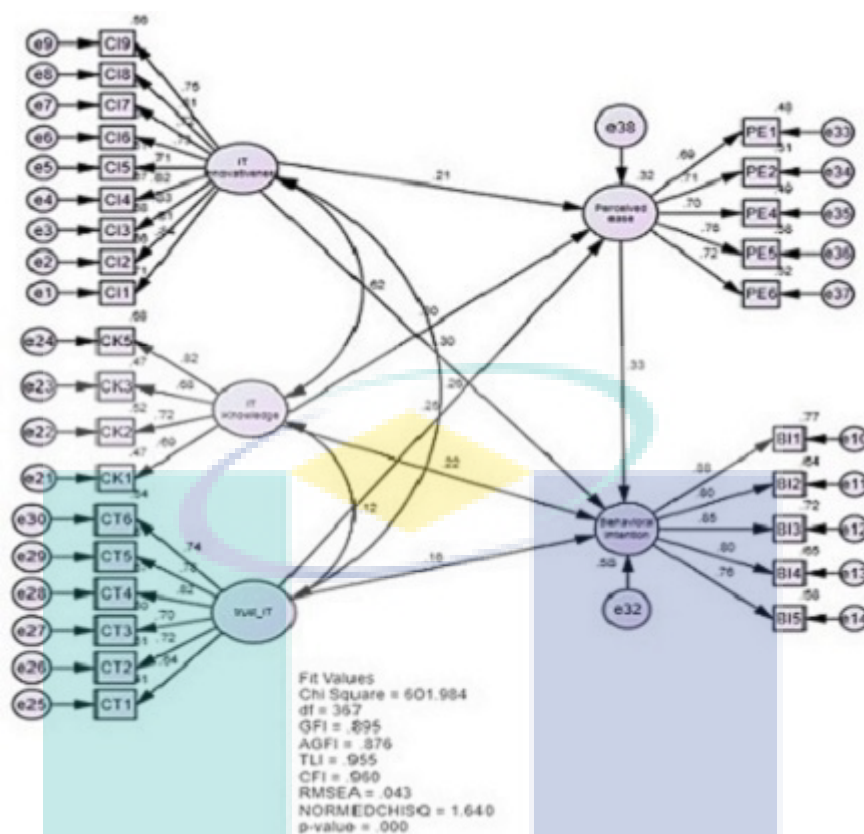
Figure 4.6: Structural model of perceived ease of use as mediator

Table 4.10: Standardized regression weights of perceived ease of use as mediator

Endogenous	Path	Exogenous	Estimate	Beta	S.E.	C.R.	P
PEOU	< −−	CII	0.145	0.210	0.052	2.777	0.005
PEOU	< −−	CIK	0.289	0.304	0.076	3.808	***
PEOU	< −−	CTI	0.196	0.249	0.048	4.103	***
BI	< −−	CII	0.251	0.298	0.051	4.925	***
BI	< −−	CIK	0.252	0.217	0.075	3.368	***
BI	< −−	CTI	0.156	0.163	0.047	3.358	***
BI	< −−	PEOU	0.402	0.329	0.073	5.512	***
CII1	< −−	CII	1.000	0.843			
CII2	< −−	CII	1.015	0.814	0.054	18.651	***
CII3	< −−	CII	1.151	0.826	0.060	19.088	***

CII4	< −−	CII	1.023	0.819	0.054	18.817	***
CII5	< −−	CII	0.788	0.712	0.052	15.280	***
CII6	< −−	CII	0.939	0.732	0.059	15.881	***
CII7	< −−	CII	0.854	0.718	0.055	15.441	***
CII8	< −−	CII	0.935	0.805	0.051	18.331	***
CII9	< −−	CII	0.922	0.751	0.056	16.485	***
BI1	< −−	BI	1.000	0.875			
BI2	< −−	BI	0.922	0.802	0.049	18.822	***
BI3	< −−	BI	0.960	0.849	0.046	20.747	***
BI4	< −−	BI	1.065	0.804	0.056	18.892	***
BI5	< −−	BI	0.918	0.759	0.053	17.194	***
CIK1	< −−	CIK	1.000	0.687			
CIK2	< −−	CIK	1.024	0.720	0.089	11.567	***
CIK3	< −−	CIK	1.405	0.682	0.127	11.050	***
CIK5	< −−	CIK	1.340	0.823	0.105	12.720	***
CTI1	< −−	CTI	1.000	0.638			
CTI2	< −−	CTI	0.983	0.715	0.089	11.110	***
CTI3	< −−	CTI	0.980	0.704	0.089	10.982	***
CTI4	< −−	CTI	1.189	0.819	0.097	12.268	***
CTI5	< −−	CTI	1.066	0.783	0.090	11.895	***
CTI6	< −−	CTI	1.031	0.738	0.091	11.379	***
PEOU1	< −−	PEOU	1.000	0.689			
PEOU2	< −−	PEOU	1.087	0.712	0.094	11.582	***
PEOU4	< −−	PEOU	1.092	0.700	0.096	11.416	***
PEOU5	< −−	PEOU	1.298	0.759	0.106	12.215	***
PEOU6	< −−	PEOU	1.277	0.721	0.109	11.709	***

From the model fit indices (chisq2 = 620.838, DF = 368, chisq2/DF = 1.687,

P=0.000, GFI=0.893, AGFI = 0.873, TLI = 0.952, CFI = 0.957 and RMSEA=0.044) as shown in Figure 4.6 showed that the model is fit. Thus perceived ease of use plays a partial mediating role between user's IT characteristics and behavioral intention to adopt AIS in SMEs of Libya.

4.7.3 Structural model three on intrinsic motivation as mediator

The factor loading or regression estimates of the latent to the observed variables were fit. This indicates that most of the constructs conform to the convergent validity test (Hoskisson et al., 1993). The goodness of fit indices for the latent constructs behavioral intention as endogenous variables and (IT knowledge, IT innovativeness, Trust in IT) as the confirmed dimensions of the exogenous and endogenous variable.

The structural model three between user's IT characteristics constructs and behavioral intention through intrinsic motivation as mediator is depicted in figure.4.7. The goodness of fit indices for the 29 items of IT knowledge, IT innovativeness, Trust in IT, intrinsic motivation and behavioral intention, the structural model confirmed the acceptance significant level of 0.05 as the result of the standardized regression weight.

The table.4.11 shows the standardized regression weights and square multiple correlations of the items and variables i.e. IT knowledge, IT innovativeness, Trust in IT, intrinsic motivation and behavioral intention. From the square multiple correlation results it was noted that the model fit criteria are solved and there is a high correlation between the intrinsic motivation and the behavioral intention with 0.62 i.e.62%. IT innovativeness was found to be main factor when it comes to intrinsic motivation as mediating between IT innovativeness and behavioral intention.

Figure 4.7: Structural model of intrinsic motivation as mediator

Table 4.11: Standardized regression weights of intrinsic motivation as mediator

Endogenous	Path	Exogenous	Estimate	Beta	S.E.	C.R.	P
IM	< −−	CII	0.343	0.406	0.059	5.859	***
IM	< −−	CIK	0.232	0.200	0.081	2.877	0.004
IM	< −−	CTI	0.204	0.211	0.051	3.967	***
BI	< −−	CII	0.157	0.187	0.051	3.076	0.002
BI	< −−	CIK	0.266	0.231	0.070	3.812	***
BI	< −−	CTI	0.147	0.154	0.044	3.351	***
BI	< −−	IM	0.434	0.437	0.057	7.554	***
CII1	< −−	CII	1.000	0.844			
CII2	< −−	CII	1.014	0.814	0.054	18.735	***

CII3	< −−	CII	1.149	0.826	0.060	19.173	***
CII4	< −−	CII	1.018	0.817	0.054	18.825	***
CII5	< −−	CII	0.785	0.712	0.051	15.302	***
CII6	< −−	CII	0.934	0.730	0.059	15.859	***
CII7	< −−	CII	0.853	0.719	0.055	15.510	***
CII8	< −−	CII	0.933	0.805	0.051	18.382	***
CII9	< −−	CII	0.920	0.751	0.056	16.530	***
BI1	< −−	BI	1.000	0.873			
BI2	< −−	BI	0.930	0.808	0.049	19.019	***
BI3	< −−	BI	0.955	0.842	0.047	20.412	***
BI4	< −−	BI	1.064	0.802	0.057	18.774	***
BI5	< −−	BI	0.930	0.768	0.053	17.474	***
CIK1	< −−	CIK	1.000	0.691			
CIK2	< −−	CIK	1.026	0.726	0.088	11.677	***
CIK3	< −−	CIK	1.396	0.682	0.126	11.073	***
CIK5	< −−	CIK	1.320	0.815	0.104	12.694	***
CTI1	< −−	CTI	1.000	0.638			
CTI2	< −−	CTI	0.982	0.714	0.089	11.091	***
CTI3	< −−	CTI	0.979	0.704	0.089	10.965	***
CTI4	< −−	CTI	1.192	0.820	0.097	12.271	***
CTI5	< −−	CTI	1.067	0.783	0.090	11.886	***
CTI6	< −−	CTI	1.032	0.738	0.091	11.373	***
IM1	< −−	IM	1.000	0.848			
IM2	< −−	IM	1.121	0.871	0.056	20.196	***
IM3	< −−	IM	1.149	0.848	0.059	19.416	***
IM4	< −−	IM	1.017	0.682	0.072	14.124	***
IM5	< −−	IM	0.900	0.572	0.080	11.288	***

CFA results of intrinsic motivation as mediator with exogenous constructs user's IT characteristics showed that the chi-square was significant (chisq = 784.518, chisq /df = 2.138). The GFI was .865, AGFI = 0.840, TLI = .927, CFI = .934, RSMEA = .057. From results of the Structural Model shown in table 4.11, it can be seen that the AGFI is above 0.8 (Acceptable fit criteria) and RMSEA is less than (0.08) (Hooper et al., 2008). This shows that the measurement model has a good fit with the data (Anderson and Fornell, 1994).

4.7.4 Structural model of extrinsic motivation as mediator

The square multiple correlations between user's IT characteristics and mediating variable extrinsic motivation were found to be 0.56 i.e.56%. This means that user's IT characteristics variables have 56% of influence on extrinsic motivation as endogenous construct. In other terms user;s IT characteristics enables to explain 56% of extrinsic motivation of the owners of SMEs towards technology adoption.

Similarly, the overall square multiple correlations between independent, mediating and dependent variable was found to be 0.52 (52.0%). Furthermore, it was found that IT knowledge with 0.557 i.e. 55.7% influence on extrinsic motivation is the most crucial factor that affects behavioral intention through extrinsic motivation as mediator followed with IT innovativeness having 0.301 i.e. 30.1% influence on extrinsic motivation. CFA results of extrinsic motivation as mediator with exogenous constructs user;s IT characteristics showed that the chi-square was significant (chisq = 730.630, chisq /df = 1.991). The GFI was .879, AGFI = 0.856, TLI = .940, CFI = .946, RSMEA = .053. Similarly, figure 4.8 showed that the fitness indices of the model are significant. AGFI too was found to be fit according to the fitness criteria.
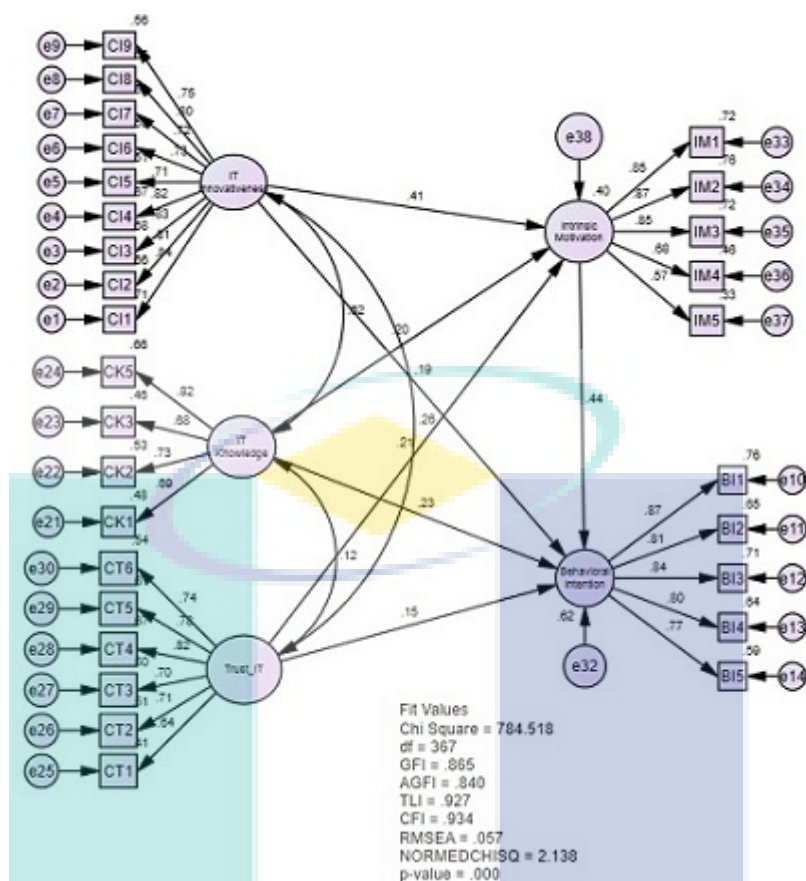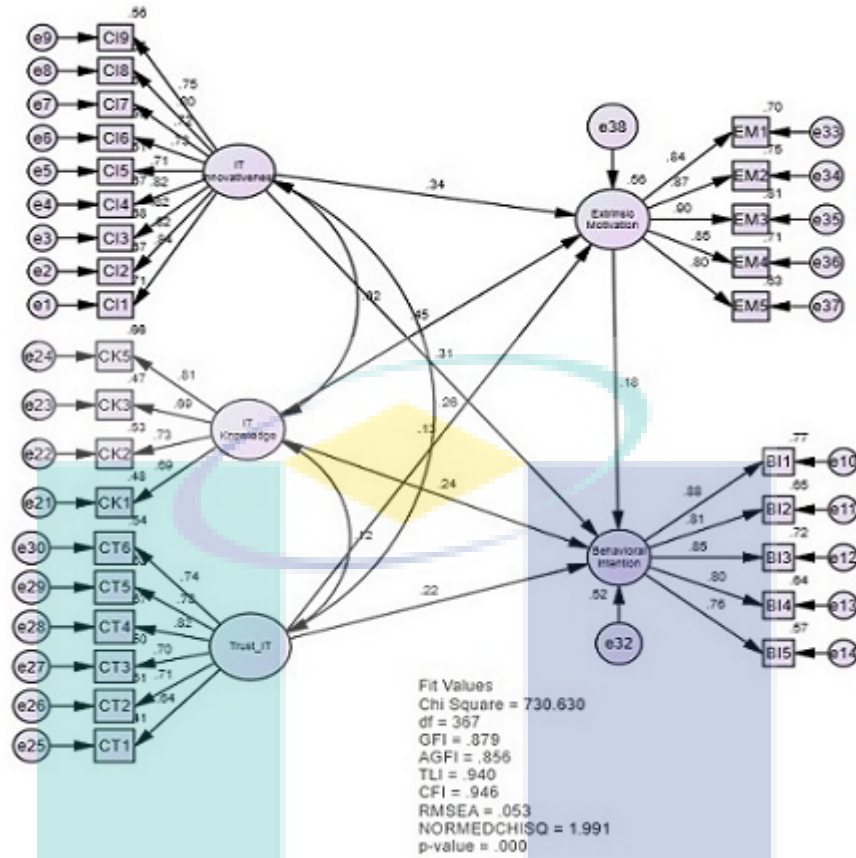
Figure 4.8: Structural model of extrinsic motivation as mediator

Table 4.12: Standardized regression weights of extrinsic motivation as mediator

Endogenous	Path	Exogenous	Estimate	Beta	S.E.	C.R.	P
EM	< −−	CII	0.301	0.335	0.055	5.45	***
EM	< −−	CIK	0.557	0.452	0.084	6.653	***
EM	< −−	CTI	0.129	0.127	0.047	2.752	0.006
BI	< −−	CII	0.258	0.305	0.055	4.671	***
BI	< −−	CIK	0.277	0.239	0.087	3.186	0.001
BI	< −−	CTI	0.214	0.222	0.048	4.447	***
BI	< −−	EM	0.167	0.177	0.067	2.489	0.013
CII1	< −−	CII	1	0.844			
CII2	< −−	CII	1.017	0.816	0.054	18.797	***
CII3	< −−	CII	1.147	0.824	0.06	19.065	***
CII4	< −−	CII	1.022	0.819	0.054	18.897	***

CII5	< −−	CII	0.785	0.711	0.051	15.279	***
CII6	< −−	CII	0.936	0.731	0.059	15.881	***
CII7	< −−	CII	0.852	0.717	0.055	15.457	***
CII8	< −−	CII	0.933	0.805	0.051	18.362	***
CII9	< −−	CII	0.92	0.751	0.056	16.528	***
BI1	< −−	BI	1	0.878			
BI2	< −−	BI	0.924	0.807	0.048	19.066	***
BI3	< −−	BI	0.954	0.846	0.046	20.684	***
BI4	< −−	BI	1.056	0.8	0.056	18.788	***
BI5	< −−	BI	0.913	0.758	0.053	17.172	***
CIK1	< −−	CIK	1	0.69			
CIK2	< −−	CIK	1.031	0.728	0.087	11.804	***
CIK3	< −−	CIK	1.404	0.685	0.125	11.202	***
CIK5	< −−	CIK	1.314	0.811	0.103	12.809	***
CTI1	< −−	CTI	1	0.638			
CTI2	< −−	CTI	0.98	0.713	0.088	11.084	***
CTI3	< −−	CTI	0.979	0.704	0.089	10.976	***
CTI4	< −−	CTI	1.191	0.82	0.097	12.282	***
CTI5	< −−	CTI	1.067	0.785	0.09	11.911	***
CTI6	< −−	CTI	1.03	0.737	0.091	11.374	***
EM1	< −−	EM	1	0.837			
EM2	< −−	EM	0.99	0.868	0.048	20.406	***
EM3	< −−	EM	1.146	0.898	0.053	21.581	***
EM4	< −−	EM	1.028	0.845	0.053	19.527	***
EM5	< −−	EM	1.013	0.797	0.057	17.793	***

4.8   Re-specified Model

The re-specified model in figure.4.9 shows the study final concept. The significance of the goodness of fit indexes provides the significance loadings of the measurements, the low level of common and unique error, and show the interaction among predictors and the endogenous variables. Consequently, Figure 4.9 identifies the constructs (IT knowledge, IT innovativeness, trust in IT, perceived usefulness, perceived ease of use, intrinsic motivation, extrinsic motivation and behavioral intention) in the hypothesized paths. Factor analysis and hypotheses were tested in the same analysis followed with the SEM techniques providing full information about the extent to which the research model was supported by the data. The following Table 4.13 shows the regression weights, standardized regression weights and squares for the multiple correlations of the items and variables, i.e. IT knowledge, IT innovativeness, trust in IT, perceived usefulness, perceived ease of use, intrinsic motivation, extrinsic motivation and behavioral intention.

An examination of the path coefficients and regression values for the initial structural model indicated that the hypothesized path related to the endogenous constructs was statistically significant, as shown in Figure 4.9. Square multiple correlations also confirmed that exogenous constructs (IT knowledge, IT innovativeness and trust in IT) were indicators for predicting the mediating variable user's attitude. Therefore, the path analysis in the form of re-specified structural model was assessed. Figure 4.9 displays the path coefficients of the re-specified model.

Table 4.13: Standardized regression weights of re-specified model

Endogenous	Path	Exogenous	Standardized	S.E.	C.R.	P	Support
Perceived ease	< —	IT Innovativeness	0.205	0.052	2.713	0.007	Yes
Perceived ease	< —	IT Knowledge	0.310	0.075	3.906	***	Yes
Perceived usefulness	< —	IT Innovativeness	0.163	0.061	2.191	0.028	Yes
Perceived usefulness	< —	IT Knowledge	0.268	0.086	3.459	***	Yes
Perceived usefulness	< —	trust in IT	0.250	0.056	4.200	***	Yes
Intrinsic Motivation	< —	IT Knowledge	0.244	0.079	3.536	***	Yes
Intrinsic Motivation	< —	IT Innovativeness	0.381	0.058	5.578	***	Yes
Extrinsic Motivation	< —	IT Innovativeness	0.333	0.055	5.414	***	Yes
Extrinsic Motivation	< —	IT Knowledge	0.457	0.083	6.744	***	Yes
Extrinsic Motivation	< —	trust in IT	0.128	0.047	2.798	0.005	Yes
Intrinsic Motivation	< —	trust in IT	0.224	0.051	4.235	***	Yes
Perceived ease	< —	trust in IT	0.257	0.048	4.236	***	Yes
Behavioral intention	< —	Perceived ease	0.251	0.061	4.873	***	Yes
Behavioral intention	< —	Extrinsic Motivation	0.147	0.054	2.471	0.013	Yes
Behavioral intention	< —	Intrinsic Motivation	0.328	0.051	6.222	***	Yes
Behavioral intention	< —	Perceived usefulness	0.268	0.045	5.884	***	Yes
Behavioral intention	< —	trust in IT	0.039	0.043	0.839	0.401	No
Behavioral intention	< —	IT Knowledge	0.055	0.076	0.804	0.421	No
Behavioral intention	< —	IT Innovativeness	0.089	0.047	1.516	0.129	No
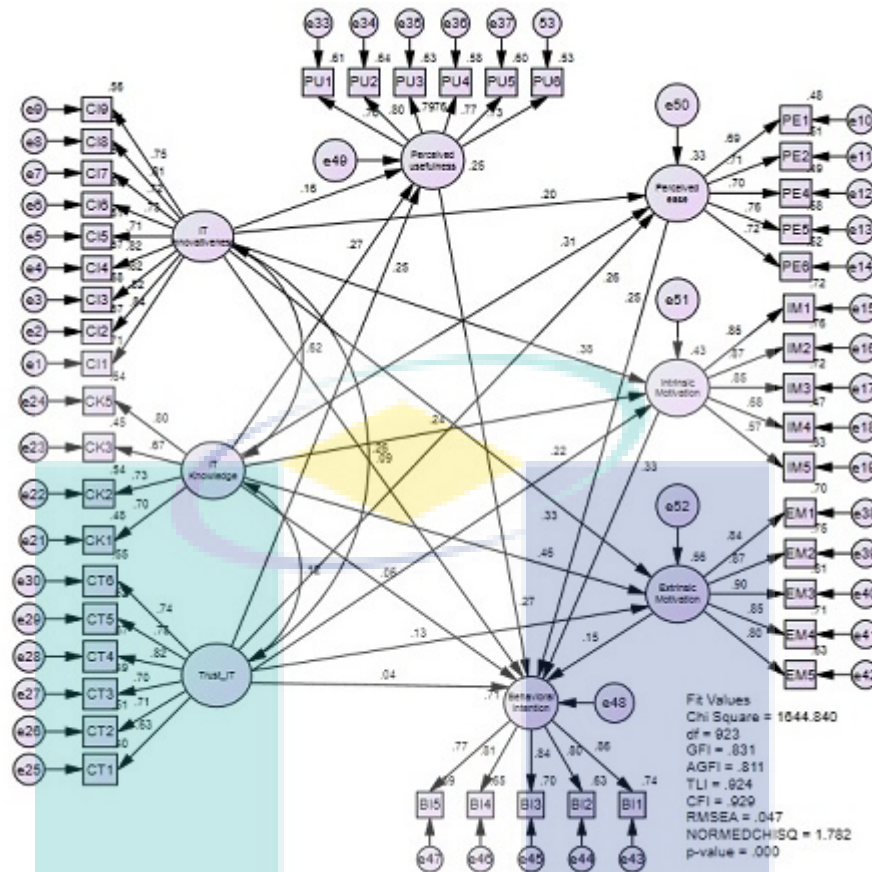
Figure 4.9: Re-specified model of the variables

The goodness of fit indices show that the model was acceptable; with a (chisq = 1644.840, df = 923, chisq /df = 1.782, P=0.000, GFI=0.831, AGFI = 0.811, TLI = 0.924, CFI = 0.929 and RMSEA=0.047) as shown in Figure 4.10. The path coefficients were all significant to the factors of attitude and behavioral intention, indicating that the users attitude was positively influenced to behavioral intention and IT knowledge, IT innovativeness and trust in IT; thus, having a positive influence on the user's attitude. But it was noticed that the relationship between user's IT characteristics factors and behavioral intention were not significant.

In order to reach at the most parsimonious model, Byrne (2013) suggests that all non significant pathways should be deleted from the model. Applying this suggestion, the deleting procedure was performed by removing one non-significant path at a time as suggested by (Holmes-Smith et al., 2006). They argued that

deleting one path at a time could possibly change the structural coefficients and significant levels.

4.8.1 Re-specified Model one

From the previous model three paths need to be deleted. The non significant path between IT knowledge and behavioral intention was first deleted as this path showed the lowest beta coefficient = 0.055 at p value 0.421. The goodness-of-fit indices indicated that this modified model fitted the data adequately (chisq = 1645.503, df = 924, chisq /df = 1.781, P=0.000, GFI=0.831, AGFI = 0.811, TLI = 0.924, CFI = 0.929 and RMSEA=0.047. But the bootstrapping value of two paths was still not significant.

However, an examination of coefficient parameter estimates after deleting this path indicated no major changes in the results. The hypothesized path between IT innovativeness, trust in IT and behavioral intention was still found to be not significant. Thus, the next step was to delete these paths.

TAM-MM competing model did not supported direct impact path of IT characteristics variables whereas attitude dimensions were supported directly with behavioral intention. It seems that the indirect impact of IT characteristics on attitude was consistently significant across three models namely, hypothesized, measurement and respecified models. Conversely, the path from attitude to intention was consistently significant across the same three models. Other direct paths reveal inconsistent relationships between differing structural models. For mediating effects of attitude on each hypothesized paths, it was found that the dimensions possess the mediating effects between IT characteristics and behavioral intention.
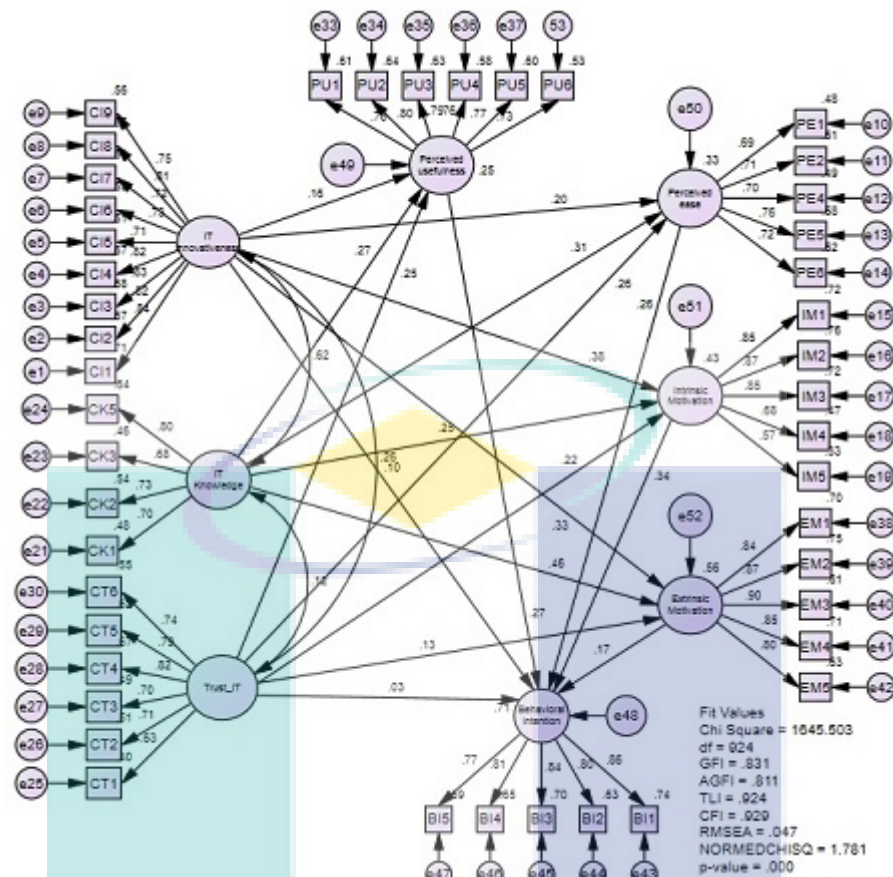
Figure 4.10: Re-specified Model one

4.8.2 Re-specified Model two

Figure.4.11 illustrates the structural model after removing one non significant path between trust in IT and behavioral intention. This left with only one path still to be deleted. After removing the path between trust in IT and behavioral intention as shown in figure 4.11, an examination of the goodness fit indices showed that the model is fitted the data appropriately adequately (chisq = 1645.900, df = 925, chisq /df = 1.779, P=0.000, GFI=0.831, AGFI = 0.811, TLI = 0.924, CFI = 0.929 and RMSEA=0.047).
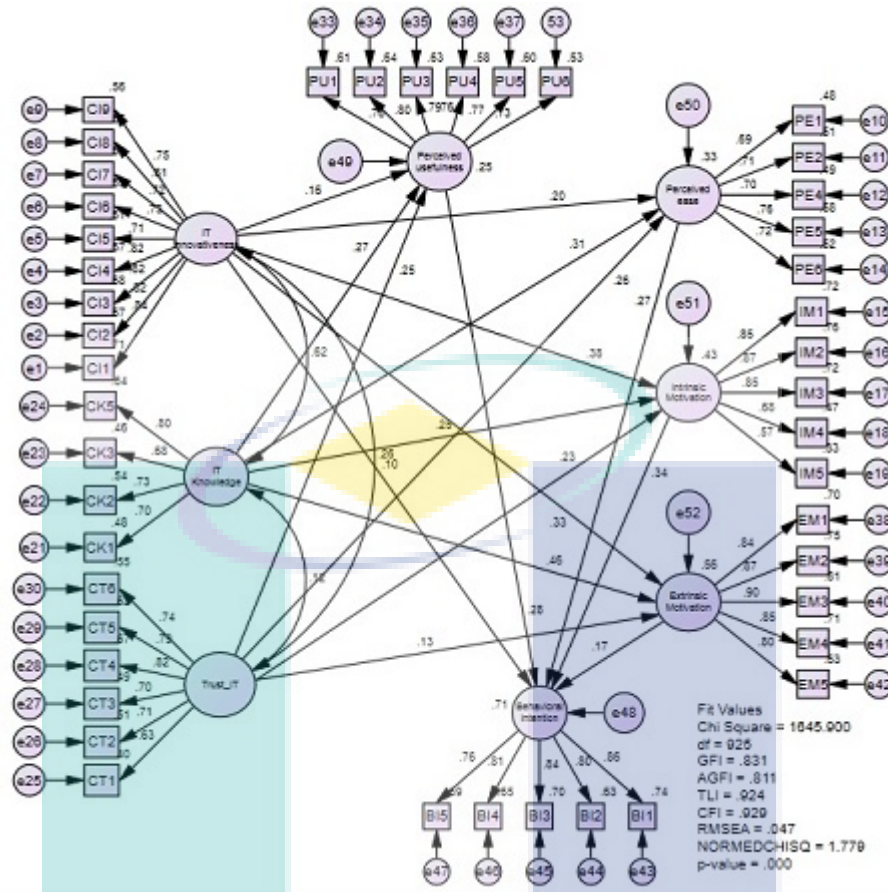
Figure 4.11: Re-specified Model two

4.8.3 Final model (full mediation)

Furthermore, after the deletion of the path between trust in IT and behavioral intention, still the bootstrap value between IT innovativeness and behavioral intention was not significant. Thus the final path deletion was conducted in structural model 3.

Figure 4.12 illustrates the structural model after removing the three nonsignificant paths. This left no paths from the three user's IT characteristics to behavioral intention. After removing the path of three constructs, an examination of the goodness-of-fit indices showed that the model fitted the data effectively (chisq = 1648.705, df= 926, p=.000). The GFI=.831, AGFI=.811, CFI=.929, TLI=.924, RMSEA =.047 and chisq/df = 1.782. Based on an examination of goodness-of-fit
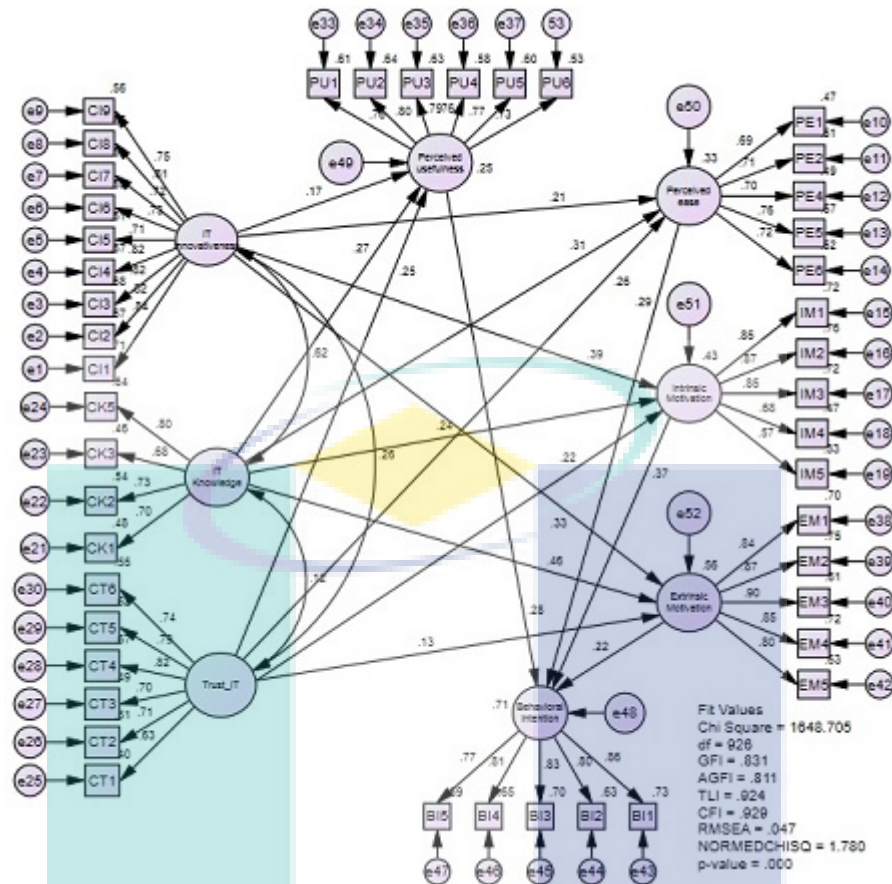
Figure 4.12: Re-specified model three (Fully mediated model)

indices including the normed chi-square value, structural model 4 appears to have a better fit compared to previous models. Table 4.14 shows that all the remaining hypothesized relationships (H1, H3, H4, H5 and H6) were statistically significant except H2.

Table 4.14: Standardized regression weights of re-specified model

Endogenous	Path	Exogenous	Standardized	S.E.	C.R.	P	Support
Perceived ease	< — —	IT Innovativeness	0.211	0.052	2.809	0.005	Yes
Perceived ease	< — —	IT Knowledge	0.308	0.074	3.903	***	Yes
Perceived ease	< — —	Trust in IT	0.258	0.048	4.269	***	Yes
Perceived usefulness	< — —	IT Innovativeness	0.167	0.061	2.248	0.025	Yes
Perceived usefulness	< — —	IT Knowledge	0.266	0.086	3.445	***	Yes
Perceived usefulness	< — —	Trust in IT	0.250	0.056	4.213	***	Yes
Intrinsic_Motivation	< — —	IT Knowledge	0.242	0.079	3.528	***	Yes
Intrinsic_Motivation	< — —	IT Innovativeness	0.386	0.057	5.679	***	Yes
Intrinsic_Motivation	< — —	trust in IT	0.224	0.051	4.257	***	Yes
Extrinsic_Motivation	< — —	IT Innovativeness	0.335	0.055	5.456	***	Yes
Extrinsic_Motivation	< — —	IT Knowledge	0.456	0.082	6.738	***	Yes
Extrinsic_Motivation	< — —	trust in IT	0.128	0.047	2.800	0.005	Yes
Behavioral_intention	< — —	Perceived ease	0.290	0.057	5.972	***	Yes
Behavioral_intention	< — —	Extrinsic Motivation	0.217	0.042	4.684	***	Yes
Behavioral_intention	< — —	Intrinsic Motivation	0.371	0.045	7.817	***	Yes
Behavioral_intention	< — —	Perceived usefulness	0.280	0.043	6.430	***	Yes

The bootstrapping analysis for perceived usefulness as mediator between IT innovativeness and behavioral intention showed that the indirect effect $= .046$ (0.167 * 0.280) was significant with a t-value of 4.339. Also as indicated by Preacher and Hayes (2008) the indirect effect 0.046, 95% confidence level and Bootstrapping Confidence index: [LL = 0.00, UL = 0.27] at significant level of p value 0.05 was accepted. Thus it can be concluded that the mediation effect between IT innovativeness and behavioral intention is statistically significant. The bootstrapping confidence indices for the constructs are depicted in the table.4.15.

Table 4.15: Bootstrapping estimated level

Endogenous	Path	Exogenous	Standardized	LL	UL	P
Perceived_ease	←	IT Innovativeness	0.145	0.020	0.281	0.027
Perceived_ease	←	IT Knowledge	0.289	0.144	0.475	0.001
Perceived_usefulness	←	IT Innovativeness	0.136	0.000	0.270	0.050
Perceived_usefulness	←	IT Knowledge	0.296	0.135	0.507	0.002
Perceived_usefulness	←	Trust in IT	0.235	0.118	0.386	0.001
Intrinsic_Motivation	←	IT Knowledge	0.278	0.106	0.493	0.003
Intrinsic_Motivation	←	IT Innovativeness	0.326	0.188	0.461	0.001
Extrinsic_Motivation	←	IT Innovativeness	0.300	0.178	0.425	0.001
Extrinsic_Motivation	←	IT Knowledge	0.556	0.385	0.756	0.001
Extrinsic_Motivation	←	Trust in IT	0.132	0.031	0.244	0.010
Intrinsic_Motivation	←	Trust in IT	0.217	0.103	0.357	0.001
Perceived_ease	←	Trust in IT	0.204	0.116	0.329	0.001
Behavioral_intention	←	Perceived ease	0.340	0.193	0.531	0.001
Behavioral_intention	←	Extrinsic_Motivation	0.196	0.110	0.301	0.001
Behavioral_intention	←	Intrinsic_Motivation	0.356	0.236	0.491	0.001
Behavioral_intention	←	Perceived_usefulness	0.277	0.168	0.424	0.001

Note: significant level threshold value is 0.05

Furthermore, the bootstrapping analysis for perceived ease of use as mediator between IT innovativeness and behavioral intention showed that the indirect effect $= 0.061$ (0.211 * 0.290) was significant with a p value less than 0.01. Similarly, the indirect effect 0.061, 95% confidence level and bootstrapping confidence index does not straddle a 0 in between indicating there is mediation. The following table.4.16 shows the indirect effect for the paths.

Table 4.16: Indirect effect of the constructs

Indirect effect	Beta	Remarks
CII-PU-BI	0.046	Accepted
CII-PEOU-BI	0.061	Accepted
CII-IM-BI	0.116	Accepted
CII-EM-BI	0.058	Accepted
CIK-PU-BI	0.081	Accepted
CIK-PEOU-BI	0.098	Accepted
CIK-IM-BI	0.098	Accepted
CIK-EM-BI	0.108	Accepted
CTI-PU-BI	0.065	Accepted
CTI-PEOU-BI	0.069	Accepted
CTI-IM-BI	0.077	Accepted
CTI-EM-BI	0.025	Accepted

Note: significant level threshold value is 0.05

From the result of indirect paths between the constructs and mediating effect of attitude variable it was noticed that the mediating effect of intrinsic motivation between IT innovativeness and behavioral intention was having beta value of 0.116 followed with extrinsic motivation having high mediating effect between IT knowledge and behavioral intention. Thus in conclusion it can be said that intrinsic and extrinsic motivation are the main mediating factors to explain the relationship between user's IT characteristics and behavioral intention.

From the square multiple correlation result, it is noted that the model fit criteria are solved and there is a high correlation between the perceived ease of use, intrinsic motivation and behavioral intention. With the significant standardized regression weights of all the constructs and items, the overall square multiple correlation was found to be 0.71 (71%) which is considered as very strong and significant finding of the study. Finally, from the results of the re-specified model shown in figure.4.12, it can be seen that the AGFI (0.8) (Acceptable fit criteria) and RMSEA less than (0.08) is fit (Hooper et al., 2008). This shows that the measurement model has a good fit with the data (Anderson and Fornell, 1994). Thus overall the model is fit.

4.9   Hypothesis testing

In the present study, all of the hypothesized relationships were supported, based on the SEM results except the mediating effect of perceived usefulness between IT innovativeness and behavioral intention. The path estimates for the hypotheses testing in the model show that both of the two hypothesized relationships were found to be positively related to the attitude and behavioral intention (H1, H2, H3, H4, H5 and H6). The empirical results for each hypothesis achieved the objectives of the present study. The standardized factor loading allowed the researcher to arrange the order of entry of variables based on causal priority, and are one of the most useful tools for assessing interaction effects. This procedure enables the partitioning of the unique variance explained by the interaction term above and beyond those accounted for by the main effects. The measurement model, which specifies and tests the relationships between the observed measures and their underlying constructs, provides a confirmatory assessment of construct validity (Bentler, 1986). The direct causal relationship among the latent constructs, as posited by the theory, was also conducted. The confirmatory analysis of each dimension was also carried out to confirm the items.

The hypothesis testing was accomplished by examining the completely standardized parameter estimates, critical ratio and probability level. The findings indicate that the latent constructs of exogenous and endogenous variables of the model are significantly related to behavioral intention. The SEM indicates that the two hypothesized paths in the theoretical model are at a significant level of 0.05 (Acock, 2008; Noether, 1991). The present study used a comprehensive, two-stage analysis, in which the measurement model was first, confirmed using CFA, and then SEM through structural model was performed to estimate the fit of the hypothesized model to the data. The 2nd order structural model analysis of user's IT characteristics and attitude was carried out to confirm that the three dimensions of each are

significant to measure in the setting.

Square multiple correlations is used in order to test the hypothesis generated from the theoretical framework of user's IT characteristics constructs and behavioral intention through dimensions of attitude as mediator. For the relationship between the dependent and independent variables to be significant, probability level of p value 0.05 was taken into consideration. It was also important to understand the variations in the level of the behavioral intention significantly through the dimensions of user's IT characteristics and mediating construct attitude. In order to test the hypothesis, variables were regressed on each of the independent variables together with the dependent construct.

Hypothesis one: There is a positive influence of user's attitude on user's intention to adopt AIS.

From the structural model of mediating variable attitude with behavioral intention of users in figure 4.12 it was found that in all the figures that attitude was having good and high influence on behavioral intention of users. Thus from the result of the table.4.17 it is confirmed that the hypothesis one is accepted.

Table 4.17: Results for hypothesis one

Exogenous	Endogenous	Beta coefficients	Remarks
Perceived usefulness	Behavioral intention	0.280	Accepted
Perceived ease of use	Behavioral intention	0.290	Accepted
Intrinsic motivation	Behavioral intention	0.371	Accepted
Extrinsic motivation	Behavioral intention	0.217	Accepted

Hypothesis two: There is a positive influence of IT characteristics on user's intention to adopt AIS.

Hypotheses two highlights the influence of IT characteristics that includes IT knowledge, IT innovativeness and IT trust on behavioral intention of the users to adopt

AIS.

Sub hypothesis H$_{2a}$: There is a positive influence of IT knowledge on user's intention to adopt AIS.

IT knowledge is a critical concept that argues its impact on various participatory activities of individuals. Knowledge of technology like AIS is very important from the digital perspective that spread information rich and meaningful engagement with with technology could have tremendous impacts on individual's work quality and empowerment. In this study, IT knowledge was tested having direct influence on behavioral intention of users to adopt AIS. The Table 4.13 result revealed that there is direct effect of IT knowledge with behavioral intention of users at significant level 0.05. Thus the sub-hypothesis H$_{2a}$ is rejected.

Sub hypothesis H$_{2b}$: There is a positive influence of IT innovativeness on user's intention to adopt AIS.

The second sub-hypotheses was too rejected as the results depicted in Table 4.13 showed no direct influence of IT innovativeness on behavioral intention. The result showed that there was only 8.9% of influence of IT innovativeness on behavioral intention with p value of 0.129 at p level of 0.05. Thus the sub-hypotheses H$_{2b}$ is rejected.

Sub hypothesis H$_{2c}$: There is a positive influence of IT Trust on user's intention to adopt AIS.

Trust is an expectation of the users for seeking benefits, actions and decisions. Trust is connected with risk and recognition that affect user's behavioral intention. With this regard this study assumed trust to have direct influence on behavioral intention to adopt AIS in the context of Libyan SMEs. The result provided in table 4.13 showed that the beta coefficient of 0.039 with p value of 0.401 was not significant. Thus the sub-hypotheses H$_{2c}$ was rejected.

Hypothesis three: There is a positive influence of IT characteristics on user's attitude to adopt AIS.

IT characteristics in this study consists of three main components: IT knowledge, IT innovativeness and IT trust. In order to test the hypothesis the components of IT characteristics were examined to user's attitude. Below are the sub hypothesis for the main hypothesis two:

Sub hypothesis H_{3a}: There is a positive influence of IT knowledge on user's attitude to adopt AIS.

Previous researchers (Chan and Ngai, 2007; Ghobakhloo et al., 2012; Jeon et al., 2006; Nov and Ye, 2008; Thong and Yap, 1995) confirmed that knowledge and IT experience have strong influence on the adoption of IT in SMEs. From the structural model result it was found that the beta coefficients of IT knowledge with attitude variables were significant and acceptable. Without knowledge transfer, it is very difficult for technology transfer.

Table 4.18: Results for sub hypothesis H_{3a}

Exogenous	Endogenous	Beta coefficients	Remarks
IT knowledge	Perceived usefulness	0.268	Accepted
IT knowledge	Perceived ease of use	0.266	Accepted
IT knowledge	Intrinsic motivation	0.242	Accepted
IT knowledge	Extrinsic motivation	0.456	Accepted

Thus, knowledge is the key control of technology that enables the individual to adopt the technology in their operations. According to Wynn (2008) it dependent on the user's knowledge of how to use the systems in an effective manner in order to support the information requirements of the decision makers and strategic planners. Woo (2007) examined the implementation of enterprise resource planning with knowledge of critical success factors and found that culture characteristics, management and style of the company have high impact of ERP successful implementation.

Usually, the owner of the SMEs is the entity responsible for the adoption of a new technology in their operations. Thus the sub hypothesis one between IT knowledge and attitude is accepted.

Sub hypothesis H$_{3b}$: There is a positive influence of IT innovativeness on user's attitude to adopt AIS.

From the result of structural model in figure 4.11 it was noted that the beta coefficients of IT innovativeness and attitude variables were significant. When it comes to examine the influence of IT innovativeness previous studies like Finkelstein (2005); Hameed et al. (2012); Yadav et al. (2007) agreed that CEO's attention is a key driver for innovation outcomes. Innovative CEOs are willing to take risks and would prefer solutions that have not been tried before. Therefore, it is believed that managing innovation activity with a new method or technology to perform new tasks and differentiate policies in the organization. Thus the sub hypothesis two is accepted.

Table 4.19: Results for sub hypothesis H$_{3b}$

Exogenous	Endogenous	Beta coefficients	Remarks
IT Innovativeness	Perceived usefulness	0.167	Accepted
IT Innovativeness	Perceived ease of use	0.211	Accepted
IT Innovativeness	Intrinsic motivation	0.381	Accepted
IT Innovativeness	Extrinsic motivation	0.333	Accepted

Sub hypothesis H$_{3c}$: There is a positive influence of IT trust in technology on user's attitude towards adopting AIS.

The results of the structural model in figure 4.11, it was noted that the beta coefficients of trust in IT and attitude variables were significant. According to previous studies like Kim et al. (2007); Pavlou (2003); Zhu et al. (2009) If the owners of SMEs have trust on technology, they are more likely to accept them. Furthermore, studies like (Aghdaie et al., 2011; Al-Somali et al., 2009; Corritore et al., 2003; Sukkar and Hasan, 2005) confirmed the importance of user's trust towards their attitude and

intention. Researches have shown that trust is a key element in technology success. This study also confirmed that IT trust have a strong influence on user's attitude. Thus the sub hypothesis three of main hypotheses two is accepted.

Table 4.20: Results for sub hypothesis H_{3c}

Exogenous	Endogenous	Beta coefficients	Remarks
trust in IT	Perceived usefulness	0.250	Accepted
trust in IT	Perceived ease of use	0.257	Accepted
trust in IT	Intrinsic motivation	0.224	Accepted
trust in IT	Extrinsic motivation	0.128	Accepted

Hypothesis four: Attitude mediates the relationship between IT knowledge and user's behavioral intention.

From the structural model it was found that the direct and the indirect effect between IT knowledge, attitude constructs and user's behavioral intention were significant. It was found that the direct effect of IT knowledge on behavioral intention was not significant whereas, the indirect effect between IT knowledge to dimensions of attitude to behavioral intention was significant. Furthermore, extrinsic motivation was having high mediating effect with IT knowledge and behavioral intention as compared to other dimensions of attitude (Table.4.15). Previous studies like Wang (2002) also confirmed that IT attributes have high impact on intention with mediating effect of attitude. Similarly, ALIa et al. (2012) mentioned that in the behavioral model antecedent variables of attitude leads to continuance intention. Liao et al. (2007) suggested that during the implementation stage of a technology, the effects of perceptual antecedents on behavior are mediated by attitude. As all the dimensions of attitude was having significant mediating effect, it is confirmed that there is full mediation effect of attitude between IT knowledge and user's behavioral intention. Thus H4 is significant and accepted.

Sub hypothesis H_{4a}: Perceived usefulness mediates the relationship between IT knowledge and user's behavioral intention.

According to the study performed by Abukhzam and Lee (2010) attitude affect system's responsiveness and influencing these attitude will have an effect on its utilization. Furthermore, studies like Chung et al. (2014); Koo et al. (2015); Shibchurn and Yan (2015) also confirmed that user's involvement have significant impact on perceived usefulness along with attitude and intention. This sub hypotheses assumed perceived usefulness to be having mediating effect between IT knowledge and user's behavioral intention. From the result of structural model it was found that the indirect effect between IT knowledge and perceived usefulness was 0.296 i.e. 29.6%. Similarly, the indirect influence of perceived usefulness on behavioral intention was found to be 0.277, i.e. 27.7%. Furthermore there was no direct influence of IT knowledge on user's behavioral intention of Libyan SMEs. Thus it is confirmed that there is full mediating effect of perceived usefulness between IT knowledge and user's behavioral intention. Thus sub hypotheses H_{4a} is accepted.

Sub hypothesis H_{4b}: Perceived ease of use mediates the relationship between IT knowledge and user's behavioral intention.

The full mediation model shown in figure 4.12 found that the direct effect of IT knowledge and behavioral intention was not significant whereas, the indirect effect of IT knowledge on perceived ease of use was found to be 0.289 i.e. 28.9%. Similarly, the indirect influence of perceived ease of use on behavioral intention was found to be 0.340, i.e. 34%. Thus it is confirmed that there is full mediating effect of perceived ease of use between IT knowledge and user's behavioral intention. Thus sub hypotheses H_{4b} is accepted.

Sub hypothesis H_{4c}: Intrinsic motivation mediates the relationship between IT knowledge and user's behavioral intention.

The sub hypotheses H_{4c} investigating intrinsic motivation mediating the relationship between IT knowledge and user's behavioral intention was found to be fully mediating significantly. The indirect effect of IT knowledge on intrinsic motivation

was found to be 0.278 i.e. 27.8% whereas, the indirect effect of intrinsic motivation on user's behavioral intention was found to be 0.356 i.e. 35.6%. The direct effect of IT knowledge on user's behavioral intention was found to be non significant. Thus it is confirmed that there is full mediating effect of intrinsic motivation between IT knowledge and user's behavioral intention. Thus the sub hypotheses H_{4c} is accepted.

Sub hypothesis H_{4d}: Extrinsic motivation mediates the relationship between IT knowledge and user's behavioral intention.

From the result of structural model it was found that the indirect effect between IT knowledge and extrinsic motivation was 0.556 i.e. 55.6%. Similarly, the indirect influence of extrinsic motivation on behavioral intention was found to be 0.196, i.e. 19.6%. Furthermore there was no direct influence of IT knowledge on user's behavioral intention of Libyan SMEs. Thus it is confirmed that there is full mediating effect of extrinsic motivation between IT knowledge and user's behavioral intention. Thus sub hypotheses H_{4d} is accepted.

Hypothesis five: Attitude mediates the relationship between IT innovativeness and user's behavioral intention

From the structural model it was found that the direct and the indirect effect between IT innovativeness, attitude constructs and user's behavioral intention were significant. From the four dimensions of attitude, all the sub hypothesis of attitude as mediating between IT characteristics and behavioral intention was found to be significant statistically. All other dimensions of attitude were found to be significant and having indirect effect IT innovativeness and behavioral intention. Thus it is confirmed that there is full mediation effect of attitude between IT innovativeness and user's behavioral intention. Ghobakhloo et al. (2012) mentioned that decision to accept and use innovative technology satisfying with IT affect the process of IT adoption. Accordingly, the characteristics of users should be taken into considera-

tion in the investigation of strategic activities, such as the adoption of innovation, including IT as a new technology Lefebvre and Lefebvre (1992). Thus H4 is significant and accepted.

Sub hypothesis H$_{5a}$: Perceived usefulness mediates the relationship between IT innovativeness and user's behavioral intention.

The full mediation model shown in figure 4.12 found that the direct effect of IT innovativeness and behavioral intention was not significant whereas, the indirect effect of IT innovativeness on perceived ease of use was found to be 0.136 i.e. 13.6%. Similarly, the indirect influence of perceived usefulness on behavioral intention was found to be 0.277, i.e. 27.7%. Thus it is confirmed that there is full mediating effect of perceived usefulness between IT innovativeness and user's behavioral intention. Furthermore, bootstrapping of indirect effect was found to be significant at p level of 0.05 when perceived usefulness was mediating influence between IT innovativeness and user's behavioral intention. Thus sub hypotheses H$_{5a}$ is accepted.

Sub hypothesis H$_{5b}$: Perceived ease of use mediates the relationship between IT innovativeness and user's behavioral intention.

From the result of structural model it was found that the indirect effect between IT innovativeness and perceived ease of use was 0.145 i.e. 14.5%. Similarly, the indirect influence of perceived ease of use on behavioral intention was found to be 0.340, i.e. 34%. Furthermore there was no direct influence of IT innovativeness on user's behavioral intention of Libyan SMEs. Thus it is confirmed that there is full mediating effect of perceived ease of use between IT innovativeness and user's behavioral intention. Thus sub hypotheses H$_{5b}$ is accepted.

Sub hypothesis H$_{5c}$: Intrinsic motivation mediates the relationship between IT innovativeness and user's behavioral intention.

The sub hypotheses H$_{5c}$ was also accepted as there was no direct influence of IT

innovativeness on user's behavioral intention. Furthermore, the indirect influence of IT innovativeness on intrinsic motivation was significant at 0.326 i.e. 32.6% at p value < 0.001. The indirect influence of intrinsic motivation on user's intention was also found to be significant at p-value < 0.001. Thus it is confirmed that the sub hypotheses H_{5c} is accepted.

Sub hypothesis H_{5d}: Extrinsic motivation mediates the relationship between IT innovativeness and user's behavioral intention.

The full mediation model shown in figure 4.12 found that the direct effect of IT innovativeness and behavioral intention was not significant whereas, the indirect effect of IT innovativeness on extrinsic motivation was found to be 0.300 i.e. 30%. Similarly, the indirect influence of extrinsic motivation on behavioral intention was found to be 0.196, i.e. 19.6%. Thus it is confirmed that there is full mediating effect of extrinsic motivation between IT innovativeness and user's behavioral intention. Thus sub hypotheses H_{5d} is accepted.

Hypothesis six: Attitude mediates the relationship between IT trust in technology and user's behavioral intention

From the structural model in figure 4.12, it was found that the direct effect of user's trust in technology was not significant to user's behavioral intention whereas, the indirect effect between trust in IT, attitude constructs and user's behavioral intention were significant implying that technology users consider perceived ease of use as a basic requirement for system design. All the dimensions of attitude were found to be significantly performing mediating effect between IT trust and behavioral intention. Previous research has consistently argued that there is a positive relationship between trust and attitude (Grazioli and Jarvenpaa, 2000; Suh and Han, 2003). It was also found that there is a time cushion between the time of first technology usage and the time of belief formation. On the whole, these results reinforced

the theory that a relationship between belief (trust and perceived usefulness) and intention was better explained when it was mediated by attitude (Kim, 2012).Thus it is confirmed that there is full mediation relationship of attitude between trust in IT and user's behavioral intention. Thus H6 is significant and accepted.

Sub hypothesis H_{6a}: Perceived usefulness mediates the relationship between IT trust and user's behavioral intention.

Ma and Liu (2004) also found that usefulness is important to predict intention. The final structural model depicted in figure.4.12 showed the direct and indirect effect between perceived usefulness, IT trust and user's behavioral intention. The results showed that the direct effect between IT trust and user's behavioral intention was non significant. Further, the indirect effect of IT trust on perceived usefulness was found to be 0.235 i.e. 23.5%. The indirect effect of perceived usefulness on user's behavioral intention was significant at 0.277 i.e. 27.7% at p value < 0.001. Thus it is confirmed that there is full mediating effect of perceived usefulness as attitude dimension between IT trust and user's behavioral intention. Thus the sub hypotheses H_{6a} is accepted.

Sub hypothesis H_{6b}: Perceived ease of use mediates the relationship between IT trust and user's behavioral intention.

The result of structural model found that the indirect effect between IT trust and perceived ease of use was 0.204 i.e. 20.4%. Similarly, the indirect influence of perceived ease of use on behavioral intention was found to be 0.340, i.e. 34%. Furthermore there was no direct influence of IT trust on user's behavioral intention of Libyan SMEs. However, previous researchers like Gefen and Straub (2004); Gong et al. (2004); Guriting and Ndubisi (2006); Ramayah (2012); Wei et al. (2009) confirmed the influence of perceived ease of use on intention. Thus it is confirmed that there is full mediating effect of perceived ease of use between IT trust and user's behavioral intention. Thus sub hypotheses H_{6b} is accepted.

Sub hypothesis H_{6c}: Intrinsic motivation mediates the relationship between IT trust and user's behavioral intention.

This sub hypotheses highlights the mediating effect of intrinsic motivation between IT trust and user's behavioral intention. Flavián and Gurrea (2009); Wei et al. (2011) confirmed positive relationship between motivation and user's attitude. furthermore, Davis et al. (1992); Igbaria et al. (1997); Teo et al. (1999); Venkatesh (1999) conferred that the adoption of a new technology depends particularly on both extrinsic and intrinsic motivators. In addition,according to the findings of Saadé and Bahli (2005) intrinsic motivation was considered as a predictor for influencing the intention to use technology concerning more importance with enjoyment. The direct effect between IT trust and user's behavioral intention was found to be non significant. furthermore, the indirect effect between IT trust and intrinsic motivation was found to be 0.217 i.e. 21.7% at p value < 0.001. In addition, the indirect effect between intrinsic motivation and user's behavioral intention was found to be 0.356. i.e. 35.6%. Thus the significant indirect effect and non significant direct effect between independent variable and dependent variable (user's behavioral intention) confirms that there is full mediating effect of intrinsic motivation between IT trust and user's behavioral intention. Thus the sub hypotheses H_{6c} was significantly supported.

Sub hypothesis H_{6d}: Extrinsic motivation mediates the relationship between IT trust and user's behavioral intention.

Studies like Fagan et al. (2008); Teo (2011) found that there is a positive impact of extrinsic motivation on the behavioral intention. Furthermore,Duvall (2012) mentioned that extrinsic motivation deals with performing something that leads to valued outcomes in job tasks and productivity. Proper recognizing of extrinsic motivation has been considered as crucial issues for managers. The direct and indirect effect between extrinsic motivation, IT trust and user's behavioral intention was

highlighted in the structural model figured in 4.12. The results showed that the direct effect between IT trust and user's behavioral intention was non significant. Further, the indirect effect of IT trust on extrinsic motivation was found to be 0.132 i.e. 13.2%. The indirect effect of extrinsic motivation on user's behavioral intention was significant at 0.196 i.e. 19.6% at p value < 0.001. Thus it is confirmed that there is full mediating effect of extrinsic motivation between IT trust and user's behavioral intention. Thus the sub hypotheses H_{6d} is accepted.

The result of path analysis indicated a significant positive influence of IT knowledge, IT innovativeness, trust in IT and attitude variables, and between attitude constructs with behavioral intention. The square multiple correlations (SMC) of 0.71 (71%) showed the level of contribution (adjusted R square) of the independent variable to attitude and attitude to behavioral intention variable. Standardized estimate of user's IT characteristics to attitude and attitude to behavioral intention confirmed the positive direct influence in the model. The factor loading of the direct relationship also show that the attitude has a higher degree of effect on behavioral intention of users to adopt AIS in SMEs of Libya.

4.10   Summary

The purpose of the survey instrument used in this study was to investigate the extent to which the user's IT characteristics improve behavioral intention of owners or managers of SMEs in Libya to adopt AIS. Regression analysis and confirmatory factor analysis were utilized to test the hypotheses postulated in the study. Null hypotheses were rejected, accepting all the real hypotheses except H2 investigating impact of IT characteristics on user's behavioral intention. In addition it was found that IT knowledge was having high beta coefficient with attitude and behavioral intention, confirming that knowledge is more important factor that makes the user's attitude and intention to adopt AIS.

CHAPTER 5

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1   Introduction

This chapter is the fifth and final chapter of the study. A conclusion is drawn based on the previous four chapters. The main objective of this study was to investigate the characteristics of users in the context of Libyan SMEs towards the adoption of AIS. The nature of this investigation was based on testing both the technology acceptance model and self-determination theory as applied in technology acceptance and motivational research. The interest of this research arose from the study of the role played by modern accounting in IS deployment within an organization to add overall efficiency and effectiveness. The following discussion demonstrates the contribution of the research, its limitations, implications of practices and recommendation for further research.

This thesis was developed and tested empirically on a model that leads to a better understanding of the relationships and influence of TAM and MM factors towards AIS adoption in Libyan SMEs. In order to answer the research questions, this model extends IS research by investigating the effects of IT characteristics on user's attitude and behavioral intentions in Libyan SMEs on the adoption of AIS. Furthermore, it examines the influence of attitudes as a mediating effect between IT

characteristics and behavioral intentions. The results of this thesis largely support the hypothesized relationships proposed in the theoretical model. In particular, the results suggested that IT characteristics are positively influenced by his knowledge, innovativeness and trust. In addition, it has been found that intrinsic and extrinsic motivations are important determinants of user's attitude. These results demonstrate that in eliciting behavioral intention to the adoption of AIS, it is not only necessary for managers to develop a god system of information sharing within the organization, but to also consider motivations and perceptions of decision makers in the SMEs. The results are discussed in more detail in the following sections.

5.2   Recapitulation of the study

The findings of this research show that attitude plays a mediating role for enhancing behavioral intentions of users in Libyan SMEs to adopt AIS. The dimensions that increase the importance of user's attitudes were extrinsic and intrinsic motivations. To recapitulate, several studies had confirmed that perceived usefulness and perceived ease of use to be main factors for technology adoption and implementation. But this study found that not only perceived value, but also users motivation to accept the system are both equally important for the unique competitiveness and growth of SMEs.

The objective of this study is to address the influence of IT characteristics and attitude of users towards their behavioral intentions to adopt AIS in Libyan SMEs. Adopting the accounting IS in the organizational perspective summary is one of the reports that deal with the consideration of or type of organization adopting AIS. Surprisingly, adopting AIS technology mainly depends on the attitude of decision makers in the SMEs (finding 1). It was also found that IT knowledge of the decision makers increases their attitudes and motivations to adopt the system. In this study, behavioral intention to adopt the system is tied to accounting settings. Picking up

this concept, this study clearly shows that significant progress has been made in the knowledge of decision makers (finding 2), yet it is also necessary for users to be IT innovative (finding 3) and have trust in the system (finding 4) in order to increase the system's relevancy. A consequence for researchers is that they also need to address lesser technology usage and adoption issues emerging from the SMEs. Such enterprises are not that interested in process technology but certainly do aim to improve their IS. Thus, the application of behavioral intentions in adopting the system is significantly higher and requires focus on organizational issues in order to strengthen up the demand on AIS and the development of an innovative and less-complex IS. The motivational model distinguishes the effects of extrinsic and intrinsic motivations in influencing the levels of technology acceptance.

5.3   Discussion of findings

There is a need to review how the data collected had responded to the research questions. In this section, the accumulated data will be discussed in response to the research questions. Results and findings of similar research questions will be discussed and compared to the results of this current research, followed by a concluding analysis. The current study examined technology acceptance factors and motivational factors that influence AIS adoption among Libyan SMEs. After the evaluation of three structural equation models with statistical, empirical, and conceptual evidence, the results concluded that Figure 4.12 had best captured the process of AIS adoption among Libyan SMEs. Specifically, the final model indicated that user's intrinsic and extrinsic motivations and IT innovativeness collectively influence the adoption of AIS. However in the current sample, IT knowledge has more influence on attitude dimensions as compared to IT innovativeness and trust in IT. In addition, perceived usefulness is relatively more important when determining one's attitude towards adopting AIS. Moreover, confirmatory analyses found that attitude is significantly related to user's intentions to adopt AIS but at the same time, user's

IT characteristics have no direct influence on behavioral intention. Similar findings were examined by Hanafizadeh et al. (2014); Prompattanapakdee (2009) where level of knowledge and system characteristics were found to have no influence on adoption intentions.

The study aims to determine the prevailing accessibility levels of accounting IS and the importance of user's attitudes in improving their behavioral intentions by determining the adoption levels of these technologies, manager's willingness to use electronic technologies for accounting information, and identifying factors that facilitate or hamper the use and integration of electronic technologies in accounting and information advancement. Quantitative data collection procedures yielded results that pointed to this study's conclusions. Also, it should be noted that SMEs need to progressively make improvements in the area of electronic technologies.

Factors facilitating the present adoption level: A number of factors have facilitated the present adoption levels. One major factor is technology availability. Having AIS that is connected to the Internet will not only introduce users to the technology, but in a number of ways encourage them to seek ways of using it. A number of scholars and researchers have identified factors that tend to hinder the adoption, diffusion, and use of technology in teaching and learning (Baltaci Goktalay and Huguet, 2008; Favero and Hinson, 2007; Fulford et al., 2008). This study identified similar factors in most cases. These factors are lack of accessibility to available equipment, lack of knowledge and skills to use the technologies, lack of involvement in decision making involving electronic technologies by faculty members, lack of infrastructure to support the technologies, and lack of technical, pedagogical and administrative support. Although the introduction of AIS and the Internet will most certainly increase user's engagement with these technologies, it is important to show the effects of such engagement on faculty member's perceptions concerning technology used for accounting information and customer communication.

IT characteristics were found to have less direct effects on behavioral intentions of users towards adopting IS, which is similar to the findings provided by (Chen and Chen, 2010). Igbaria et al. (1996) also found that perceived usefulness and perceived ease of use play an important role towards the adoption of technology whereas external characteristics do not explain system adoption.

Attitude and behavioral intention

Any developments in the area of electronic technologies should be seen from the overall perspective of global and local developments. Perceptions gathered from the owners of Libyan SMEs illustrated that their attitude towards accepting the system would not be affected by the technological processes complexity. Most respondents confirmed that technology complexity is not an issue for technology adoption, but the access to AIS in developing countries like Libya is still in its early process.

Research question one sought to determine the role that attitude plays in determining the behavioral intentions of users. The study findings render evidence to suggest that risk and attitude are the critical barriers experienced by non-adopters. Thus, professional development and training, organizational support, work design, and modification have been identified in numerous studies as being central to adoption and integration prospects. Furthermore, user's perceptions of using the system in an organization also impact its adoption. Hence, if users perceived technology as having a positive impact towards this effort, they are likely to get motivated to integrate it into their work. Hanafizadeh et al. (2014) found that perceived ease of use, perceived usefulness and other perceived factors like perceived risk and perceived costs are significantly associated with the adoption of technology. Tong (2009) found that perceived usefulness is an important factor for e-recruitment and Guriting and Ndubisi (2006) confirmed that attitude plays a significant role in internet banking adoption. Borneo's study also confirmed that attitude has a significant effect on

behavioral intentions of users towards AIS adoption.

However, Lau and Woods (2008) found that "user's belief and attitude have a significant influence on behavioral intention and accurate use of the objects or systems". TAM is a specific model developed to disclose and predict user's computer usage behavior. Using different methodologies, numerous studies have found that PU and PEOU correlate well with IT acceptance across a wide range of IS (Gefen et al., 2003; Venkatesh et al., 2002). Furthermore, previous researchers like Gefen and Straub (2004); Gong et al. (2004); Guriting and Ndubisi (2006); Wei et al. (2009) confirmed the influence of perceived ease of use on intention.

In addition, according to Ducey (2013) individual reactions towards a piece of technology influence their intentions to use the technology. Lee et al. (2005) suggested that the investigation of technology acceptance should be grounded in user's extrinsic and intrinsic motivations, which in turn can inform organizations on devising efficient strategies to promote e-learning in the workplace. Thus it is confirmed that individual's attitudes play a significant role towards the behavioral intentions of users in adopting AIS. Furthermore, it was also found that motivational factors outperformed perception factors in influencing behavioral intentions to adopt AIS.

IT knowledge and behavioral intention

Research question two sought to determine the influence of IT knowledge on user's behavioral intention to adopt AIS in Libyan SMEs. Implementation of technology in a firm is very important to increase their productivity and efficiency. Appropriate knowledge is a critical success factor in overcoming the issue. Highly-trained and knowledgeable employees use complex workplace systems that are integral for performing their professional roles. Prior research shows that knowledge plays an important role in influencing decision processes and behaviors. Thus, it was hypothesized that more knowledgeable persons will be more likely to accept technology in

their accounting and professional roles. The finding of this study revealed that there is no direct effect of IT knowledge on user's behavioral intentions in the adoption of AIS at a significance level of greater than 0.05. This indicates that there is a need to investigate the mediating effects of attitude on the relationship between IT knowledge and behavioral intentions. Thus, there is no direct influence of IT knowledge on user's intentions to adopt AIS in Libyan SMEs.

IT innovativeness and behavioral intention

Research question three investigated the role of IT innovativeness in improving user's intentions to adopt AIS. Studies like (Cramm, 2008; Ismail and King, 2005) have pointed out the potential contribution of IT in terms of increase in productivity, particularly in SMEs firms and the need to develop strategy, as well as the need to continue investing in such a strategy of IT to achieve continuous advancement. Similarly, Carmen and María José (2008) provide evidence through statistical modeling that performance is enhanced through technological and organizational innovation. Furthermore, Porter (1985) mentioned that technological innovations can have important strategic implications for individual decision makers and can greatly influence industries as a whole.

Technology innovation in the construction of AIS does not involve any fundamental accounting process, but it provides a unique opportunity to influence the intent of a firm's personnel to adopt the system. Findings of this study revealed that there is no direct influence of IT innovativeness on user's intentions to adopt AIS in Libyan SMEs. The study has considered that attitude plays a mediating role in the relationship between IT innovativeness and user's intentions. Innovation that fosters competitiveness, productivity and market value is considered an essential force for starting and fueling the engine of growth. Firms accelerate their growth with the rhythm of innovation and expansion of their technological capabilities. Thus, investments in innovation based policies and technologies result in the economic progress

of the firm and also the nation.

IT trust and behavioral intention

Research question four investigated the role of IT trust in improving user's behavioral intentions to adopt AIS. Trust has been found to be a significant factor influencing the adoption of technology. During situations of high risk and new vulnerabilities, trust becomes very crucial. For instance, Libyan SMEs are often not aware about technology vulnerability and service delivery, thus trust is absent. Trust is linked to risk factors, so high-risk technologies are less likely to be adopted by the users due to distrust in such technologies. This research studied the trust placed in the technology used to deliver accounting services in Libyan SMEs. Findings revealed that there is no direct influence of IT trust on user's behavioral intentions in adopting AIS for significance levels above 0.05.

Mediating effect of attitude between IT knowledge and behavioral intention

Research question five highlighted the mediating effects of user's attitudes on the relationship between IT knowledge and user's behavioral intentions to adopt AIS. Motives drive human activities, and the motive must be of a certain kind (Kant, 2002). Motivation theorists often separate motivation into two different classes: extrinsic and intrinsic as the different causes that lead to action. Thus, intrinsic motivation is an important motivator that affects learning, adaptation, and competencies and is necessary for human development (Deci and Ryan, 1985b). Intrinsic motivation is confirmed to be a powerful source of behavioral drive when a person has the opportunity to decide user's behaviors autonomously. User's attitudes have been segregated into four dimensions that are perceived usefulness, perceived ease of use, intrinsic motivation and extrinsic motivation. This study also contributes to the literature on technology acceptance in general by focusing on the usage of technology in the workplace by professionals and by measuring user's intentions and knowledge.

Due to the different types of IS users, it is very important to know the user's IT knowledge and attitudes to identify its association with the intentions to adopt the system. While moving from manual accounting to computerized AIS, it potentially improves organization's ability to support numerous processes like knowledge transfer while realizing that this benefit depends on the ability of organizations to develop and maintain AIS in workplaces where individuals are motivated to participate and contribute. Furthermore, Phang et al. (2009) mentioned that it is important not only to develop and adopt the system, but also to maintain it. In IS, content contribution triggers individuals to visit the system, view its content and use it to interact with each other. From the path coefficients depicted in Figure 4.12, it was found that the indirect effects of the relationship between IT knowledge and attitude dimensions are significant according to the significant path coefficient of attitude dimensions to behavioral intentions.

Mediating effect of attitude between IT innovativeness and behavioral intention

Research question six addressed the mediating effects of user's attitudes on the relationship between IT innovativeness and user's behavioral intentions to adopt AIS in Libyan SMEs. When firms identify a new system such as AIS to be reliable and acceptable, accountants consider themselves more knowledgeable about their professional roles, indicating that they will use the system more fully. This suggests that the users are more likely to respond well to technology innovation in the workplace. In addition, users who are less in command of their professional roles may feel threatened by major changes in their ways of performing tasks. Individuals can be motivated to contribute content due to many different factors (Kankanhalli et al., 2005; Wasko and Faraj, 2005). It was found that the effects of technological innovation varies by role. Findings revealed that firms can improve the system adoption process by identifying user's task knowledge and technology innovativeness

as well as promoting the system's functionality. The statistical analysis provided in Figure.4.12 indicates that there is a mediating effect of attitude on the relationship between IT innovativeness and behavioral intentions.

Mediating effect of attitude between IT trust and behavioral intention

The final research question, question seven investigated the mediating effects of user's attitudes on the relationship between IT trust and behavioral intentions to adopt AIS. When trust is high, risk will have less of an impact on the formation of attitudes. The direct effects of IT trust and behavioral intention showed no significant impact between them, whereas the indirect effects with attitude as the mediating effect were found to be significant. Thus, the higher the trust towards technology, the more positive the user's attitudes towards adopting the system.

According to the study performed by Holden and El-Bannany (2004) investigating the determinants of bank profitability using IS system in the UK found that investing in information technology system for long term increases bank profitability. In addition, study performed by Graffeo et al. (2004) also showed that trust is significantly determined by perceived competence, truthfulness and experiential attitude. It was also found that trust have no direct influence on purchase intentions. However, Aghdaie et al. (2011) in the field of technology acceptance identified the factors affecting the attitude of trust in Internet purchasing from the perspective of consumers. The descriptive survey research using participants of online members revealed that the mode of payment and information quality have high influence on perceived ease of use.

The study also found that attitude plays a mediating role on the relationship between user's IT characteristics and behavioral intentions towards adopting AIS, and this was also supported by (Alam and Rashid, 2013; Hassan et al., 2012; Yasin et al., 2009). According to Bandura (2002) intrinsic motivation reflects human's

natural propensity to learn and assimilate. Extrinsic motivation, on the other hand, varies considerably in its characteristics and thus can either reflect external control or self-regulation. Furthermore, Suki and Suki (2011) mentioned that perceived ease of use is believed to directly influence user's attitudes and found that PEOU is also significantly related to behavioral intention. It was also found by Baard et al. (2004); Clark and Mayer (2011); Fagan et al. (2008) that intrinsic motivation has a statistically significant direct impact on user's intentions to adopt the IS system. Thus the informational aspect delivers self-determined competence that enhances intrinsic motivation while the controlling aspect conveys an external perceived locus of causality that reduces intrinsic motivation. Thus from the evidence of previous studies it is confirmed and supported that attitude plays a mediating role for the adoption of an IS.

5.4   Research Implications

Several implications can be drawn for research and practices based on this study. First, there is a specific and significant association on the relationship between IT knowledge, AIS adoption and its effectiveness. Thus, this study complements previous research by having supported this association within a Libyan context. The contribution provided in the above section summarizes the main hypothesis, objectives and outcomes achieved. According to the research findings, the existing body of knowledge has been expanded with this study's contribution. The following discussions provide an outline of the research implications.

5.4.1 Implication for practice

From this study findings, SMEs are able to realize that planning for IS adoption in the organizational context is a very crucial factor that should be taken into consideration along with the attitudes of decision makers and users towards system

adoption. The process of carrying out adoption plans with ultimate success must be planned carefully. Planning processes like rationality, adaptability and intuition should be utilized by management that operationalizes different planning process approaches. Knowing an effective planning process for the IS adoption in the development of IS adoption is important for its successful implementation. This study provides a structure where attitude dimensions are validated in separate measurement models, and all the dimensions are modeled as mediation constructs in the path analysis model.

The hypothesis one for the study investigating the positive influence of user's attitude on their intention to adopt AIS was accepted statistically. This evidenced that managers having positive attitude are more likely to increase their behavioral intention to adopt the system. No doubt usage of AIS is a challenge, but its existence in the organization would increasing competitiveness of the SMEs in the near future. Managers or owners of the SMEs must understand that increase in the quality of information would result with increase job usefulness and skillful efforts in the employees. Previous researchers like (Chan and Ngai, 2007; Ghobakhloo et al., 2012; Jeon et al., 2006; Nov and Ye, 2008; Thong and Yap, 1995) confirmed that knowledge and IT experience have strong influence on the adoption of IT in SMEs. The second hypothesis for the study investigated the positive influence of IT characteristics on user's intention. This hypothesis for the study was rejected. This result showed that lack of knowledge, innovativeness and trust would result with decline or lack of adoption skills. Prior research shows that knowledge plays an important role in influencing decision processes and behaviors. The rejection of this hypothesis indicate that owners or top management of SMEs in Libya are not highly knowledgeable about the system and its importance for their organization. Thus this study would be a benchmark for such SMEs to motivate them for enhancing their knowledge on the importance and benefits of AIS for their firm value.

The third hypothesis for the study was investigating positive influence of IT characteristics on user's attitude. It had already been confirmed from the findings that there is direct positive influence of IT knowledge, IT innovativeness and IT trust on user's attitude. Factors like lack of accessibility to available equipment, lack of knowledge and skills to use the technologies, lack of involvement in decision making involving electronic technologies by the employees, lack of infrastructure to support the technologies, and lack of technical expertise are the real challenge that the Libyan SMEs are facing. This challenge can only be overcome if the owner or top management take an effective decision to make the firm technologically advanced. Attitude of the decision makers plays an important role in such cases to find solution to the challenges of technology adoption. Finally, Attitude was hypothesized (H4, H5 and H6) to be mediating between IT characteristics and behavioral intention to adopt AIS. Statistical evidence from this study confirmed that attitude of the decision makers influence behavioral intention positively along with IT characteristics. The finding was supported by previous studies like (Alam and Rashid, 2013; Hassan et al., 2012; Yasin et al., 2009). As research implication, decision makers must respond well to the technological advancement process in the workplace. However, the decision makers who are less in command of their professional roles may feel threatened by major changes in their ways of performing tasks. Furthermore, only adoption of the system is not enough for the firm to gain competitive advantage, but the maintaining of such system is equally important.

From the investigation it was found that Libyan SMEs have positive attitudes on AIS adoption if the planning process is effectively performed. Managers of SMEs usually focus on the usefulness of the technology, whereas owners or professionals focus on the motivation to use the technology. Perceived ease of use was found to be a less significant factor affecting the intentions of users. Thus, improving the AIS adoption process is vital for AIS success. In Libyan SMEs, the data showed that knowledge should be used for the deployment of an IS that is best suited for

the organizations. This approach is worth taking into consideration given that most Libyan SMEs are in the evolving stage of their maturity level.

5.4.2 Implication for practice of AIS process

The AIS adoption measures used in this study are well established and have long been approved by prior studies. Thus, SMEs who want to assess their degree of AIS adoption level can always rely on these robust measures to assess the extent of the plan's viability. Although the construct measurements contain three main dimensions, in this study all three dimensions proved to be valid, specifically the key planning objective. Improvement in the planning capabilities dimension was shown to be invalid in the current research. Managers can improve their AIS outcomes by adopting more measurement items for the fulfillment of the key objective construct dimensions, and can perhaps improve on their capability by considering the measurement items for their adoption outcomes. In addition, owners should realize that a great level of AIS adoption is associated with its process and context. Therefore, by selecting AIS adoption, SMEs will follow through on the implementation, and along with organizational context will affect the level of AIS implementation directly and indirectly through AIS adoption.

5.5   Contribution of the study

The following discussion provides reports on the contribution of the study. This section is divided into the following sub-sections: 1) contribution to theory; 2) contribution to research methodology and 3) contribution from the research model.

5.5.1 Theoretical contributions

The theoretical utilization and methodology followed in this study is discussed in this section. The causal relationships between the research constructs were gained from the technology acceptance model of IS and self-determination theory of motivation. Thus, by applying Davis (1989) TAM and Deci and Ryan (1985a) SDT, the research was able to construct a model of technology adoption between AIS contexts, processes and importance in Libyan SMEs. The strength of IS is that it emphasizes innovation of pre-adoption expectations and post-adoption confirmation beliefs (Hung et al., 2011; Venkatesh et al., 2011). Intrinsic and extrinsic motivations, on the other hand emphasizes fulfillment of basic needs and development of genuine user-centric motivations, so they are important elements in this theory. Thus the research model and hypothesis were soundly generated and developed from strong theoretical backgrounds; they were also supported by existing empirical research findings. As a result, the research was able to successfully test the theory in Libyan SMEs and confirm the causal relationship in the hypothesis, illustrating that the theory is robust and valid in its application to developing countries such as Libya.

5.5.2 Contribution from the research model

This research makes a substantive contribution and gives meaningful insight into investigating the mediating effects of attitude, which includes the motivational factors in the acceptance model as suggested by (Venkatesh et al., 2003). He said that user's motivations play a crucial role on the adoption of technology. Building on these relationships, the study developed and tested a model of how user's IT characteristics (IT knowledge, IT innovativeness, and trust in IT) influence user's behavioral intentions to adopt AIS in the context of Libyan SMEs through the mediating effect of attitude.

The model is an excellent fit to the data set, at a confidence level of 95%. Within the model, the flow of direct and indirect effects is tested. As a result, this research extends beyond other studies, which mainly restrict themselves to investigating separate aspects, at best investigating the relationship between two constructs. This study offers an important confirmation of AIS adoption processes under the influence of user's IT characteristics. Attitude construct consists of two dimensions (perceived usefulness and perceived ease of use) from TAM and two dimensions (intrinsic motivation and extrinsic motivation) from SDT and represents the nature of the dimensions by focusing on the comprehensive adoption process. The results suggested that there are indirect effects of user's IT characteristics on behavioral intentions with attitude acting as mediator. The findings suggested that when AIS provides good results, user's intentions to learn AIS will increase and when users enjoy using AIS, it increases the user's motivations and leads to comprehensiveness, focus and intuition to further adopt AIS in their working environment.

This is new knowledge and an important finding. Whilst this is beyond the scope of this study, the research background has the capacity to be explained further. To go a step further, the model suggests that in order to achieve and increase AIS adoption, SMEs must focus on increasing users or decision maker's motivations as a challenge with an intention of collaboration rather than creativity, as well as competitive rather than controlling leadership aspects.

5.6   Contribution to the constructs

5.6.1 Contribution to Information Technology characteristics

The user's IT characteristics construct extracted from Thong (1999) is one of the main constructs for this study. This construct comprises of three dimensions: 1) IT knowledge, 2) IT innovativeness and 3) trust in IT. Content validity, convergent validity, discrimination validity and composite reliability for these dimensions were achieved. The discussion above suggests that this study has contributed to the construct in the following elements:

1. It validated the measured items for user's IT characteristics from Thong et al. (1996) with managers being responsible for AIS adoption in Libyan SMEs.

2. It confirmed that the major dimensions of IT characteristics are the successful elements for AIS adoption in Libyan SMEs.

5.6.2 User's attitude contribution

This study uses attitude as a mediating effect for the measurement of technology adoption, which is built upon (Davis, 1989; Venkatesh et al., 2002) study. Four dimensions were utilized for the attitude construct which acts as a main contribution conducted for this study. They were perceived usefulness, perceived ease of use, intrinsic motivation and extrinsic motivation. Out of the four dimensions, the findings suggested that intrinsic and extrinsic motivations play an important role in examining the attitude of users towards the adoption of AIS in Libyan SMEs. In the workplace context, extrinsic motivators are not as effective as intrinsic motivators. This finding was also supported by studies like (Baard et al., 2004; Yoo et al., 2012). From the perspective of classic motivational studies, the support for the research findings is also adequate. Ryan and Deci (2000) also agreed that interpersonal events

and structures (like rewards, communication, and feedback) could enhance intrinsic motivation because exterior environments make people feel competent or satisfied. They also implied that social as well as environmental factors can impact intrinsic motivation. The summary of this study's contribution to users attitude construct for the adoption of AIS are as follows:

1. It validated multidimensional and multi-item measurements for the attitude construct as proposed by (Davis, 1989; Deci and Ryan, 1985a).

2. It validated the four dimensions of attitude and found two dimensions of motivation to be more effective to explain user's IT characteristics and AIS adoption.

3. It used validated instruments for the attitude dimension from previous studies.

5.7 Limitations of the study

The study presented a number of limitations that are inherent to the study methodology adopted by encountering some unanticipated issues. The first limitation is that different researchers or academicians have used different terminologies to describe the concept of technology adoption. The terms are sometimes used interchangeably. Hence, the use of different terminologies convey different meanings to the respondents and indeed they sometimes misrepresent the measurement items. While most surveys aim at obtaining results that can be generalized to the general population, this particular survey made no provisions for generalizations because the aim of the study was not to generalize findings to other institutions. Hence, a sampling strategy for data collection was not utilized in this study. All respondents were from the SMEs surveyed, therefore the findings would only apply to Libyan SMEs although insights for further studies in other firms might accrue from this study's findings. The limitations for the study are represented by the scope that has restrained the study at different stages. This study focused on IS adoption

and most of the literature reviewed was found in journals related to IS adoption and management. Furthermore, most of the journals were published in western countries, with only a few journals found discussing this field in the context of developing countries, especially in the context of Libya. Thus this study is one of the first in this field. As the sample collected for the study only encompasses small and medium sized enterprises, there is a limitation resulting from the sample population.

To date, neither qualitative nor quantitative research has been undertaken in developing countries like Libya to explore the human and contextual factors on the adoption and development of AIS. What also made this study unique is that the discussion of influencing factors was interpreted in relation to human and contextual issues the participants encountered. The research findings highlighted new issues that were not identified in the literature review which could possibly influence the adoption and development of accounting systems in Libya. These include concerns surrounding the perceived quality and quantity of theses and dissertations, the appreciation of the benefit of obtaining access to research, and the strong economies of the developed and developing countries across the world.

The construct measurements in this research were adopted from prior studies, as they have been extensively validated. Although a rigorous construct development and validation methodology was adopted in this research in order to eliminate bias as much as possible, the accuracy of the results will still largely depend on the questionnaire respondents and their knowledge. Finally, the SMEs must adopt a system in their workplace to increase information quality and gain competitive advantage. Yet due to limitations on budget and funding, the administration have not been able to provide these technologies. A system that can be used as an alternative to AIS is manual accounting, but issues such as time consumption and human error discourage use of it. Furthermore, lack of other supporting software becomes a barrier to the integration of technology for accounting purposes. Mainly, if we ask the opinion

of the administration on adoption of the software, they would find it to be expensive or they may say it is not really necessary. Thus, the support of management is very crucial for the adoption of technology, especially in Libyan SMEs.

5.8   Conclusion and recommendations

The technology acceptance model and self-determination theory have been tested and accepted successfully. As a quantitative study, a new model was constructed in relation to certain factors that were significant, using reliability statistics. In this context, this thesis makes a significant contribution to technology acceptance literature by proposing a model that empirically includes motivation and perception factors in investigating the attitude of users on AIS adoption. This model provides a deeper understanding on the influence of user's attitudes on their behavioral intentions to adopt the system. In particular, this thesis extended the research of technology acceptance by including motivational factors like intrinsic and extrinsic motivations that have successfully provided successful influences on behavioral intention. This research adopted SEM as a methodology to develop and validate constructs; its measurement items have been originally developed and modeled in a causal relationship to test the theory under investigation in Libyan SMEs.

Out of the six hypotheses, all are proved and accepted. In this study, dimensions of attitude are utilized from the main Davis TAM and Deci and Ryan's SDT. In order to prove the goodness of the model compared to the original TAM, both models were analyzed in the study was found to have 71% of R-square. This analysis proved that the modified model in this study would be more meaningful in expressing the intention of users using technology in Libyan SMEs. Practically, the result suggests that user's motivation impact their intentions. SMEs that are interested in adopting AIS may consider designing training programs to increase employee's knowledge and innovation initiatives. In order to increase the adoption

of AIS, SMEs need to ensure that the accounting IS supports critical work-related tasks and are very reliable to use.

The study on AIS adoption performed by Soudani (2012) investigating the usefulness of an AIS for effective organizational performance found that although AIS is very useful and have effect on organizational performance but, there is no relationship Between AIS and performance management. According to the study performed by Chen and Hamdan (2014) for IT adoption by SMEs in Brunei Darussalam quantitatively found that IT as a key part of business success and have great impact on IT adoption. A strong support system and training is important for effective understanding and application of IT. Similarly, Awosejo et al. (2014) investigating the adoption of AIS in the organizations of South Africa quantitatively using accounting firms as respondents found that the use of AIS is relatively accepted within accounting firm, due to the change that comes with the use of such application. furthermore, study performed by Huang and Kuo (2014) revealed that customer experience and information usefulness increase internet user's information adoption intentions and that the quality and credibility of Internet tourism information have a positive effect on customer experience and information usefulness.

Although previous studies have found strong relationships between user's attitudes and behavioral intentions to adopt IS, this thesis fills the existing gap in the literature of investigating attitude, in which a significant relationship between user's perception and motivation is demonstrated. This indicates that decision makers should put more effort in the adoption of AIS to motivate them to develop a high level of increased information delivery and quality, and increase organizational competitiveness rather than focusing only on manual accounting. Many scholars of technology adoption in SMEs have postulated that technology has the potential to transform the way SMEs operate. Despite this potential, the scholars argued that technology availability has not always translated into use or integration into the

workplace. While availability of technology is basic to any integration efforts, it is not sufficient and does not guarantee quality integration of the information. Thus, certain conditions must be met for AIS to positively impact SMEs performance and competitive advantage. Valdez and Foertsch (2005) mentioned that the success of technology adoption and usage depends on human and contextual factors, other than availability of hardware and software. Similarly, Greenhalgh et al. (2005) supported this notion by asserting that although a particular innovation may be readily adopted in one context and indeed found to be effective, efficient, acceptable and cost-effective in one site, it does not mean that it will be adopted readily and work similarly in another workplace.

Innovativeness refers to the degree of how early an individual or social system adopts an innovation in relation to others (Rogers, 2003). According to Roger, the first group of individuals adopting to the system is called innovators. This study's results align with Rogers (2003) in showing that use of technology leads to innovation adoption. This study found that SMEs are more appreciative of the information system's capability to aid in the management of time and information quality. In addition, in today's business environment it is very hard to differentiate between business strategies and IS adoption strategies. Thus, businesses are trying to set their infrastructure to suit a set of systematized processes that are supported by their IS. Therefore, as information system's producers realize why and how businesses are carried out, they are trying to create computer-supported business applications that are suitable for business processes. This means that there is a wide scope for theory development in the domain of strategic business and IT alignment research, which could be a new area for digital business strategy. Social and environmental factors can facilitate or undermine intrinsic motivation when individuals meet specific conditions that are enforced to express their feelings. For instance, perceived intrinsic motivation could be gradually developed by satisfying the needs for relatedness, competency, and control of users or decision makers.

Despite the robustness of the construct measurements which allowed replication and deployment with any sample data, the result of significant causality between construct measurements may largely depend on the sample data collected, so it may be necessary to repeat some results. This research can be extended to investigate the results achieved for more in-depth quantitative research. This could be attained by applying a mixed methodology to investigate the results of the quantitative data, followed by qualitative data analysis. In addition, further investigation and updating of literature, especially in the domain of organizational context would be very beneficial to AIS adoption research, given that organizational context is a very dynamic subject and evolves with the advancement of the business environment. Developing more paradigms for organizational context rather than that listed in the contingency theory would be very beneficial, both for theory development and testing as well as possibly providing more in-depth knowledge to research paradigms.

To summarize, the research can improve in two major areas, first is on its measurement constructs, which can be further improved by more rigorous validations and perhaps additions of more measurement items. The second improvement is to enhance the research methodology, as this research has applied a very rigorous research methodology that supports the SEM quantitative approach. Future research might undertake the mixed methodology approach to improve the findings. Finally, this research has reinforced the understanding of user's attitudes within the context of decision makers of Libyan SMEs. The research has extended this understanding to include the association between user's IT characteristics, their attitudes, and their behavioral intentions to adopt as key variables in technology acceptance.

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Descriptive Analysis

Table A.1: Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Age	348	1	4	2.99	.803
Major	348	1	4	2.43	1.379
Gender	348	1	2	1.02	.141
Degree	348	1	4	2.41	1.007
company engaged	348	1	3	1.94	.753
owner	348	1	2	1.61	.489
decision	348	1	2	1.52	.500
business	348	1	5	4.35	.694
internet access	348	1	2	1.54	.499
email	348	1	2	1.67	.472

Table A.2: Frequency of age

	Frequency	Percent	Valid Percent	Cumulative Percent
18 to 29 years	16	4.6	4.6	4.6
30 to 39 years	66	19.0	19.0	23.6
40 to 49 years	172	49.4	49.4	73.0
50 years and above	94	27.0	27.0	100.0
Total	348	100.0	100.0	

Table A.3: Major occupation

	Frequency	Percent	Valid Percent	Cumulative Percent
Management	159	45.7	45.7	45.7
Finance	7	2.0	2.0	47.7
Accounting	54	15.5	15.5	63.2
Technology	128	36.8	36.8	100.0
Total	348	100.0	100.0	

Table A.4: Frequency of Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
male	341	98.0	98.0	98.0
female	7	2.0	2.0	100.0
Total	348	100.0	100.0	

Table A.5: Frequency of education

	Frequency	Percent	Valid Percent	Cumulative Percent
Bachelor	109	31.32	31.32	31.32
Masters	158	45.4	45.4	62.9
Doctorate	28	8.05	8.05	79.0
Professional	53	15.22	15.22	100.0
Total	348	100.0	100.0	

Table A.6: Frequency for Company engaged

	Frequency	Percent	Valid Percent	Cumulative Percent
Manufacturing	109	31.3	31.3	31.3
Trading	150	43.1	43.1	74.4
Service	89	25.6	25.6	100.0
Total	348	100.0	100.0	

Table A.7: Frequency for ownership

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	136	39.1	39.1	39.1
No	212	60.9	60.9	100.0
Total	348	100.0	100.0	

Table A.8: Frequency for decision making

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	166	47.7	47.7	47.7
No	182	52.3	52.3	100.0
Total	348	100.0	100.0	

Table A.9: Frequency for business experience

	Frequency	Percent	Valid Percent	Cumulative Percent
Less than 6 months	2	.6	.6	.6
6 to 12 months	3	.9	.9	1.4
1 to 3 years	23	6.6	6.6	8.0
4 to 6 years	164	47.1	47.1	55.2
7 years or more	156	44.8	44.8	100.0
Total	348	100.0	100.0	

Table A.10: Frequency for internet access

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	159	45.7	45.7	45.7
No	189	54.3	54.3	100.0
Total	348	100.0	100.0	

Table A.11: Frequency for Email usage
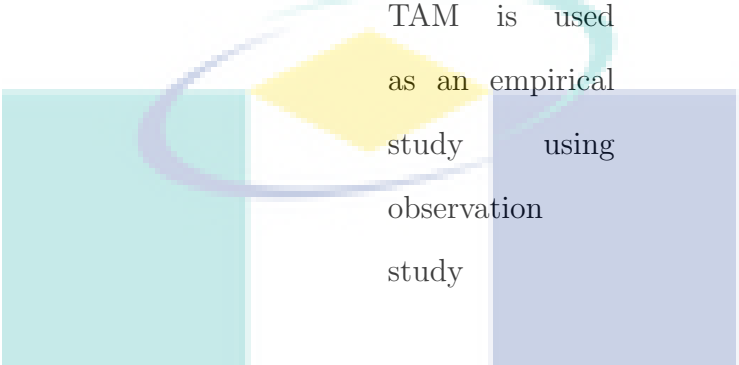
	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	116	33.3	33.3	33.3
No	232	66.7	66.7	100.0
Total	348	100.0	100.0	

APPENDIX B

PREVIOUS STUDIES ON IS ADOPTION

Table B.1: Previous studies on IS adoption

Author-year	Title	Methodology	Research findings
Moon and Kim (2001)	Extending the TAM for a World-Wide-Web context	Survey questionnaire	Although our findings provide meaningful implications for WWW technology
Venkatesh and Bala (2008); Venkatesh et al. (2002)	User acceptance Enablers in individual Decision making about technology :Toward an integrated model	Empirical study	The results indicate that, Integrated model emerged as a better predictor of user behavior when compared to the existing models

Legris et al. (2003)	Why do people use information technology? A critical review of the technology acceptance model	Previous articles from 1980 to 2001 were reviewed using the criteria like TAM is used as an empirical study using observation study	TAM is a useful theoretical model in recognizing and explain use behavior in IS implementation.
Graffeo et al. (2004)	Trust and attitude in consumer food choices under risk	Exploratory case study analysis	trust is significantly determined by perceived competence, perceived shared values, truthfulness of information and the experiential attitude
Vallerand (2004)	Intrinsic and extrinsic motivation in sport.	Discussion	Discuss about determinants and outcome of intrinsic and extrinsic motivation, then conclude with a discussion on intervention issues

Ismail and King (2005)	Factors influencing the adjustments of accounting information systems in small and medium sized Malaysian manufacturing firms	Using a mail questionnaire & Cluster analysis	AIS adjustments was related to the firm's: level of IT maturity; level of owner/manager's accounting and IT knowledge; use of expertise from government agencies and accounting firms; and existence of internal IT staff
Park (2006)	User Acceptance of the Intranet in Restaurant Franchise Systems: An Empirical Study Kunsoon Park	Questionnaires distributed to individual users of intranet through quantitative method	TAM is valid for additional application such as the intranet in restaurant franchise systems in this study.
Yousafzai et al. (2007)	Technology acceptance: a meta-analysis of the TAM: Part 1	Analysis TAM-Overview	Identifies TAM as a basis for identifying gaps and providing guidelines for implementation of management

Yousafzai et al. (2007)	Technology acceptance: a meta-analysis of the TAM: Part 2	Meta-analysis following Hedges and Olkins procedures, moderator-analysis using homogeneity Q-values, analogue to ANOVA and Weighted regression method.	TAM has been on modeling intention for its effect on self-reported usage behavior, while the attitudinal construct has been neglected. User acceptance of information technology remains a complex, elusive, yet extremely crucial phenomenon.
Siegel (2008)	Accepting Technology and Overcoming Resistance to Change using the Motivation and Acceptance Model	Empirical study through survey questionnaire	The result found that motivation and acceptance model is significant to perception and their use.

Chuttur (2009)	Overview of the Technology Acceptance Model: Origins, Advancements and Future Directions	Overview	Research in Technology Acceptance Model lacks sufficient rigor and relevance that would make it a well established theory for the information system community.
Aghdaie et al. (2011)	Factors affecting the attitude of trust in Internet purchasing from the perspective of consumers	Descriptive survey research using sample as online members	Payment method and information quality have high influence on perceived ease of use.

Claar (2011)	The Adoption Of Computer Security: An Analysis Of Home Personal Computer User Behavior Using the Health Belief Model	The method of the investigation was a cross-sectional study using a self-reported web-based survey to test the theoretical model derived from the Health Belief Model (online survey)	Two most significant contributors to the usage of computer security for this study were the perceived vulnerability of a security incident and the prior experience with a security incident. These two constructs corresponded significantly with each other
Wongsim and Gao (2011)	Exploring Information Quality in Accounting Information Systems Adoption	Qualitative and preliminary design	IQ dimensions provide assistance in all processes of decision making. IQ affects decision making in adopting AIS in order to improve the effectiveness of AIS

| Al-Eqab and Ismail (2011) | Contingency Factors and Accounting Information System Design in Jordanian Companies | Questionnaire distributed to 220 listed companies to investigate relationship between three contingency factors and sophistication of AIS design. | Business strategies, cost leadership were significant to AIS design, while environmental condition and differentiation strategy were not significant to AIS design |
| Soudani (2012) | The Usefulness of an Accounting Information System for Effective Organizational Performance | Questionnaire through quantitative approach | The results of this study show that although AIS is very useful and have effect on organizational performance to listed companies in Dubai financial market (DFM) but, there is no relationship Between AIS and performance management. |

Daoud et al. (2013)	Accounting Information Systems in an ERP Environment and Tunisian Firm Performance	Empirical study of 102 firms adopting ERP system	Top management involvement and external expertise have impact on AIS adoption
Al Zoubib et al. (2014)	E-Learning Adoption Successfully Among Adult Workers In Arab Open University Jordan	Empirical study using DOI model with a total of 502 workers pursuing study in Arab open university	Technological and organizational factors have strong influence on learning adoption level by different groups
Xiong et al. (2014)	Information and Communication Technology for Development: Evidence from MOOCs Adoption	Quantitative research method using students as respondents	Human capital is important factor for UTAUT model

Chen and Hamdan (2014)	An Exploratory Study of Information Technology Adoption by SMEs in Brunei Darussalam	Quantiative survey research having 163 SMEs were used as participants	IT as a key part of business success and have great impact on IT adoption. A strong support system and training is important for effective understanding and application of IT
AHMAD et al. (2014)	The Relation between E-Commerce and AIS in Medium Scale Organizations	Quantitative research where sample involves medium scale organizations	Using e-commerce tackles the issue of providing information access security by requiring a username and password which prevents unauthorized system entrances.
Awosejo et al. (2014)	Adoption of Accounting Information Systems in an Organization in South Africa	Quantitative research method using accounting firms as respondents	the use of AIS is relatively accepted within accounting firm, this is as a result of the change that comes with the use of such application

| Huang and Kuo (2014) | A Study on Travel Information Adoption Intention in the Online Social Community: The Perspectives of Customer Experience and Information Adoption Model | Quantitative survey was performed using 492 community people | customer experience and information usefulness increase Internet users information adoption intentions and that the quality and credibility of Internet tourism information have a positive effect on customer experience and information usefulness. |
| Ngadiman et al. (2014) | Determinants of Accounting Information Technology Adoption in Syaria Micro Financial Institutions | Questionnaire survey using PLS model | system quality, relevance, and compatibility important determinants in perception of usefulness and ease of use |

APPENDIX C

SURVEY QUESTIONNAIRE
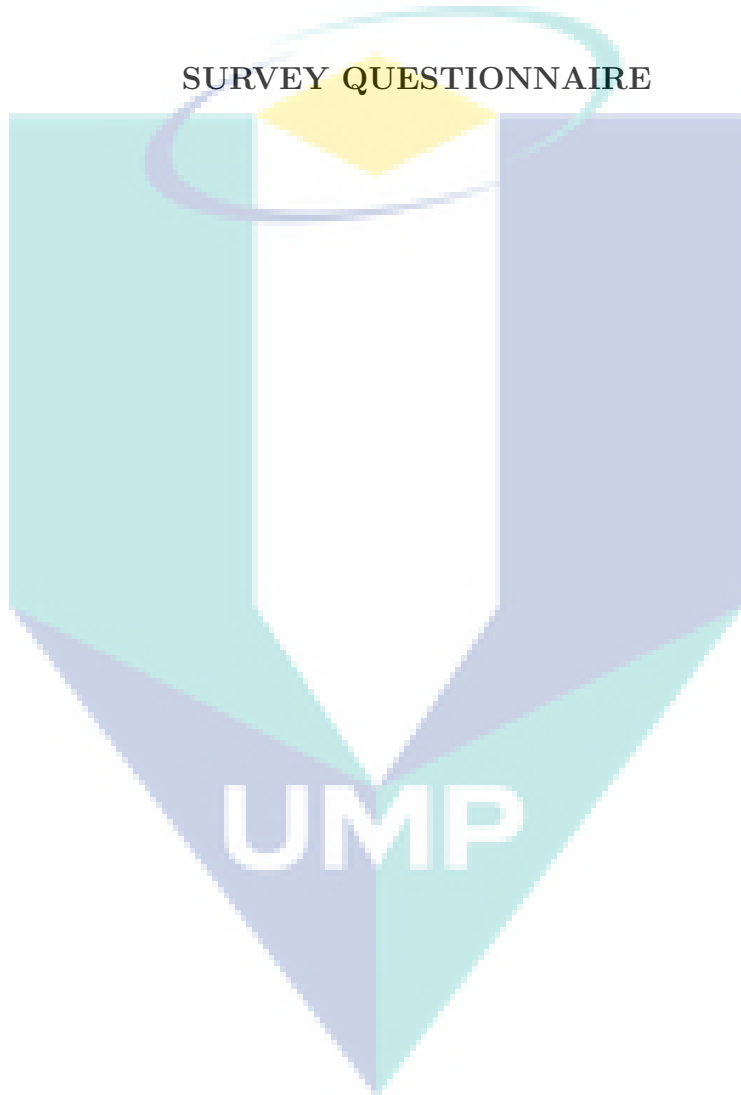
QUESTIONNAIRE

Dear Sir/Madam,

Thank you for giving me an opportunity and your time to interview your good self as to obtain your valued response t my doctoral research. Currently I am a PhD student of University Malaysia Pahang and my field of research is Technology Management.

السادة / السيدات الاعزاء .

اشكركم على اتاحة الفرصة لي من وقتكم لاجراء المقابلة معكم وذلك لمعرفة استجابتكم القيمة لموضوع بحث رسالة الدكتوراه الخاصة بي . في الوقت الحالي انا طالب درجة الدكتوراه في جامعة ماليزيا باهنج ومجال البحث لرسالة الدكتوراه هو نظم المعلومات المحاسبية.

In particular my study explores research on the Accounting information system usage by small and medium enterprises in Libya. Your personal view and experience on the Accounting information system adopted in esteemed small and medium enterprises in Libya will provide valuable inputs to this doctoral research.

ان دراستي على وجه الخصوص اجراء البحث في استخدام منظومة المعلومات المحاسبية من جانب المشروعات الصغيرة والمتوسطة في ليبيا . ان وجهة النظر الشخصية والخبرة الخاصة بكم عن منظومة المعلومات المحاسبية التي تتبناها المشروعات الصغيرة والمتوسطة في ليبيا سوف تتيح لنا الحصول على مدخلات ذات قيمة في مجال البحث المتعلق برسالة الدكتوراه .

The study questions are designed to facilitate your response to your perceptions and practices relating to preference, choice and adoption of accounting information system. All responses will be treated with confidence and be used only for academic purposes.

الاسئلة المتعلقة بالدراسة قد صممت لتسهيل الحصول على استجابتكم من واقع ادراككم وممارساتكم فيما يتعلق بموضوع افضلية واختيار وتبني دراسة منظومة المعلومات المحاسبية سيتم التعامل مع جميع الردود بكل ثقة ولن تستخدم إلا للأغراض الاكاديمية.

Please let us know when we could meet you for the informal meeting at your office.

وعليه نرجو ان تسمحوا لنا بمعرفة متى يمكن اجراء المقابلة معكم للاجتماع الشكلي في مكتبك

تحياتي

خليل مصباح عبدالجليل

Khalil812003@yahoo.com

SECTION A: Demographic Information

What is your age? _____ _____ما هو عمرك؟

What is your major? _____ _____ما هو تخصصك؟

What is your gender? ____ Male, _____ Female, _____ do not wish to disclose.

ما هو جنسك؟ _____ ذكر, _____ أنثى , _____لاترغب في الكشف.

Highest Degree Held:

أعلى درجة متحصل عليها :

___Doctorate   الدكتوراه   __

___Masters   الماجستير   __

___Bachelors   البكالوريس   __

___Others   اخري   __

What is your SME sector?

ماهو نوع العمل الدي تقوم به الشركة؟

What your company is engaged with? _____ Manufacturing, ____Trading, ____ Service..

ما هو مجال تخصص شركتك ؟ _____ صناعي, _____ تجاري, _____خدمي.

Are you the owner of the company? _____Yes _____No

هل انت مالك هده الشركة؟ ____نعم, ____لا.

Do you take a decision in this company? _____Yes, _____No

هل تتخد القرار في الشركة ؟ _____نعم , _____ لا.

How long you have been running your business?

Less than 6 months   6 to 12 months   1 to 3 years   4 to 6 yrs   7 yrs or more
       1   2   3   4   5

منذ متى وأنت تدير الأعمال الخاصة بك؟

7 سنوات أو أكثر   4-6 سنوات   1-3 سنوات   6 أشهر إلى 12 شهرا   أقل من 6 أشهر
   5   4   3   2   1

My company has internet access _____Yes _____No

الشركة لديها انترنت؟ ـــــ نعم, ـــــ لا.

My company use email to communicate with customers' _____Yes, _____No.

في الشركة نستخدم في الاميل للتواصل مع الزبائن ـــــ نعم, ـــــ لا.

SECTION B: Please provide your options that best describe the frequency of your use of AIS.

القسم (ب) : الرجاء اذكر الخيارات التي تعطي افضل صورة عن عدد مرات استخدام منظومة المعلومات المحاسبية .

Items from questionnaire on AIS adoption.

<u>بنود الاستبيان عن تبني واختيار منظومة المعلومات المحاسبية</u>

Sr. No	Questions الاسئله	Strongly Disagree									Strongly Agree
1.	Using AIS gives greater control over work استخدام منظومة المعلومات المحاسبية يوفر تحكم اكبر في العمل	1	2	3	4	5	6	7	8	9	10
2.	Using AIS improves job performance استخدام منظومة المعلومات المحاسبية يحسن الاداء الوظيفي	1	2	3	4	5	6	7	8	9	10
3.	Using AIS saves time استخدام منظومة المعلومات المحاسبية يوفر الوقت	1	2	3	4	5	6	7	8	9	10
4.	AIS usage enables to accomplish tasks more quickly استخدام منظومة المعلومات المحاسبية يمكن من تنفيذ المهام بسرعة اكبر	1	2	3	4	5	6	7	8	9	10
5.	Using AIS reduces the time spend on manual accounting استخدام منظومة المعلومات المحاسبية يقلل من الوقت المقضي في المحاسبة اليدوية	1	2	3	4	5	6	7	8	9	10
6.	Using AIS increases productivity استخدام منظومة المعلومات المحاسبية يعمل على زيادة الانتاجية	1	2	3	4	5	6	7	8	9	10
7.	Interaction with AIS is easy to understand التفاعل بيني وبين منظومة المعلومات المحاسبية من السهل فهمه	1	2	3	4	5	6	7	8	9	10
8.	It is easy to remember how to perform tasks using AIS من السهل معرفة كيفية اداء المهام باستخدام منظومة المعلومات المحاسبية	1	2	3	4	5	6	7	8	9	10
9.	AIS provides helpful guidance to perform tasks منظومة المعلومات المحاسبية تقدم ارشادات مفيدة لاداء المهام	1	2	3	4	5	6	7	8	9	10
10.	AIS is rigid and flexible to interact with منظومة المعلومات المحاسبية جافة ومرنة للتفاعل معها	1	2	3	4	5	6	7	8	9	10

11.	It takes lots of skillful efforts to use AIS ان استعمال منظومة المعلومات المحاسبية تحتاج الى الكثير من الجهد والمهارات	1	2	3	4	5	6	7	8	9	10
12.	Overall, I find the AIS useful in my job عموما ، وجدت ان منظومة المعلومات المحاسبية مفيدة في اداء عملي	1	2	3	4	5	6	7	8	9	10
13.	Getting good result from AIS usage is more important than getting such result from other system tools. الحصول على نتيجة جيدة باستعمال منظومة المعلومات المحاسبية هو أكثر أهمية من الحصول على مثل هذه النتيجة من أدوات الأنظمة الأخرى.	1	2	3	4	5	6	7	8	9	10
14.	It is important to learn AIS in order to be able to be fiction in the usage of it من المهم تعلم نظام المعلومات المحاسبية من أجل أن تكون قادرة على أن تكون الخيال في استخدام ذلك	1	2	3	4	5	6	7	8	9	10
15.	Usage of AIS is a challenge استخدام منظومة المعلومات المحاسبية هو تحدي	1	2	3	4	5	6	7	8	9	10
16.	I would learn to use AIS even if it is not important for organization سوف اتعلم استخدام منظومة المعلومات المحاسبية حتى وان كان ذلك غير مهمه بالنسبة للمنظمة	1	2	3	4	5	6	7	8	9	10
17.	I want to know about AIS as it is important to show my ability to others اريد معرفة كل شي عن منظومة المعلومات المحاسبية لان ذلك هام لاظهار قدرتي امام الاخرين	1	2	3	4	5	6	7	8	9	10
18.	Using AIS in accounting practices would enable to accomplish the work more quickly استخدام منظومة المعلومات المحاسبية في اعمال المحاسبية يمكن من انجاز العمل بسرعة اكبر	1	2	3	4	5	6	7	8	9	10
19.	Using AIS would improve work performance استخدام منظومة المعلومات المحاسبية سوف يدخل تحسينات على اداء العمل	1	2	3	4	5	6	7	8	9	10
20.	Using AIS would enhance effectiveness in the daily life استخدام منظومة المعلومات المحاسبية سوف يعمل على تعزيز الفاعليه في الحياة اليومية	1	2	3	4	5	6	7	8	9	10

21.	Using AIS would enhance effectiveness in the work استخدام منظومة المعلومات المحاسبية سوف يعمل على تعزيز الفاعليه في انجاز العمل	1	2	3	4	5	6	7	8	9	10
22.	Using AIS increases the quality of work استخدام منظومة المعلومات المحاسبية يزيد من جودة العمل	1	2	3	4	5	6	7	8	9	10
23.	Assuming I had access to AIS, I intend to use it على افتراض حصولي على منظومة المعلومات المحاسبية ، انني انوي استخدامها	1	2	3	4	5	6	7	8	9	10
24.	Given that I has access to AIS, I predict I would use it على افتراض حصولي الى منظومة المعلومات المحاسبية ، انني اتنبأ انني سوف استخدمها	1	2	3	4	5	6	7	8	9	10
25.	I plan to use the AIS in the near future أنا أخطط لاستعمال منظومة المعلومات المحاسبية في المستقبل القريب	1	2	3	4	5	6	7	8	9	10
26.	I intend to show others this AIS لدي النية في عرض استخدام منظومة المعلومات المحاسبية على الاشخاص الاخرين	1	2	3	4	5	6	7	8	9	10
27.	I intend to take more understanding and knowledge using AIS in the future لدي النية في احراز المزيد من الفهم والمعرفة لاستخدام منظومة المعلومات المحاسبية في المستقبل	1	2	3	4	5	6	7	8	9	10
28.	I have information system experience لدي الخبرة في نظام المعلومات	1	2	3	4	5	6	7	8	9	10
29.	I am capable of using computer software لدي القدرة على استخدام برامج الحاسوب	1	2	3	4	5	6	7	8	9	10
30.	I am able to sit long hours using information system لدي القدرة الجلوس لساعات طويلة استخدم فيها نظام المعلومات	1	2	3	4	5	6	7	8	9	10
31.	I have good knowledge of information system لدي معرفة الجيدة لنظام المعلومات	1	2	3	4	5	6	7	8	9	10
32.	I have good understanding of the potential of information system لدي فهم الجيد لإمكانيات نظام المعلومات	1	2	3	4	5	6	7	8	9	10
33.	I have original ideas لدي ألافكار الأصليه	1	2	3	4	5	6	7	8	9	10

34.	I will create something new rather than something existing وسوف ابتكر شيء جديد بدلا من الشيء الموجود	1	2	3	4	5	6	7	8	9	10
35.	I would risk doing things differently أود المخاطره بفعل الأشياء بشكل مختلف	1	2	3	4	5	6	7	8	9	10
36.	AIS will allow us to better communicate with our business partners منظومة المعلومات المحاسبية سوف يتيح لنا التواصل بشكل أفضل مع شركائنا التجاريين	1	2	3	4	5	6	7	8	9	10
37.	AIS will allow to cut cost in our operations منظومة المعلومات المحاسبية سوف يسمح بخفض التكاليف في عملياتنا	1	2	3	4	5	6	7	8	9	10
38.	AIS adoption increase profitability اعتماد منظومة المعلومات المحاسبية تقوم بزيادة الربحية	1	2	3	4	5	6	7	8	9	10
39.	AIS adoption provide accurate information for decision making اعتماد منظومة المعلومات المحاسبية توفر معلومات دقيقة لصنع القرار	1	2	3	4	5	6	7	8	9	10
40.	AIS adoption would benefit more than its cost اعتماد منظومة المعلومات المحاسبية فائدتها أكبر بكثير من التكلفة	1	2	3	4	5	6	7	8	9	10
41.	AIS adoption is compatible with firm's value and beliefs اعتماد منظومة المعلومات المحاسبية يكون ملائم مع قيمة الشركة والمعتقدات	1	2	3	4	5	6	7	8	9	10
42.	I think AIS is trustworthy أعتقد ان منظومة المعلومات المحاسبية جدير بالثقة	1	2	3	4	5	6	7	8	9	10
43.	I think AIS keeps promises and commitments اعتقد ان منظومة المعلومات المحاسبية تحفض الوعود والالتزامات	1	2	3	4	5	6	7	8	9	10
44.	I think AIS has enough safeguards to make me feel comfortable to use it أعتقد ان منظومة المعلومات المحاسبية لديها ما يكفي من الضمانات لتجعلني أشعر بالراحة في استخدامها	1	2	3	4	5	6	7	8	9	10

45.	I feel assured that legal structures adequately protects from problems associated with using AIS أشعر وأكد أن الهياكل القانونية تحمي من كافة المشاكل المرتبطة باستخدام منظومة المعلومات المحاسبية	1 2 3 4 5 6 7 8 9 10
46.	I feel confident that technological advances on the information system make it safe to use AIS أنا على ثقة من أن التقدم التكنولوجي في نظام المعلومات جعل استخدام منظومة المعلومات المحاسبية آمن	1 2 3 4 5 6 7 8 9 10
47.	In general the AIS is a safe environment in which to transact accounting activities بشكل عام منظومة المعلومات المحاسبية هي بيئة آمنة للتعامل بها في الانشطة المحاسبية	1 2 3 4 5 6 7 8 9 10

End of Survey

Thank you for taking your time to respond to questions in this survey

نهاية الاستبيان

شكرا لكم على الوقت المخصص للاجابة على الاسئلة في هذا الاستطلاع