VALIDATION OF THE THEORETICAL FRAMEWORK FOR ADOPTION OF ACCOUNTING INFORMATION SYSTEM USING STRUCTURAL EQUATION MODELLING

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ABSTRACT

The purpose of this study is to investigate the effect of perception and beliefs of information technology (IT) users on the perspective of accounting information system adoption in the SMEs of Libya An integrated theoretical model was developed for the adoption of accounting information system by applying wide range of technological situation aligned with attitude of technology users. The study is based on quantitative survey with 348 respondents in small and medium enterprises of Libya. The finding of the study confirms the validation of the theoretical model developed and verifies the issues of common method bias. This paper is one of the few researches to determine the technological acceptance concept focusing on advancement of business strategy.

Keywords: Technology acceptance model, self determination theory, behavioural intention, accounting information system

INTRODUCTION

Information technology is used as a route for quality advancement and cost effective strategy. Accounting information system (AIS) is a tool that incorporates the field of information system and is designed to help and control the management on economic and financial aspects. AIS is also helpful for the internal and external users by providing valuable information of accounting data(Sharkasi & Wynn, 2011). Hence information system (IS) and information technology (IT) considered as competitive advantage which have an crucial role towards businesses (Rouibah, Hamdy, & Al-Enezi, 2009). Rouibah et al (2009) argued that a competitive advantage occurs from IS/IT utilization, not the IS/IT solution. Similarly, Ramayah et al (2002) argued systems that are not utilized do not result in expected efficiency and effectiveness gains. This study attempts to fill the gap in the accounting sector by examining various factors that influence the adoption of accounting information system in the context of Libyan SMEs.

Background of SMEs in Libya

SMEs have a significant role in driving the main macroeconomic indicators increased, including: GDP, employment rate, and exports. According to CIA (2013:8) over 80% of the Libyan government revenue is constituted from oil and gas sectors. Thus Mariam (2012) advised that building a strong SMEs environment will enable Libya with a more diversified economy, supporting both oil and non-oil companies along with essential source of employment reaching up to 70% of workforce.

Definition on 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 one whose invested capital is not above LD 2.0 million and the number of employees not more than 50, while the medium enterprises have an invested capital of no more than LD 12 million and the number of employees less than 250". Table 1 shows the definition of SMEs in developed and developing countries.

Table 1: 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

(Olusegun, 2012)

In Libya's private sector, SMEs have the potential to become growth engines. At present, SMEs in Libya are dominated by the production of food products, wood products, and metal for construction. Some, small firms also engage in the production of clothing, ceramics and bricks, grain milling and press and publication goods. 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".

The narrow presence and influence of culture within the population in Libya is one of the threats to the performance of SMEs. It is important to strengthen the incentive framework and usage of advanced strategies for the sustainable development and overcoming crucial knowledge gaps in SMEs of Libya.

Technology adoption in Libya

The adoption of technology in the developing country like Libya has been investigated in terms of attitude and behaviours 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.

Twati and Gammack (2006) examined the role of accounting system through social and cultural factors and confirmed the importance of an awareness of cultural context in the role of accounting information system in Libyan companies. Furthermore, Hosen, Hui, Suliman, and Rahman (2011), mentioned that demographic characteristics and societal culture of management team in the privatized small and medium firms have high effect on management control system usage.

In addition, Abdelali (2013) investigated the role of management in the adoption of cost accounting system and found some of the motifs of not using cost accounting system like lack of experienced personnel for the identification of cost centres, method used for the calculation of cost is out dated, ignorance of cost accounting by the management as they do not know the functions. Management must be consistent for the usage of accounting system.

Accounting information system

The need for AIS in Libya has become obvious due to increased and accurate requirement of accounting information in making decisions by the managers in the organization. AIS is defined as a collection of data that generates information for the users. Gelinaset al.(2011) confronted that accountants have been facing threats in order to determine the information required that supports both government and businesses. It was further noticed that "accounting information systems helps the accountants in making decision of buying office equipments, information about the sources of such equipments, the cost of alternative choices, and the purchase related terms for such choices".

Esa et al. (2009), Venkatesh (2000), and Wixom & Todd (2005) disclosed that successful in IT investment can lead to enhanced productivity, while failed systems can lead to undesirable effects such as financial losses and dissatisfaction among employees. Urquía et al (2011) uttered that corporate culture faces changes in the environment when organization attempts to invest in staff training, quality advancement, product quality and increase in AIS investments. Many authors including Cramm (2008), Urquía Grande et al.(2011) concluded that the contribution of IT in the organization increases productivity of SMEs.

METHODOLOGY

This paper adopts quantitative survey questionnaire with positivist paradigm followed with the interval measurement scale. According to Chiswick (2008), positivist philosophy is an appropriate approach in the questionnaire survey social science research.
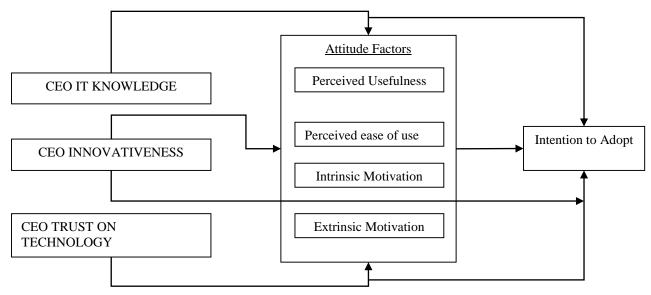

Figure 1: Theoretical Framework
 (Davis, 1989; Deci & Ryan, 1985; Thong, 1999)

This research is designed keeping view the research questions and other different strategies for data collection. However, Hair, Tatham, Anderson, and Black (2007) mentioned that it depends upon the research questions and objectives for selecting the correct research design. It is very important to choose right research design appropriately to provide a framework for the collection and analysis of data, and will reflect decisions about the priority being given to a range of dimensions of the research process. The unit of analysis for the study are the top managers or owners of SMEs in Libya. The unit of analysis of this study is at the organizational level because the decision for the adoption of technology or system is narrow to the owners of top management of the organization.

RESULTS AND DISCUSSION

In order to validate the model, SPSS version 21 and AMOS version 21 is used as a data analysis technique. SEM provides the common method variance analysis is used to identify measurement error and issues in behavioural research Bagozzi and Yi (1988); Hair, Ringle, and Sarstedt (2013). Method variance is the issue in the research because they are one of the major measurement errors.
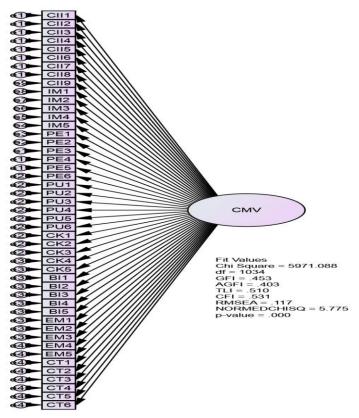
Figure 2: Common Method Variance for the items

Measurement error threatens the validity of the model and about the relationship between the constructs having both random and systematic components. The model estimation shown in the figure highlights that more worst the model is, the more the model is free from multicollnearity issue (Blasius & Thiessen, 2012; Campbell & Fiske, 1959). From the common method covariance analysis 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.

Measurement model for validation

Confirmatory factor analysis is also used to assess the validity of the constructs. The below figure.3 shows the measurement model through CFA where items with redundance were deleted through exploratory factor analysis.
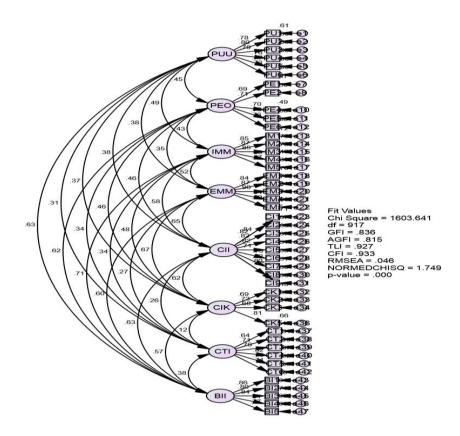
Figure 3: Measurement model of the constructs

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., 2007; Kline, 2011). 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., 2007). Second, the estimated correlations between the factors should not be greater than 0.85 (Kline, 2011). From the measurement model Figure 3 it was noticed that none of the constructs have correlation above 0.85. Similarly, the factor loadings of all the measurement items of the variables were greater than 0.50. Thus it is confirmed that the uni-dimensionality level is achieved. Using confirmatory factor analysis, composite reliability (CR) and average variance extracted (AVE) are calculated based on formulas by Fornell and Larcker (1981) 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 CEO IT Innovativeness, CEO IT knowledge, CEO Trust in IT, Perceived usefulness, perceived ease of use, intrinsic motivation, extrinsic motivation and behavioural 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.

Table 2: 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 Table 2, 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 (Thompson, 1998). From the measurement model of the constructs, the discriminant validity criteria is confirmed as the correlation between the constructs does not exceeded 0.85. 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 measurement model between exogenous constructs and endogenous construct is confirmed and fit.

Table 3: 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 CEO IT knowledge was below the required level of 0.50. Thus the items of these constructs having low factor loadings were removed. In total item CEO IT knowledge (CIK4) and item perceived ease of use (PEOU3) were removed in order to satisfy the criteria of AVE.

CONCLUSIONS

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. Being a quantitative study rather than qualitative has limited the outcomes and findings of this study. A new model was constructed in relation to certain factors that were significant with reliability statistics. Improvements to the current construct validation process were made by constructing a research methodology model using SEM methodology. This can test construct measurements for validity and reliability to achieve higher levels of research rigor within AIS and technology acceptance research was found to be conclusive. This research therefore considers a significant support of the model's validity.

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