



Intrinsic Motivation as a Mediator on Accounting Information System Adoption

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ABSTRACT

This paper investigated intrinsic motivation as a mediating factor of the relationship between CEO characteristics and accounting information system adoption in the SMEs of Libya. The adoption model with mediation was tested with a sample of 348 top level managers and owners of SMEs. Understanding the main determinants of accounting information system adoption for SMEs is very crucial, whereas characteristics of CEO play a significant role in identifying users' behavioural intention for technology adoption. For this purpose, structural equation modelling approach was applied using quantitative research design. Findings supported intrinsic motivation as partially mediating between CEO's characteristics and users' behavioural intention. Therefore, motivating users intrinsically by providing knowledge, innovativeness and trust will have an effect on Accounting information system (AIS) implementation in the organisational context.

Keywords: Intrinsic motivation, AIS adoption, behavioral intention, Libya

INTRODUCTION

Adoption of technology, especially in SMEs, is considered as an important issue as most of them are unable to adopt the technology due to financial

and organisational obstacles. Accounting information system is a tool that incorporates the field of information system and it is designed to help and control the management on economic and financial aspects. The adoption of ICT at all levels is an essential factor in advancement plan of Libya (Rhema & Miliszewska, 2010). In fact, it is very crucial for the SMEs of Libya to deal with uncertainty and competitiveness by improving their system and having the necessary processing

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capacity to increase the quality of information required (Hunaiti *et al.*, 2009, p. 37).

The Libyan private individual sector and SMEs in particular lack business know-how and face problems of economies of scale, as well as poor managerial, financial and marketing capabilities. The adoption of technology in the developing country like Libya has been heavily investigated in terms of attitude and behaviours in the past decades. Thus, it is expected that the adoption of new technology by companies in Libya will be improved if the technology is perceived to be compatible and easy to adopt. In other words, CEOs possessing sound IT knowledge are able to assess awareness through knowledge that will increase their confidence facilitating in adopting new technology. On the contrary, lack of IT knowledge will lead to uncertainty, which in turn will limit the adoption of technology. CEO IT knowledge plays a crucial role in the identification of benefits of innovation adoption.

As a result, increasing AIS investment in SMEs has been seen as advantageous for achieving a stronger, more flexible corporate culture to face the persistent environmental changes facing these firms (Grande, Estébanez, & Colomina, 2011). Thus, this study investigated the impacts of CEO's characteristics (CEO IT knowledge, CEO IT innovativeness and CEO Trust in IT) on their behavioural intention to adopt AIS in Libyan SMEs with the mediating effects of intrinsic motivation.

LITERATURE REVIEW

In the past decades, studies on adoption of technology in developing countries like Libya have heavily focused on attitude and behaviors. 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 the accounting system through social and cultural factors and confirmed the importance of 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 privatised small and medium firms have significant effects on the use of management control system. Despite the importance of the accounting information for competitive advantage in a dynamic environment of SMEs, SMEs have not strategically used accounting information to their advantage.

Moftah, Hawedi, Abdullah, and Ahamefula (2012) examined the challenges of security, protection and trust on online purchasing in Libya and reported that the nature of online transaction in Libya was constrained due to instability resulting from insecurity, trust and unprotected transactions. In other words, the lack of trust among online consumers to purchase via online has discouraged them to do so. On the contrary, Orens and Reheul (2013) found that CEOs' positive attitude towards change and innovation and factors like experience, CEOs' tenure and education

did not have any association with the level of holding cash. Meanwhile, Said and Noor (2013) mentioned that lack of trust in online services and lack of infrastructure, feeling insecurity about their personal information and poor knowledge are great challenges for e-commerce adoption in the hotel industry of Libya. Abukhzam and Lee (2010) factors affecting bank staff's attitude towards adopting e-banking technology in Libya and concluded that they would be happy to adopt e-banking technology if the technology was easy to use and could assist them to accomplish their tasks effectively. Abdelali (2013) investigated the role of management in the adoption of cost accounting system and found factors like lack of experienced personnel for the identification of cost centres, outdated method for calculating cost, and ignorance of cost accounting by the management as they do not know the functions as some reasons for not using the system. They further concluded that the management must be consistent in using the accounting system.

Meanwhile, Esa *et al.* (2009), Venkatesh (2000), and Wixom and Todd (2005) found that "successful IT investment leads to increase productivity, while failed systems lead to undesirable effects such as financial losses and dissatisfaction among employees". Hence, information system (IS) and information technology (IT) are considered as a competitive advantage which are crucial for businesses (Rouibah, Hamdy, & Al-Enezi, 2009). Similarly, Ramayah *et al.* (2002) argued that systems

which are not utilised would result in expected efficiency and effectiveness gains. Information technology is used as a way to achieve quality advancement and as a cost effective strategy. AIS is also helpful for the internal and external users by providing valuable information of accounting data (Sharkasi & Wynn, 2011). After the establishment of a new government that emphasises on economic growth and focusing their importance on SMEs, it has been viable for the SMEs to be innovative in both technological and financial aspects. Thus, the main objective of this paper is to identify the mediating effects of intrinsic motivation on users' or decision makers' intention to adopt AIS in SMEs.

CEOs' Knowledge of IT

Knowledge refers to an individual's extent of theoretical knowledge that can be used to improve his ability and skills to best perform his tasks. Ghobakhloo *et al.* (2012) suggested that CEOs' knowledge and experience of IT affect the adoption of IT in SMEs. Similarly, Chuang, Nakatani, and Zhou (2009), Drew (2003), Ghobakhloo, Benitez-Amado, & Arias-Aranda (2011), and Thong (1999) suggested that CEOs' knowledge and experience of CEO affect IT adoption in SMEs. It was also suggested that in order to reduce any uncertainty related to acceptance towards IT, adoption must certainly be increased. Studies carried out by Chan and Ngai (2007), Jeon, Han, and Lee (2006), Thong and Yap (1995) revealed that CEOs' knowledge of IT is crucial for IT adoption.

CEOs' IT Innovativeness

Diffusion of innovation (DOI) theory highlights the innovation or technological factors affecting adoption. As indicated earlier on, CEO or owners of SMEs play an important role for IT adoption. According to Thong and Yap (1995), the willingness of adopting innovative system is crucial in order to ensure its acceptance. In other words, CEOs' perception and attitude towards innovation and new technology acceptance is crucial for IT (Damanpour, 1991). Furthermore, Venkatesh *et al.* (2003) mentioned that IT use behaviour was well disclosed by the UTAUT and suggested that future experts should continue validating their model. Similarly, Hameed and Counsell (2012) also mentioned that in small businesses, the CEO is usually the owner and the sole decision maker; therefore, CEO's innovativeness and involvement contributes to the success of any IT adoption process (Poon & Swatman, 1999). Innovative CEO's are more willing to take risks and prefer solutions that have not been tested previously (Thong, 1999). A review of the past literature indicated that CEOs' innovativeness significantly and positively influenced the adoption of IT (Mirchandani & Motwani, 2001).

CEOs' Trust in IT

Trust is defined as an intellectual state that individuals have to accept susceptibility based on their feelings that due to their competence, benevolence, integrity and predictability, their product will be accepted by the customers (Al-Somali,

Gholami, & Clegg, 2009; Corritore, Kracher, & Wiedenbeck, 2003; Sukkar & Hasan, 2005). In order to predict the intention of users, trust is the primary factor and prior importance for outsourcing relationship between the management and customers. Furthermore, Kim, So, and Lee (2007) suggested trust plays an important role in maintaining business relationship and increasing open communication with greater satisfaction. Zhu *et al.* (2009) mentioned that trust leads to increase in intention, whereby reduction in perceived risk will reduce perceived risk and increase the intention to adopt the system. Pavlou (2003) stated that due to high level of uncertainty, the involvement of trust is crucial for e-commerce adoption.

Intrinsic Motivation

Ryan and Deci (2000) define intrinsic motivation as doing something that is interesting and enjoying. According to Willis (2008), as technology becomes more intrinsic to the functioning of an organisation as a whole, the ability of employees to integrate the new technology into their workflow becomes an ever-larger determinant of its success. A critical review of TAM by Davis (1989) revealed that there is a need to include other components to provide a bigger vision and a better explanation of IT adoption. Venkatesh *et al.* (2003) also redefined TAM within a motivational framework; both extrinsic and intrinsic motivations as predictors of behavioural intention to use was included as the motivational framework. Motivation

is the internal process that increases behaviour providing energy and direction to individuals (Riva, 2001). Meanwhile, other researchers such as Teo, Lim, and Lai (1999), Venkatesh (1999), and Webster (1989) 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 motivation.

RESEARCH METHODOLOGY

This study is a descriptive research to investigate the mediating effects of intrinsic motivation between CEO IT characteristics and users' behavioural intention on AIS adoption. After extracting the missing data and performing data screening, the sample consisted of 348 top management officers having the power of decision making on technology adoption in their organisation. The survey participants were targeted with stratified purposive sampling technique addressed by Krejcie and Morgan (1970). With the focus on positivist paradigm and quantitative research design, scientific

prediction is generated with valued objectivity, the study is supported by a significant number of works including those by Moskovsky *et al.* (2009), Osofsky, Bandura, and Zimbardo (2005), and Vollum, Longmire, and Buffington-Vollum (2004). In specific, measurement items for intrinsic motivation were adopted from Moskovsky *et al.* (2009), CEO characteristics constructs were extracted from Thong, Yap, and Raman (1996) and behavioural intention items were obtained from Fagan, Neill, and Wooldridge (2008) and Saadé and Bahli (2005) that are based on a ten point likert scale, where 1 = strongly disagree and 10 = strongly agree. Five items for intrinsic motivation as mediating variable towards behavioural intention, five items for behavioural intention, five items for CEOs' IT knowledge, nine items for CEOs' IT innovativeness and six items for CEOs' trust in IT were included in this investigation on AIS adoption (see Appendix). Furthermore, all the measurement items were modified in the context of AIS adoption in Libyan SMEs.

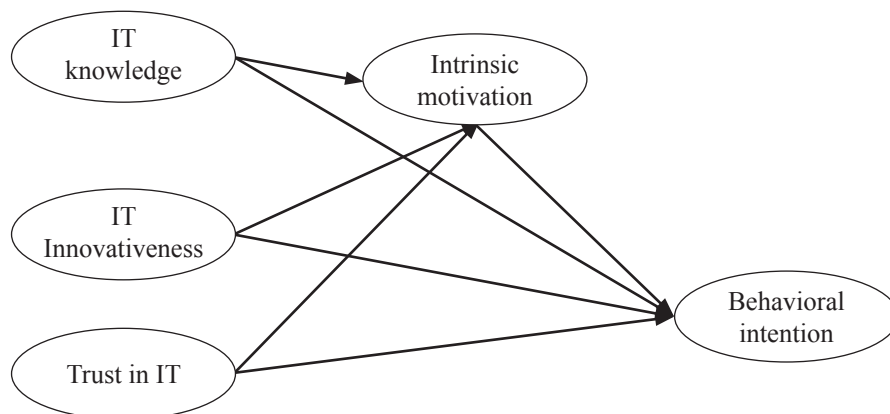


Fig.1: Research model

DATA ANALYSIS

Firstly, respondents' data were analysed by performing mean, standard deviation, composite reliability and validity analysis using average variance extracted (AVE) for the variables. Meanwhile, common method variance (CMV) analysis was performed to detect response bias and multicollinearity issues of the variables. The hypotheses were tested with confirmatory factor analysis (CFA) using structural equation modelling (SEM).

Common Method Variance Analysis

The model was tested using common method variance analysis to detect response bias for the measurement items. A technical review of the model for controlling method variance was developed using analysis of moment structure (AMOS) version 21.

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 a common method variance is a potential problem in behavioural research (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). From the common method covariance analysis, it was found that the model did not fit and was worse (Blasius & Thiessen, 2012; Campbell & Fiske, 1959). This indicates that there is no multicollinearity or response bias issue. Thus, the research was proceeded with further analysis.

Mean, Standard Deviation, Reliability and Validity Assessment

After the analysis of uni-dimensionality of the constructs with total measured items is achieved each of the constructs is assessed for their reliability and validity (Hair, Ringle, & Sarstedt, 2013). Reliability is assessed using composite reliability (CR) and average variance extracted (AVE) for validity using construct.

TABLE 1
Assessment of the measurement model

Variable instruments			Mean	SD	Estimate	C.R.	AVE
IM1	←-	IMM	8.540	1.177	0.849	0.879	0.597
IM2	←-	IMM	8.610	1.294	0.872		
IM3	←-	IMM	8.570	1.351	0.847		
IM4	←-	IMM	8.000	1.524	0.680		
IM5	←-	IMM	7.630	1.613	0.571		
CII1	←-	CII	7.930	1.420	0.845	0.948	0.612
CII2	←-	CII	7.540	1.492	0.817		
CII3	←-	CII	7.580	1.668	0.824		
CII4	←-	CII	7.480	1.494	0.817		
CII5	←-	CII	7.490	1.323	0.712		
CII6	←-	CII	7.230	1.534	0.731		
CII7	←-	CII	7.540	1.423	0.717		

TABLE 1 (continue)

CII8	←-	CII	7.680	1.389	0.805		
CII9	←-	CII	7.650	1.468	0.751		
CIK1	←-	CIK	7.400	1.265	0.690	0.820	0.533
CIK2	←-	CIK	7.600	1.235	0.727		
CIK3	←-	CIK	6.400	1.790	0.683		
CIK5	←-	CIK	6.340	1.507	0.814		
CTI1	←-	CTI	7.310	1.646	0.636	0.875	0.540
CTI2	←-	CTI	7.940	1.444	0.714		
CTI3	←-	CTI	7.730	1.460	0.702		
CTI4	←-	CTI	7.750	1.525	0.819		
CTI5	←-	CTI	7.640	1.429	0.786		
CTI6	←-	CTI	7.660	1.468	0.739		
BI1	←-	BII	8.530	1.147	0.865	0.911	0.672
BI2	←-	BII	8.690	1.122	0.803		
BI3	←-	BII	8.630	1.118	0.841		
BI4	←-	BII	8.450	1.330	0.813		
BI5	←-	BII	8.740	1.197	0.773		

Note: CR – Composite Reliability, SD- Standard deviation, AVE – Average variance extracted, IM – Intrinsic motivation, CIK – CEO IT knowledge, CII- CEO IT innovativeness, CTI-CEO trust in IT, BI-Behavioural intention

Composite reliability was used as an indicator to determine the reliability of the measurement scale of CEOs' IT Innovativeness, CEOs' IT knowledge, CEOs' 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. In similar fashion, all the items showed high beta coefficients of above 0.60 and were therefore confirmed to be having high factor loading. Furthermore, the correlations between the variables are not higher than 0.85; this means there are no multicollinearity issues between them.

Thus, the overall the measurement model between exogenous constructs (CEO IT knowledge, CEO IT innovativeness and CEO trust in IT) and endogenous construct is confirmed and fit.

Structural Model

In the context of AIS adoption and behavioural intention of users, the research model shown in Figure 1 was analysed using AMOS structural equation modeling software tool. The direct effect of CEOs' characteristics on behavioral intention is indicated by the beta value. The results illustrated in Fig.2 confirmed that behavioural intention is predicted by three factors of CEOs' characteristics.

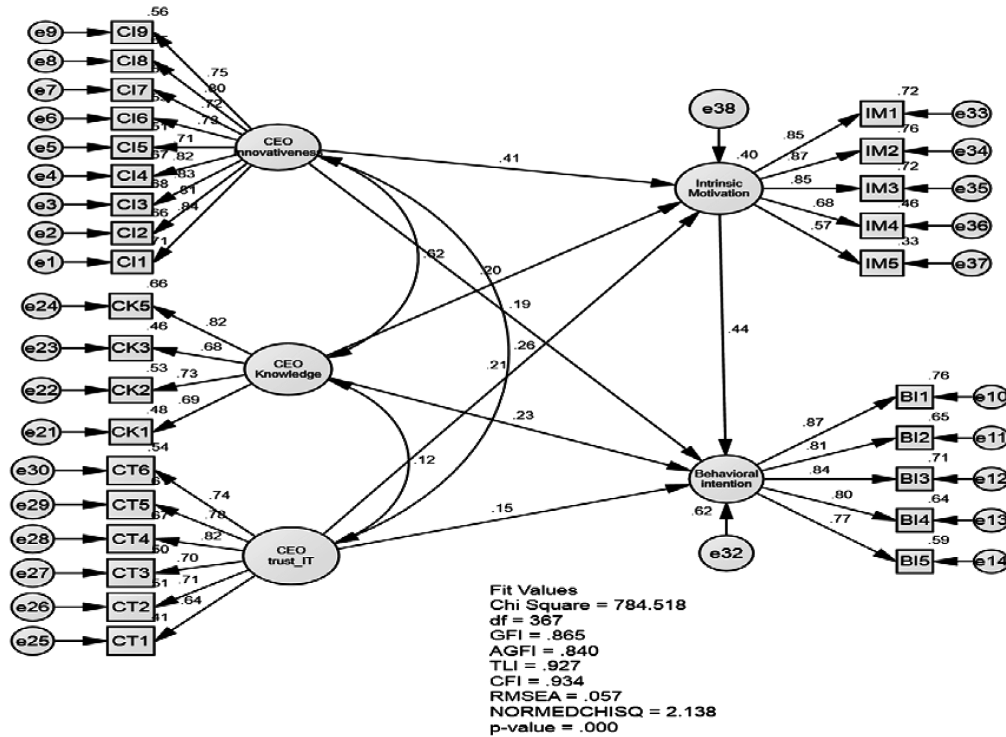


Fig.2: Structural model for the variables

Meanwhile, the structural model between CEOs' characteristics constructs and behavioural intention through intrinsic motivation as mediator is depicted in Figure 2. After modifying some items that made correlations between them, the model was made fit. The goodness of fit indices for the 29 items of CEOs' IT knowledge, CEO's IT innovativeness, CEOs' Trust in IT, intrinsic motivation and behavioural intention, the structural model confirmed the acceptance level (significance < 0.5) as the result of the standardised regression weight.

CFA results of intrinsic motivation as mediator with exogenous constructs CEO characteristics showed that the chi-square was significant ($\chi^2 = 801.267$, $\chi^2 / df = 2.177$). The GFI was .862, AGFI = 0.837, TLI = .925, CFI = .932, RSMEA = .058. Based on the results of the Structural Model given in Table 2, it can be seen that the AGFI (0.8) (Acceptable fit criteria) and RMSEA are less than (0.08) (Hooper, Coughlan, & Mullen, 2008). This finding shows that the measurement model has a good fit with the data (Anderson & Fornell, 1994).

TABLE 2
Standardised regression weights of intrinsic motivation as mediator

	Variables	Estimate	Beta	S.E.	C.R.	P
Intrinsic motivation	<--- CEO Innovativeness	0.394	0.451	0.061	6.456	***
Intrinsic motivation	<--- CEO Knowledge	0.176	0.149	0.080	2.189	0.029
Intrinsic motivation	<--- CEO trust IT	0.238	0.239	0.053	4.494	***
Behavioral intention	<--- CEO Innovativeness	0.153	0.177	0.048	3.171	0.002
Behavioral intention	<--- CEO Knowledge	0.177	0.151	0.061	2.880	0.004
Behavioral intention	<--- CEO trust IT	0.107	0.108	0.040	2.654	0.008
Behavioral intention	<--- Intrinsic motivation	0.604	0.611	0.054	11.087	***

Results of the direct and indirect effect exhibit strong positive effects on behavioural intention. In more specific, CEOs' innovativeness attained a strong direct effect on intrinsic motivation and behavioral intention (beta = 0.394, $p < 0.001$). In addition, CEOs' IT knowledge showed a strong direct effect on behavioural intention (beta = 0.177, $p < 0.05$). There was also a strong direct influence of intrinsic motivation on behavioural intention (beta = 0.604, $p < 0.001$). Based on the squared multiple correlation in Figure 2, it can be concluded that CEOs' characteristics on intrinsic motivation by 40%, whereas the overall square multiple correlation of CEOs' characteristics and intrinsic motivation on behavioural intention by 62%, with $p < 0.001$.

CONCLUSIONS

The study found that the impact of CEOs' IT knowledge was overshadowed by organisational and innovation factors that dictate the adoption processes in organisations. 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 by using it, this will lower its IT knowledge barriers and increase confidence in adopting IT. More importantly, all the hypotheses explaining direct and indirect relationships between the constructs were found to be supported. Thus, it is hoped that this will further add confidence to the research design and future studies can extend these findings for discussions and comparison.

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APPENDIX A. QUESTIONNAIRE

Intrinsic motivation	<ol style="list-style-type: none"> 1) Getting good result from AIS usage is more important for me than getting such result from other system tools. 2) I am learning AIS in order to be able to be fiction in the usage of AIS 3) Usage of AIS is a challenge that I enjoy 4) I would learn to use AIS even if it is not important for my organisation 5) I want to know about AIS as it is important to show my ability to others
CEOs' IT knowledge	<ol style="list-style-type: none"> 1) I have information system experience 2) I am capable of using computer software 3) I am able to sit long hours using information system 4) I have good knowledge of information system 5) I have good understanding of the potential of information system
CEOs' IT innovativeness	<ol style="list-style-type: none"> 1) I have original ideas 2) I will create something new rather than something existing 3) I would risk doing things differently 4) AIS will allow us to better communicate with our business partners 5) AIS will allow to cut cost in our operations 6) AIS adoption will increase profitability 7) AIS adoption will provide accurate information for decision making 8) The cost of adoption is far greater than benefits 9) Adoption of AIS is compatible with firm's value and beliefs
CEOs' Trust in IT	<ol style="list-style-type: none"> 1) I think AIS is trustworthy 2) I think AIS keeps promises and commitments 3) I think AIS has enough safeguards to make me feel comfortable to use it 4) I feel assured that legal structures adequately protects me from problems associated with using AIS 5) I feel confident that technological advances on the information system make it safe for me to use AIS 6) In general the AIS is a safe environment in which to transact accounting activities
Behavioral Intention	<ol style="list-style-type: none"> 1) Assuming I had access to AIS, I intend to use it 2) Given that I has access to AIS, I predict I would use it 3) I plan to use the AIS in the near future 4) I intend to show others this AIS 5) I intend to take more understanding and knowledge using AIS in the future