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Intrinsic and Extrinsic Motivation as Attitude Factors towards Adoption of Accounting Information System (AIS) in Libyan SMEs

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Abstract

Though the relationship between users's IT characteristics and behavioral intention of users to adoption information system continues to be important, conclusive evidence on user's attitude contributing to enhance behavioral intention to adopt is rare. This study tests the influence of intrinsic and extrinsic motivation towards behavioral intention to adopt accounting information system in Libyan SMEs. Questionnaire was designed using closed interval measurement scale with proper care of designing the survey instruments. Results found support for the effect of user's attitude as mediator between IT characteristics and behavioral intention. Intrinsic motivation and extrinsic motivation factors of motivation model were found to have high impact in the form of attitude on owner's behavior to adopt AIS. Selecting the AIS adoption SMEs will follow have an effect on AIS implementation, along with organizational context, affecting the level of AIS implementation directly and indirectly through AIS adoption.

Keywords: User's Attitude, Motivation Model, Behavioral Intention, AIS Adoption, Libyan SMEs

Introduction

Accounting is an intrinsic asset for any organization to know whether they are making profit or are in loss. In order to keep accounting records usually small and medium companies uses either manual accounting or computerized accounting system (Alia et al., 2012). Both of manual and computerized accounting system perform with same processes, concept and accounting principles, but the main difference between them is speed of information delivery, cost effectiveness, efficient process of recording. In fact, it has become very important for researchers and academicians why a workforce adopts or rejects new technologies. Successful adoption and full implementation of the new technologies has been one of the most challenging issues for the organization, especially in small and medium enterprises (SMEs) that face issues of financial and technological obstacles. Attitude was found to be crucial element by many studies towards technology adoption.

Effective AIS helps the SMEs to overcome short term issues and monitor the costing, expenditure and operating cash flows. With the motives of enhancing business values some of the SMEs are not able to increase the usage of information system in their business and

results with competitive gaps (Khalil, 2009). Thus the main purpose of this study is to investigate the effect of user's motivation in the form of attitude towards adoption of AIS in Libyan SMEs.

The study expands the work performed by Venkatesh (2000) and attempts to fill the knowledge gap about the determinants of IT characteristics by investigating the role of intrinsic and extrinsic motivation towards technology adoption. It was previously found by (Davis et al., 1989) that perceived value is not able to predict the technology adoption and there is need to identify other factors that enhance technology adoption. This was not merely investigated with highlighting the motivation model effectively as an antecedent influencing adoption of technology. Some researchers (Davis et al., 1992; Hardre & Reeve, 2003; Tubbs & Ekeberg, 1991) have confirmed motivation to be playing fundamental role enhancing intention to adopt the system.

This paper follows with the subsequent section by reviewing of previous studies employing importance of motivation and literature supporting the hypotheses formulated. The next section highlights methodology depicted in this study followed with presentation of results and discussions of the conclusion and implication for future studies.

Literature Review

Theoretical Background

Organizations are motivated to engage in activities or adopt system for much different reason. 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.

According to Theory of Reasoned Action (TRA) attitude and subjective norms influence intentions to perform a behavior. Attitude is influenced by beliefs that are perceptions 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. The theory of reasoned action (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.

Similarly, 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 the Theory of Reasoned Action (TRA). The theory assumes that a person's intention to perform or not perform is the determinant of the action, while TPB extends to include the perceived behavioral control component to conclude that TPB is more effective than the use of TRA (Servo, 2008).

Motivation

Motivation is a key component for the success of any organization. If the organization doesn't have team that is motivated to fulfill the tasks, they will not able to achieve efficiency in their workforce. In SMEs, owners as a leader are important to motivate their employees to work in common goal. Initial motivation for small enterprises to adopt new system was identified by (Premkumar & Roberts, 1999) and the advantages of new technologies in the organization. Furthermore, Chang and Chin (2012) defined intrinsic motivation as the

performance of an activity for no apparent reinforcement other than the process of performing the activity. Whereas (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". With regard to motivation it appeared that self-determination theory and empirical studies (Barkoukis et al., 2013; Chan *et al.*, 2014; Hwang, 2005; Lee et al., 2005) revealed that motivation has adequate effect on 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 *et al.* (1989) towards having less influence of attitude on the acceptance of system or technology. Supported by the self-determination theory (Deci, 1976; Deci & Ryan, 1980) broad framework on the human motivation and satisfaction of behaving with creative wellspring results with a contributing influence on the individual's attitude that can motivate towards the new technology adoption in the workplace. Based on the above discussions we proceed to derive intention of users to adopt AIS in the form of technology implications for Libyan SMEs, which are summarized in Fig. 1. Fig.1 was generated with the help of self-determination theory provided by Deci and Ryan (1985) and IT characteristics variables adapted from (Thong, 1999).

Studies acknowledged that SMEs need to motivate the users towards technology adoption and usage. However Afzal et al (2013) added that technology increases competitive advantage in terms of tools, techniques and ideas. Thus if the intention of the SMEs is improved but due to differences in the individual attitude there is lack towards the adoption of new technology.

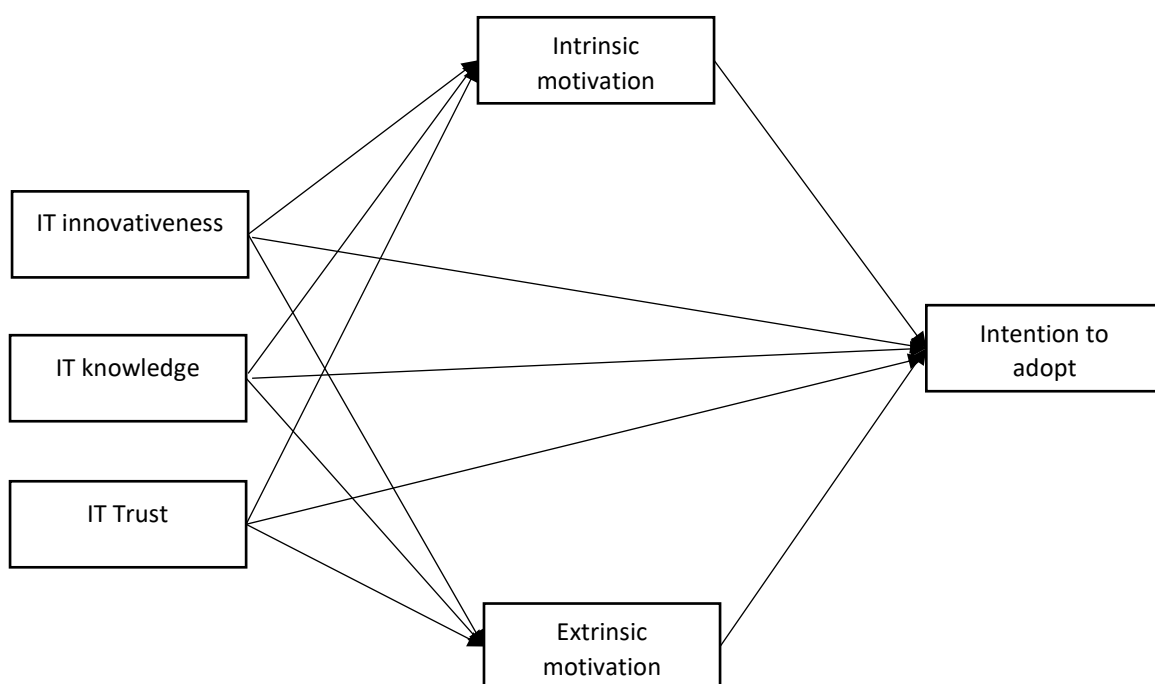


Figure 1. Theoretical framework

User's Attitude and Motivation

Prior technology adoption and motivation literature (Davis *et al.*, 1989; Deci & Ryan, 1980) contend that user's attitude is a key factor of technology adoption. Attitude is a powerful enable or a hurdle for the adoption of new system.

Scholars in motivation argued that motivation is an important driver of attitude (Cho & 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 on the importance of motivation. Furthermore, Grant and Sumanth (2009) demonstrated that the leverage of prosocial motivation also increases when managerial trustworthiness is high. However, human behavior depending on both intrinsic and extrinsic motivation, perceived ease of use and perceived usefulness play a necessary part in impacting the adoption of AIS by SMEs.

Therefore we argued that intrinsic and extrinsic motivation will have a mediating effect between IT characteristics and behavioral intention to adopt AIS. Stated as formal hypotheses:

Hypothesis 1. IT characteristics of users will have positive influence on behavioral intention to adopt AIS in Libyan SMEs.

Hypothesis 2. The relationship between IT characteristics and behavioral intention to adopt AIS will be mediated by the intrinsic motivation of the users in Libyan SMEs.

Hypothesis 3. The relationship between IT characteristics and behavioral intention to adopt AIS will be mediated by the extrinsic motivation of the users in Libyan SMEs.

Research Methodology

Quantitative research method was employed conducting a survey on owners of SMEs to examine they are motivated to adopt AIS as a new technology as an alternative to manual accounting. As the context of the study self-administered survey questionnaire was selected because results of prior research showed that the variables are conspicuous in evaluating behavioral intention and attitude of the users (Abukhzam & Lee, 2011; Ho Cheong & Park, 2005).

Survey instrument was developed based on the review of literature and content validity of the instrument was assessed by preliminary tests conducting interviews with professionals in this field. A total of 750 questionnaires were distributed out of which 348 responses were used with a response rate of 46.4%. The final version of the questionnaire contained 35 items adapted from previous studies. The data were collected as part of larger study examining the IT characteristics and motivating factors of users throughout the Libyan SMEs.

Results

The demographic profile, validity and reliability, and structural model using structural equation modeling (SEM) are reported in Tables 1, 2 and 3.

Characteristics of Respondents

Table 1, shows respondent's characteristics indicating that majority of the SMEs are from food & beverages industry with 29.02%, whereas pharmaceutical industries participated by only 4.02%.

Table 1

Demographic profile of respondents

Demographic profile	Valid Percentage (%)
SME Sector:	
Food & Beverages	29.02
Textile	19.54
Wood and paper	16.67
Automobile	12.35
Iron and steel	10.91
Petrochemical	2.87
Aluminum & fertilizers	4.60
Pharmaceuticals	4.02
Age	
18 to 29 years	4.60
30 to 39 years	19.0
40 to 49 years	49.4
50 and above	27.0
Major Background	
Management	45.7
Finance	2.00
Accounting	15.5
Engineering & Technology	36.8
Gender	
Male	94.0
Female	6.00
Qualification	
Bachelor	31.32
Masters	45.40
Doctorate	8.05
Professionals	15.22
Business Activity	
Manufacturing	31.3
Trading	43.1
Service	25.6
Business Established	
Less than 6 months	0.60
6 to 12 months	0.90
1 to 3 years	6.60
4 to 6 years	47.1
7 years and above	44.8

N = 348.

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. Food and Beverages companies responded highly with the total of 29.02%, 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%. 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.

Structural Equation Modeling (SEM)

SEM analysis was performed using AMOS (Analysis of Moment Structure) version 21 software and the analysis is divided into two sections. The first section is the measurement model that is provided in the path diagram below.

Reliability is assessed using composite reliability (CR) and average variance extracted (AVE) whilst for validity using construct, convergent and discriminant validity analysis. Below table show that the composite reliability for all the constructs meet the benchmark of 0.70 (Hair et al., 2013; Nunnally, 1978). Using confirmatory factor analysis, construct 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 IT Innovativeness, IT knowledge, Trust in IT, 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.

Table.2
Validity and reliability of the measurement model

Exogenous	Path	Endogenous	Beta	CR	AVE
IM1	<---	IMM	0.849	0.879	0.597
IM2	<---	IMM	0.872		
IM3	<---	IMM	0.847		
IM4	<---	IMM	0.68		
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	0.69	0.82	0.533
CIK2	<---	CIK	0.727		

Exogenous	Path	Endogenous	Beta	CR	AVE
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		

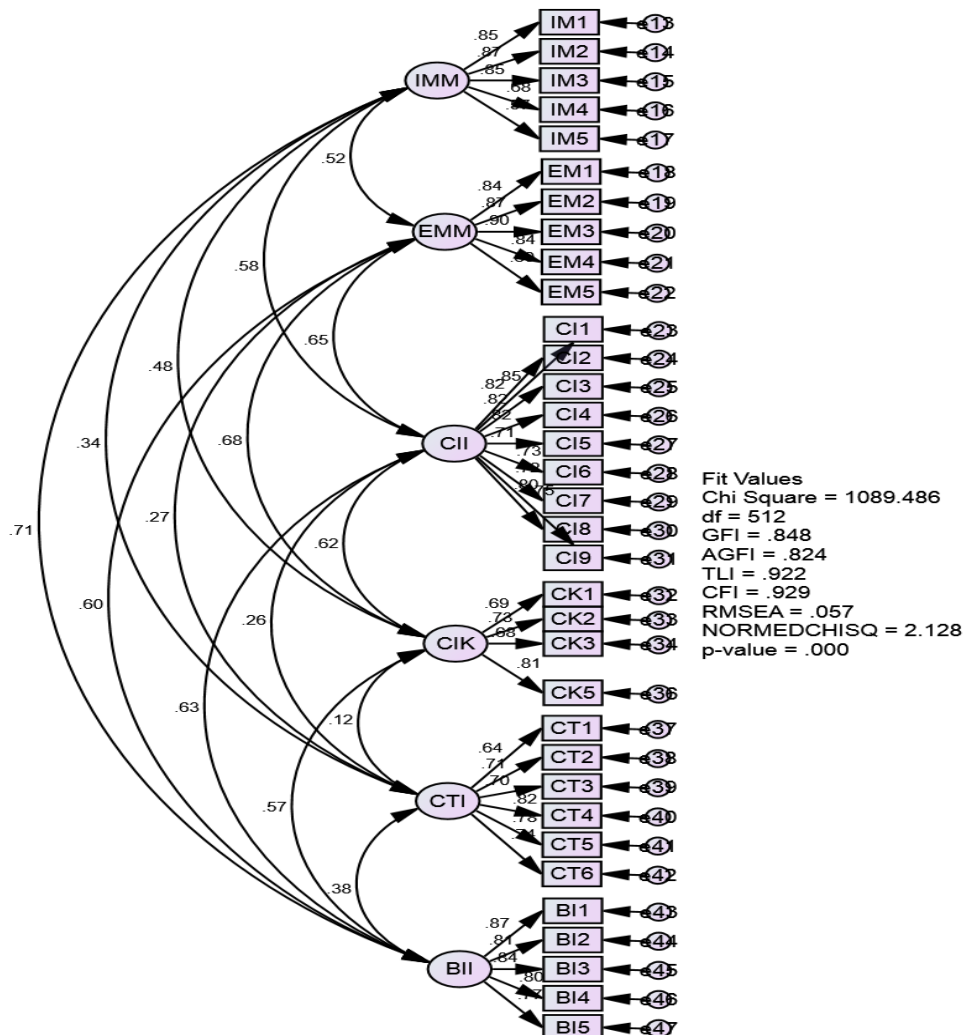


Figure 2. Measurement model for the variables

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 (CK4) was removed in order to satisfy the criteria of AVE.

Structural Model

Structural model is the second stage of the analysis. 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.

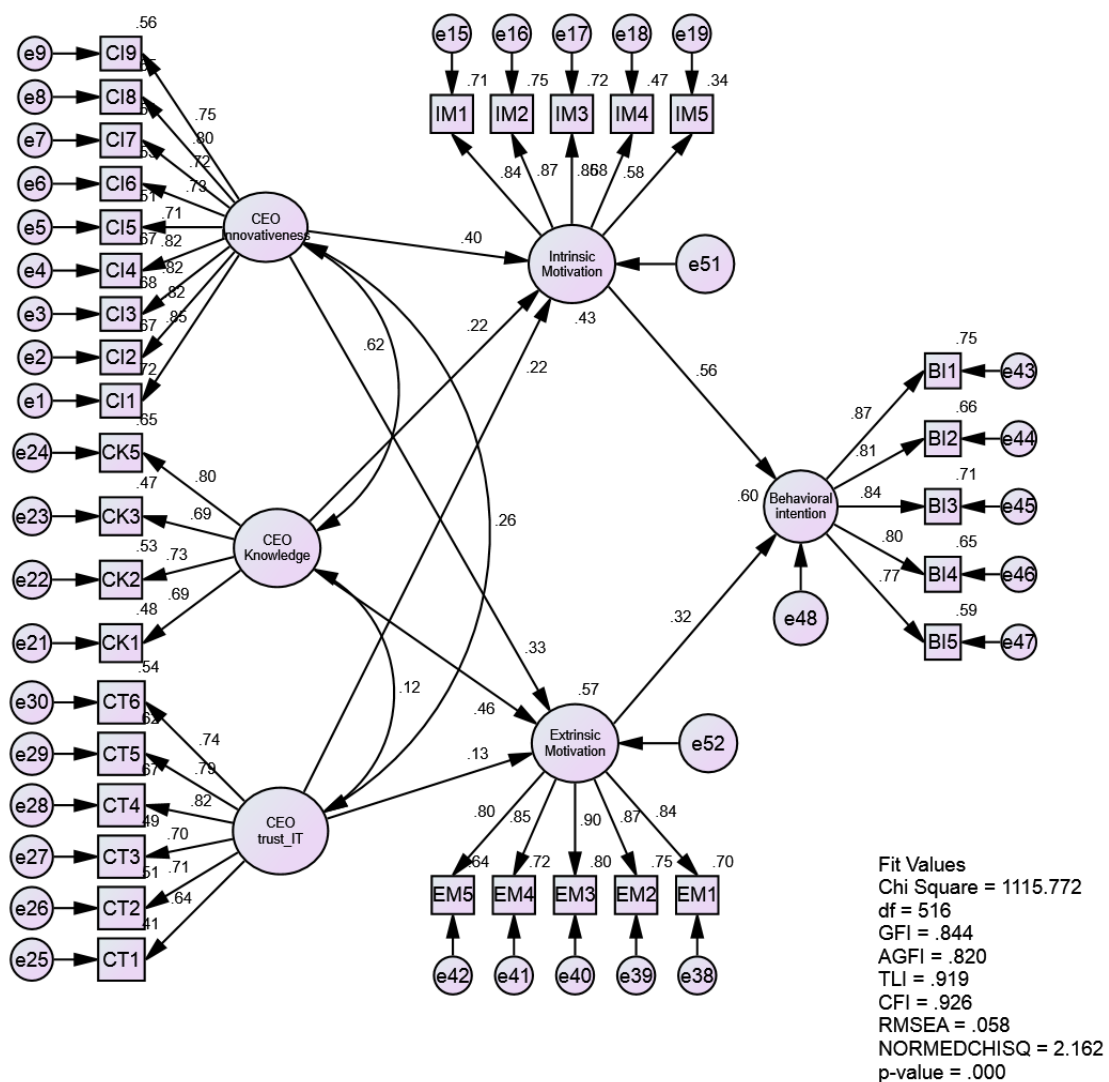


Figure 3. Structural model of the variables

According to Kline (1988), the four major fitness indices like GFI, TLI, RMSEA or CFI are used for evaluating the model fit. Similarly, Smith (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. 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.

Table 3

Standardized regression weights for the structural model

Endogenous	path	Exogenous	Estimate	Beta	S.E.	C.R.	P
Intrinsic Motivation	<---	IT Knowledge	0.256	0.222	0.079	3.254	0.001
Intrinsic Motivation	<---	IT Innovativeness	0.338	0.403	0.057	5.915	***
Intrinsic Motivation	<---	IT Trust	0.213	0.222	0.05	4.228	***
Extrinsic Motivation	<---	IT Innovativeness	0.298	0.334	0.054	5.479	***
Extrinsic Motivation	<---	IT Knowledge	0.564	0.461	0.083	6.796	***
Extrinsic Motivation	<---	IT Trust	0.135	0.132	0.047	2.902	0.004
Behavioral intention	<---	Extrinsic Motivation	0.301	0.325	0.046	6.536	***
Behavioral intention	<---	Intrinsic Motivation	0.554	0.562	0.053	10.399	***

Note: *** p < 0.001

From the square multiple correlation results it was noted that the model fit criteria are solved and there is a high correlation between the extrinsic motivation, intrinsic motivation and the behavioral intention with 0.60 i.e.60%. CEO IT knowledge was found to be main factor when it comes to intrinsic and extrinsic motivation as mediating between CEO IT knowledge and behavioral intention. From the model fit indices ($\chi^2 = 1115.772$, DF = 516, $\chi^2/DF = 2.162$, P=0.000, GFI=0.844, AGFI = 0.820, TLI = 0.919, CFI = 0.926 and RMSEA=0.058) as shown in Figure 3 showed that the model is fit. Thus intrinsic and extrinsic motivation plays a partial mediating role between IT characteristics and behavioral intention to adopt AIS in SMEs of Libya. Based on an examination of goodness-of-fit indices including the normed chi-square value, structural model appears to have a better fit. Table 3 shows that all the hypothesized relationships (H1, H2 and H3) were statistically significant.

Conclusions

The findings of the research show that the attitude in the form of motivating the users plays a mediating role for enhancing behavioral intention of users in Libyan SMEs to adopt AIS. The dimension that increases the importance of user's attitude was extrinsic and intrinsic motivation. To recapitulate several studies have confirmed perceived usefulness and perceived ease of use to be the main factor for technology adoption and implementation. But this study found that not only perceived value but also user's motivation to accept the system is equally important for unique competitiveness and growth of SMEs. Practically the result suggests that motivation of users impacts 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 information system supports critical work-related tasks and are very reliable to use. Intrinsic motivation reflects the natural human propensity to learn and assimilate. Extrinsic motivation, on the other hand, varies considerably in its characteristics and thus can

either reflect external control or influence self-regulation. It was also found by (Baard et al., 2004; Clark & Mayer, 2011; Fagan et al., 2008) that intrinsic motivation has a statistically significant direct impact on user's intention to adopt 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 information system.

Suggestion for Future Research

As information systems producers are realizing why and how business is carried out, they are trying to create computer-supported business applications that are suitable for business processes. This means 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 the users or decision makers. Future research might undertake the mixed methodology approach to improve the findings. Finally, this research has reinforced the understanding of user's attitude 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 attitude and behavioral intention to adopt as key variables in technology acceptance.

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