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Understanding social media adoption in SMEs

Empirical evidence from the United Arab Emirates

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Abstract

Purpose – This paper aims to investigate the key drivers of social media adoption intention by small- and medium-sized enterprises (SMEs).

Design/methodology/approach – It uses a multi-perspective framework combining technological, organizational and environmental elements affecting SMEs. Data were collected from a random sample of 1,700 SMEs operating in the UAE. Partial least squares structural equation modeling was used to analyze the data.

Findings – The results showed that the technology construct had no significant effect on social media adoption, but both organization and environment constructs were significant.

Research limitations/implications – This has implications for social media experts and anyone wishing to encourage social media use by SMEs.

Originality/value – Conceptually, it develops a suitable multi-perspective framework covering various factors that may affect social media use. It also tests the framework empirically on a sample of SMEs from the UAE.

Keywords United Arab Emirates, Adoption, Social media, Small- and medium-sized enterprises, TOE model

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Introduction

Information technology (IT), and particularly the use of social media to manage business processes, may enable organizations to perform better in the marketplace. Social media involves exchanging user-generated content, using real-time feedback and building communities of consumers to support business processes (Constantinides and Fountain, 2008). It therefore helps companies and consumers to co-create products (Parise and Guinan, 2008). Bernoff and Li (2008) suggested that firms can use social media applications in various areas, including sales and marketing, research and development, customer support and operations.

Trainor *et al.* (2014) noted that social media is rapidly becoming essential for businesses. A study by the eMarketer (2016) website suggested that global expenditure on social media marketing was US$32.97bn in 2016. It was expected to increase by 72 per cent by 2019. This suggests that businesses now see social media as a core part of doing business (Kietzmann *et al.*, 2011). There is also evidence that small- and medium-sized enterprises (SMEs) need to adopt technological innovations appropriately – that is, at the right time and market level – to remain competitive and profitable (Dahnil *et al.*, 2014; Derham *et al.*, 2011; Jagongo and Kinyua, 2013; McCann and Barlow, 2015). Research has also shown, however, that SME owners tend to be cautious in their adoption and use of IT (Zolkepli and Kamarulzaman, 2011), partly because they do not have the resources to manage big IT projects (Durkin *et al.*, 2013). Durkin *et al.* (2013) also suggested that SMEs may therefore gain disproportionately from using social media, as it is a relatively cheap business management tool.

Previous research has provided little information about the drivers of social media diffusion in SMEs, especially in developing countries such as the UAE (Abdulla *et al.*, 2010; Al-badi, 2014; Fatairy, 2013; Jandal, 2013; Saleh *et al.*, 2011). Research in this area could therefore offer useful information about increasing social media use among SMEs (Ahmad *et al.*, 2017). This study therefore aims to develop and test a framework covering multiple perspectives and factors that may affect intent to use social media among SMEs in the UAE. It makes two main contributions to the literature. Conceptually, it develops a suitable multi-perspective framework covering various factors that may affect social media use. This should help investigators understand more about this issue in a developing country. It also tests the framework empirically on a sample of SMEs from the UAE. Most research on social media uptake to date has covered developed countries, even though evidence suggests that such studies may not be generalizable to developing countries, because of the differences between them (Durkin *et al.*, 2013; Lorenzo-Romero *et al.*, 2014). This study therefore adds to our knowledge about social media use by studying SMEs based in a Middle Eastern country.

Literature review

Small- and medium-sized enterprises

There is no single, universally-accepted definition of a small enterprise (McCartan-Quinn and Carson, 2003; Ramdani *et al.*, 2013; Wong, 2012). Several definitions have been put forward. These definitions are often linked to the level of economic activity and development within the country (Khalifa Fund, 2013). Some researchers have used capital assets, while others have chosen labor skills and turnover levels, the firm's legal status or its production method, ownership or industry sector (Bohari *et al.*, 2014; Gibson and Vaart, 2008; Ramdani *et al.*, 2013). The most commonly used framework for defining SMEs in the UAE is from Cabinet Resolution No. 22 of 2016. This uses the number of employees, annual sales turnover and gross assets to identify three categories of small businesses (Silver *et al.*, 2016). We defined small businesses as firms with an annual turnover of less than AED 2m and no more than 50 full-time employees and medium-sized firms as any with an annual turnover of between AED 2 and 200m and 50-200 full-time employees. A Ministry of Economy (2016) report noted that the UAE SME sector contains an estimated 350,000 enterprises. Baby and Joseph (2016) estimated that 95 per cent of all private businesses in the UAE were small businesses. The UAE SME sector is very diverse and employs about 86 per cent of the active workforce, excluding small business owners themselves (Baby and Joseph, 2016). The UAE is expected to export its last shipment of crude oil, to date the main booster of economic growth and development, in 2050 (Malek, 2015). To minimize the effect of this and contribute to ongoing growth, the UAE Government has emphasized that the country needs

a strong SME sector. The UAE SME sector is, however, still relatively weak (Baby and Joseph, 2016). At present, many UAE SMEs do not have the skills to promote their products or services efficiently or to gather enough customers to grow and be sustainable. They also do not have sufficient resources to employ external support for marketing (Melorose *et al.*, 2015). Social media may help, because it is an affordable innovation that helps businesses to reach their customers more easily (Baby and Joseph, 2016).

Characteristics of small- and medium-sized enterprises

SMEs differ from large businesses in many ways (Ramdani *et al.*, 2013; Wong 2012). For example, SMEs tend to be more tightly controlled, but less likely to employ specialists (Thong, 1999). Perhaps because of this focus on more general skills, they may also lack both knowledge of IT and the technical expertise needed to understand and take advantage of its benefits (DeLone, 1988). This is made worse because SMEs have limited financial backing, and so may be reluctant to invest in significant IT infrastructure or technical expertise (McCann and Barlow, 2015), particularly because they are aware that they do not necessarily have the management and financial resources to control any problems that may arise as a result (Baby and Joseph, 2016). Given the emphasis on SMEs in the UAE, research would be helpful to develop greater strategic insight into innovation technology in this group.

Social media and small- and medium-sized enterprises

Several previous studies have found a positive relationship between social media adoption and business performance (Ahmad *et al.*, 2017; Ainin *et al.*, 2015b; Paniagua and Sapena, 2014; Parveen *et al.*, 2014; Rodriguez *et al.*, 2012). Social media use has been shown to have potential to increase sales, reduce costs, improve customer service, reach and brand awareness, drive traffic to the company website and improve business-to-business relationships (Hoffman and Fodor, 2010; Kaplan and Haenlein, 2010; Mangold and Faulds, 2009; McCann and Barlow, 2015). It has therefore become a strategic priority for most businesses and been extensively adopted as a standard part of business operations (McCann and Barlow, 2015). It is, however, important that organizations first consider the goals and objectives of social media use and how to measure the results (Hoffman and Fodor, 2010; Murdough, 2009). McCann and Barlow (2015) found that SMEs that do not plan social media adoption strategically tend not to get the full benefits from its use. The gap between successful and unsuccessful or non-adopters of social media is therefore widening. This, in turn, makes it harder for non-adopters to survive in the longer term (White *et al.*, 2016).

Theories on technology innovation adoption

In this study, we consider social media to be an innovation, defined as an idea, product, program, or technology that has not previously been used by the organization (Rogers *et al.*, 2014). Research on innovation usually falls into two categories, either studying the characteristics of the innovation itself, and the results of its use, or looking at whether adoption is at individual or organizational level (the *locus* of adoption) (Fichman, 1992). This study focuses on the second category. Research on individual innovation adoption considers either intent or actual use of an innovation by individual users (Fichman, 1992). Research on organizational innovation may examine the whole organization, or focus on particular parts such as departments or agencies. There are a number of theories explaining innovation adoption at both levels. At the individual level, for example, theories include the theory of reasoned action (Fishbein and Ajzen, 1975), the technology acceptance model (Davis *et al.*, 1989), the theory of planned behavior (Ajzen, 1991) and the unified theory of acceptance and use of technology (Venkatesh *et al.*, 2003). Theories about organizational adoption include

the technology–organization–environment (TOE) framework (Tornatzky and Fleischer, 1990) and the tri-core model (Swanson, 1994). The innovation diffusion theory (Rogers, 1962) can be used at either level. All these theories suggest that there are several factors that can affect the adoption and use of innovations. The TOE is perhaps the most widely used theory on organizational-level adoption (Gangwar *et al.*, 2015; Tsou *et al.*, 2015).

Theoretical background

In this study, we used Tornatzky and Fleischer's (1990) TOE framework to examine organizations across several perspectives. In particular, it explains how technological, organizational and environmental factors may affect the use of innovations (Oliveira *et al.*, 2011). This framework was used for several reasons. First, research on the TOE model has shown that it has broad applicability and can explain adoption in a number of technological, industrial and national contexts. It is the only framework that fully covers environmental factors. This means it can provide a better explanation of innovation adoption (Zhu *et al.*, 2006). Zhu and Kraemer (2016) pointed out that the TOE has consistent empirical support in various technological and information system domains, and that as a generic theory of technology diffusion. The model can be used to investigate different types of innovation. Oliveira *et al.* (2011) noted that this framework ensures that the researcher looks beyond the technical aspects and therefore enables studies to examine both the intrinsic characteristics of an innovation and the environmental and organizational factors that affect its adoption.

The TOE framework has been used in a large number of technology adoption studies comprising American, European and Asian contexts and in both developed and developing countries. These include studies such as cloud computing in India (Gangwar *et al.*, 2015); mobile marketing in South Africa (Maduku *et al.*, 2016); e-business diffusion and enterprise resource planning in Taiwan (Lin and Lin, 2008; Pan and Jang, 2008); enterprise systems in China (Wang and Hwang, 2012); service architecture in South Africa (MacLennan and Van Belle, 2014); and mobile reservation systems in China (Wang *et al.*, 2016). It has also been shown to fit with empirical results. Finally, a meta-analysis on this framework, using 22 published studies, showed that the model is robust and valid for the study of adoption of ICT-related products within organizations (Arpaci *et al.*, 2012). Table I summarizes some of the studies using the TOE framework, and Table II shows the main factors in each area.

Technological context

The technological context describes any technology that is either being used by the organization or that is available and is known to be potentially useful, but is not yet being used (Zhu and Kraemer, 2016). The characteristics of any innovation affect how it is used and adopted. They provide benefits to the organization and also have potential drawbacks (Oliveira *et al.*, 2011). Most organizations make decisions about what technology to use based on its likely benefits to that organization compared to both those of alternatives and its drawbacks (Gangwar *et al.*, 2015; Ramdani *et al.*, 2013). Relative advantage, compatibility, complexity, trialability and observability are considered to be technological factors that influence social media adoption by SMEs. Al-Qirim (2007) suggested that technologies and innovations are only likely to be used if decision-makers believe that their benefits are much greater than their risks. Several scholars (Al-Qirim, 2007; Varadarajan *et al.*, 2010; Zhu *et al.*, 2006) have suggested that this "relative advantage" strongly and positively affects whether organizations decide to use particular innovations.

Perceived compatibility is how well the innovation, in this case social media, fits with current business processes, suppliers and customers. According to Lin (2011), compatibility between technological innovativeness and the values and culture of the firm, together with

Table I.
Theories used to explain innovation adoption at the individual or organizational level

Research	UTAUT	TOE	IDT	TAM	TAM and RBT	TAM and Big Five model	TOE and institutional theory	TAM and Nielsen's model of attributes of system acceptability
Curtis *et al.* (2010)	X							
Kwon and Wen (2010)				X				
Mustaffa *et al.* (2011)			X					
Pookulangara and Koesler (2011)				X				
Mandal and Mcqueen (2012)	X							
Sin *et al.* (2012)				X				
Omosigho and Abeysinghe (2012)		X						
Parveen (2012)							X	
El-Haddadeh (2012)				X				
Alikilic and Atabek (2012)	X							
Pentina *et al.* (2012)				X				
Sago (2013)				X				
Abeysinghe and Alsobhi (2013)		X						
Aharony (2014)				X				
Rauniar *et al.* (2014)						X		
Lorenzo-Romero *et al.* (2014)				X				
Dutot (2014)				X				
Ainin *et al.* (2015b)			X					
Siamagka *et al.* (2015)					X			
Sharif *et al.* (2015)		X						
Ainin *et al.* (2015a)			X					
Sharif *et al.* (2016)		X						
Alotaibi *et al.* (2016)		X						
Lacka and Chong (2016)								X
Gazal *et al.* (2016)				X				

Notes: UTAUT: unified theory of acceptance and use of technology; TOE: technology-organization-environment framework; IDT: innovation diffusion theory; TAM: technology acceptance model; and RBT: resource-based theory

Table II. Factors identified in each area across some recent studies using the TOE framework

Researchers	Innovation and context	Methods of analysis	Technology	Organization	Environment
Zhu and Kraemer (2016)	E-business adoption Retail industry- multiple countries	SEM	Technology Competence	Size International scope Financial commitment	Competitive pressure Regulatory support
Maduku *et al.* (2016)	Mobile marketing SME sector in South Africa	SEM	Relative advantage Complexity Cost	Top management Financial resource Employee capability	Competitive pressure Customer pressure Vendor support
Shi and Yan (2016)	RFID adoption Agricultural product distribution industry in China	SEM	Technological complexity Technological compatibility Perceived effectiveness Cost	Organizational size Upper management support Trust between enterprises Technical knowledge Employee resistance	Competitive pressure Uncertainty Chinese government support
Gangwar *et al.* (2015)	Cloud computing IT, manufacturing and finance sectors in India	SEM	Relative advantage Compatibility Complexity	Organizational competency Training and education Top management support	Competitive pressure Trading partner support
Ahmad *et al.* (2015)	E-commerce SME sector in Malaysia	MR	Perceived relative advantage Perceived compatibility Perceived complexity	E-commerce knowledge Management attitude toward e-commerce	External change agents Pressures from trading partners Pressures from Competitors
Oliveira *et al.* (2014)	Cloud computing adoption Manufacturing and services sectors	SEM	Technological readiness	Top management support Firm size	Competitive pressure Regulatory support
Ramdani *et al.* (2013)	Enterprise applications SME sector in northwest England	PLS	Relative advantage Compatibility Complexity Trialability Observability	Top management support Organizational readiness ICT experience Size	Industry Market scope Competitive pressure External ICT support
Teo *et al.* (2009)	E-procurement E-procurement managers in Singapore	LR	Perceived direct benefits Perceived indirect benefits Perceived costs	Firm size Top management support Information sharing culture	Business partner influence
Przechlewski and Strzała (2009)	Determinants of open source software adoption IT managers in Poland	PLS	Direct benefits Indirect benefits	Satisfaction Organizational barriers Size	Environmental impact
Pan and Jang (2008)	Enterprise resource planning Communication sector in Taiwan	LR	IT infrastructure Technology Readiness	Size Perceived barriers	Production and operations improvement Enhancement of products and services Competitive pressure Regulatory policy

its way of working, is an important determinant of innovation use, and other studies have confirmed that this is also true for SMEs (Ainin *et al.*, 2015b). Poor compatibility makes it harder to introduce or use innovations (Zhu and Kraemer, 2016). If a particular new information technology is seen as being difficult to use, or to require substantial training or learning, it is much less likely to be adopted (Zhu and Kraemer, 2016). The relative ease of use also affects individuals' intention to use a particular technology. This relationship between complexity and adoption or intent to use is very clear for individual innovation adoption (Liaw, 2008; Martinez-Torres *et al.*, 2008; Park *et al.*, 2012). However, the relationship has seldom been investigated at the organizational level (Crossan and Apaydin, 2010), and this study aims to fill that gap.

Trialability describes whether an innovation can be trialed or tested before full adoption (Rogers, 1995). It considers, for example, whether the innovation is suitable for piloting or testing in a particular department before organization-wide roll-out. Chong and Pervan (2007) concluded that trialability was a significant factor in adoption of e-commerce, because it reduced uncertainty. Social media applications are relatively cheap to use and the technology can be tried on a limited basis before it is adopted across the organization. The attributes and features of social media technology therefore enable SMEs to try the technology before full adoption.

Observability is how much others can see the effect of innovation adoption. Seeing that someone else is successfully using new technology reduces the uncertainty and makes organizations and individuals more likely to adopt that technology too (Rogers, 1995). This factor has been examined in several studies. For example, Lin and Chen (2012) found that companies were unlikely to adopt cloud technology if successful business cases and models were not available and clear.

Organizational context

The organizational context is all the features of the organization (including the number of employees, turnover, degree of centralization and formalization and managerial structure) and its resources (including staff and their relationships and networks) (Tornatzky and Fleischer, 1990). For the purpose of model parsimony, this study only used "top management support" to represent the organizational context. Other elements such as personal and demographic characteristics were not included to ensure that only salient factors were studied. Top management plays a vital role in innovation adoption by setting out how the innovation fits with the firm's overall strategy and encouraging and rewarding creativity and innovation. It is therefore essential in creating the right environment and providing resources, both vital to encourage the use of new technologies (Lin, 2014). Previous studies have confirmed that the support of top management strongly affects organizations' intention to use a new technology (Ahmad *et al.*, 2015; Maduku *et al.*, 2016; Zhu *et al.*, 2003).

Environmental context

The environment is all those factors outside the organization, including the conditions in which it operates. It therefore covers industry structure, availability of technology and any regulatory requirements (Tornatzky and Fleischer, 1990). One particularly relevant factor is competitive intensity, or the threat of losing competitive advantage (Zhu *et al.*, 2003). According to Porter and Millar (1985), adopting innovations can enable firms to affect their industry structure. This may change the rules of competition, create competitive advantage and leverage new ways to outperform competitors. Although Porter and Miller's analysis originally applied to information systems adoption, it can be extended to social media,

because this can be used to implement new organizational strategies and respond to competitors. White *et al.* (2016) surveyed 90 manufacturing and service companies and found that companies reported benefits from using social media to support product innovation. These included improved ideas for new products, getting products to market faster and speeding up product adoption. Development costs were also lower, and revenues were higher.

Competitive pressure describes the degree of rivalry within an industry (Lertwongsatien and Wongpinunwatana, 2003). It can be affected by factors including globalization, the development of new technology and knowledge use (Derham *et al.*, 2011). In a more competitive environment, organizations tend to innovate, with many choosing to adopt innovations as a result. Zhu *et al.* (2003) investigated electronic business adoption by European firms and found that adopters were put under pressure by their trading partners to conform to technological standards, because electronic trade requires all business partners to adopt compatible systems. The same applies to social media: trading partners need to adopt unified social media applications and platforms.

The bandwagon effect is a psychological phenomenon in which firms adopt innovations primarily because other businesses have done so, regardless of their own corporate strategy. According to Näslund and Newby (2005), many firms implement new and robust information systems because everybody else in the market is doing so. As more firms use a particular piece of technology, greater pressure is exerted on others to do so too (Abrahamson, 1991; Abrahamson and Rosenkopf, 1993). The bandwagon effect is particularly strong for organizations in unclear or uncertain environments (Abrahamson, 1991).

Research methodology

Measurements

The exogenous variables investigated in this study cover the technology, organizational and environmental contexts. The endogenous variable is SMEs' social media adoption. The observed variables representing the latent variables are shown in Table III. Each construct consisted of several items, measured using a five-point Likert-type scale with answers ranging from 1 ("strongly disagree") to 5 ("strongly agree"). The items used were all taken

Part	Name	Source of measurement items	Items
A	*Respondents' characteristics*	Kushnir (2010)	4
B	*Social media adoption*	Cesaroni and Consoli (2015)	*5*
C	*Technological context*		*24*
	Relative advantage	Grandon and Pearson (2004)	6
	Compatibility	Al-Qirim (2007)	6
	Complexity	Lorenzo-Romero *et al.* (2014)	5
	Trialability	Anderson (2007)	3
	Observability	Sin Tan *et al.* (2009)	4
C	*Organizational context*		*3*
	Top management support	Thong (2001)	3
C	*Environmental context*		*9*
	Competitive intensity	Teo *et al.* (1997)	3
	Bandwagon pressure	Sun (2013)	3
	Competitive pressure	Gutierrez *et al.* (2015)	3
	Total Items		*45*

Table III.
Constructs for the study

from scales that had been previously validated and used in innovation adoption studies. Where necessary, they were adapted to cover social media use. At least three items were used for each construct to ensure adequate reliability (Nunnally, 1978).

Instrument validation

We tested the questionnaire on ten people from the target population. We asked them to consider whether the questions and instructions were clear and also comment on the questionnaire's layout and how long it took to complete. They generally agreed that the questionnaire was clear and easy to complete, so no further modifications were made.

Sampling and data collection

The sample for this study was drawn from the UAE directory of SMEs (www.souqalmal.com/sme-business-directory), which lists all the SMEs operating in UAE, across the seven Emirates: Abu Dhabi, Dubai, Ajman, Sharjah, Ras Al-Khaimah, Umm Al-Quwain and Fujairah. The sample was randomly selected from the directory, which serves as the study's sampling frame. The target respondents were those with knowledge of the subject matter, expected to be the SMEs' owners, executives and senior managers. Based on the random selection of the SMEs that would be involved in this study, the particulars of the respondents such as email and name of person-in-charge were taken. The selected respondents were then asked to complete an internet-based survey by using a survey software tool, Survey Monkey (www.surveymonkey.com). All the respondents were invited to participate via an email that provided an explanation of the research and a hyperlink to the survey website. A total of 1,700 email invitations were sent out via a specialized data collection institute.

Results

Descriptive information

In total, 144 questionnaires of the 1,700 issued were returned, an effective response rate of 8.47 per cent. This level of response rate is considered acceptable for studies conducted in the Middle East region (Ahmad, 2012). The descriptive information for the respondents and companies is shown in Table IV.

Table IV.
Demographic characteristics of the respondents

Construct	Characteristics	Frequency	(%)
Gender	Male	108	75.0
	Female	36	25.0
Age	21-30	39	27.1
	31-40	74	51.4
	41-50	26	18.1
	Above 50	5	3.5
Education	Secondary or lower	4	2.8
	Diploma/certificate	15	10.4
	Bachelor degree/ professional	80	55.6
	Postgraduate degree	45	31.3
Position	Owner	43	29.9
	Executive	38	26.4
	Manager	35	24.3
	Senior manager	10	6.9
	Top manager/Director	18	12.5

The sample was reasonably representative of the study population. The respondents were mainly owners, executives and managers and mostly male (75 per cent). This is typical of businesses in the Middle East, including UAE (Kargwell, 2012). The majority of the respondents (78.1 per cent) were under 40 years old, with a university degree (55.6 per cent), with some also having a postgraduate degree (31.3 per cent). This suggests that SME operators are young and well-educated and so likely to be aware of recent business developments in their industry.

The sample contained a fair range of industries, including business services, information and communication technology (ICT), professional services, construction and contracting, restaurants and catering, travel agencies and transport and logistics. These businesses represented the population patterns of the industries operating in UAE. The companies in the sample also included representatives from all seven Emirates, although the majority were from Abu Dhabi (52.1 per cent) or Dubai (19.4 per cent). This mirrors the study population patterns. The sample included both SMEs (77 per cent) and micro-enterprises (23 per cent), using Dubai's SME definition. Table V shows the organizational characteristics of the sample.

More than half of the sample (64 per cent) confessed that the level of social media use within their firm was still basic and relatively recent: 60 per cent had been using it for less than two years. The social media applications used were similar to those used by UAE citizens. For example, the Arab Social Media Report (Mourtada *et al.*, 2015) indicates that the dominant social media platform in the Middle East region is Facebook, used by nine out of ten national internet users (90 per cent). WhatsApp was used by 82 per cent and Instagram by 56 per cent. There was, however, a clear difference between the findings of this study and social media use: businesses were more likely to use LinkedIn than Twitter, perhaps because LinkedIn may be more geared toward networking or human resources. Another significant finding was the lower use of YouTube among enterprises than individuals. Table VI shows the SMEs' adoption of social media.

Construct	Characteristics	Frequency	(%)
Employees	Fewer than 9	33	22.9
	10-35	52	36.1
	36-75	59	41.0
Industry sector	Business services	31	21.5
	Professional services	31	21.5
	Construction and contracting	19	13.2
	ICT	43	29.9
	Transport and logistics	2	1.4
	Restaurants and catering	16	11.1
	Travel and tourism	2	1.4
Firm Location	Abu Dhabi	75	52.1
	Dubai	28	19.4
	Ajman	16	11.1
	Sharjah	10	6.9
	Ras Al-Kaimah	10	6.9
	Um Quwain	3	2.1
	Fujairah	2	1.4

Table V. Organizational characteristics of the sample

Construct	Characteristics	Frequency	(%)
Firm's level of utilization	Minimal	36	24.5
	Basic	58	39.5
	Moderate	34	23.1
	Extensive	16	10.9
Social media apps used	LinkedIn	57	12.8
	Facebook	95	21.3
	Twitter	52	11.7
	Instagram	83	18.6
	YouTube	40	9
	Google+	28	6.3
	Pinterest	2	0.4
	iTunes or Podcast	1	0.2
	Blogs	8	1.8
	WhatsApp	80	17.9
Number of years since adoption	Less than a year	24	16.7
	1-2 years	61	42.4
	3-4 years	31	21.5
	More than 5 years	28	19.4

Table VI.
SMEs' adoption of social media

Empirical analysis

This study used partial least squares structural equation modeling (PLS-SEM) for data analysis. PLS-based SEM was chosen because it can be hard to find suitable data for covariance-based SEM (CB-SEM) (Chang *et al.*, 2016; Gupta and Arora, 2017; Lai and Hitchcock, 2017; Mikalef and Pateli, 2017). The research objective in this study was exploratory, so PLS is the most appropriate analysis. The literature showed that PLS-SEM is better than CB-SEM for non-normal data and small sample sizes (Beebe *et al.*, 1998; Cassel *et al.*, 1999), because it generally gives a better level of statistical power and also shows improved convergence behavior (Henseler and Fassott, 2010; Reinartz *et al.*, 2009). Previous researchers in this field have frequently used PLS to test path models (Marcoulides *et al.*, 2009) and theory confirmation (Chin, 1998).

Data purification

All the measures were used or adapted from established scales, but the measurement items were refined and tested for various aspects of reliability before the data analysis (Churchill, 1979, Anderson and Gerbing, 1988). The scales were first subjected to exploratory factor analysis (EFA). Following the guidelines of Gerbing and Hamilton (1996), EFA was used as a heuristic strategy for constructing multiple-indicator measurement models as a precursor to confirmatory factor analysis procedures. With the exception of a few items, the results of the EFA reflected a clean factor analysis, where all the items loaded nicely on the respective factor (Tables AI-AIII).

The items were then tested for convergent validity, item reliability and internal consistency. Table VII shows the item loadings, weights, reliabilities and p-values for individual item reliability. All the indicator weights were significant, so there was empirical support for keeping all the indicators (Hair *et al.*, 2011). Internal consistency of multiple indicators was examined using Cronbach's standardized alpha. The table shows that composite reliability (CR) was above the recommended value of 0.70 (Hair *et al.*, 2011), indicating internal consistency and reliability. The average variance extracted (AVE) was

Variable	Loadings	Weights	*p*-values
Technological context			
CR = 0.869			
AVE = 0.579			
Relative advantage	0.714	0.246	<0.001
Compatibility	0.476	0.164	<0.001
Complexity	0.788	0.272	<0.001
Trialability	0.897	0.310	<0.001
Observability	0.857	0.296	<0.001
Organizational context			
CR = 1.000			
AVE = 1.000			
Top management support	1.000	1.000	<0.001
Environmental context			
CR = 0.796			
AVE = 0.569			
Competitive intensity	0.796	0.466	<0.001
Bandwagon pressure	0.615	0.361	<0.001
Competitive pressure	0.834	0.489	<0.001
Social media adoption	1.000	1.000	<0.001
CR = 1.000			
AVE = 1.000			

Table VII.
Loadings, weights, reliabilities and *p*-values

above 0.50 (Hair *et al.*, 2011), providing support for convergent validity. Finally, Table VIII shows that all the constructs fulfill the Fornell–Larcker criterion for discriminant validity (Fornell and Larcker, 1981).

Structural model

To show the relationships between constructs, we used a structural model for the linear regression effects of the endogenous constructs on one another (Hair *et al.*, 2011). The model was assessed using PLS based on three criteria:

(1) path coefficients (β);

(2) path significance (p-value); and

(3) variance explained (R^2).

Construct	Technology context	Organizational context	Environmental context	Social media adoption
Technology context	0.761			
Organizational context	0.409	1.000		
Environmental context	0.512	0.173	0.754	
Social media adoption	0.162	0.206	0.152	1.000

Notes: The diagonal is square root of AVE and non-diagonal is from latern correlations above. For discriminant validity for construct(i); sqrt(avei) > max(correl(yi,yj)) applying Fornell-Larcker criterion

Table VIII.
Discriminant validities

The results showed that only the organizational and environmental constructs have a significant influence on SMEs' social media adoption, explaining 12 per cent of the variance. Figure 1 shows the path model of the endogenous variables against SME social media adoption. Table IX shows the results of the hypothesis testing. The hypotheses were tested using *t-values* for each path loading. We used a *t-values* of at least 1.645 for an alpha level of 0.05 as a cut-off point (Hair *et al.*, 2011).

Discussion

This study is one of the few known to have conducted a comprehensive quantitative investigation into the factors influencing the adoption of social media within SMEs in the Middle East, in this case, the UAE. The study's findings show differences from previous studies on technology adoption by organizations. Previous research has usually examined business-related technologies, such as e-commerce, enterprise resource planning (ERP) and cloud technologies. This study focused on a technology that is popular among consumers (Alarcon *et al.*, 2015; Balakrishnan *et al.*, 2014; Floreddu *et al.*, 2014). Its influence and impact on organizations is therefore very different.

The first difference was that the technology construct had no significant influence on SMEs' adoption of social media. The literature is inconclusive on whether internal or external factors are most influential in SMEs' adoption of technology, but Buonanno *et al.* (2005)

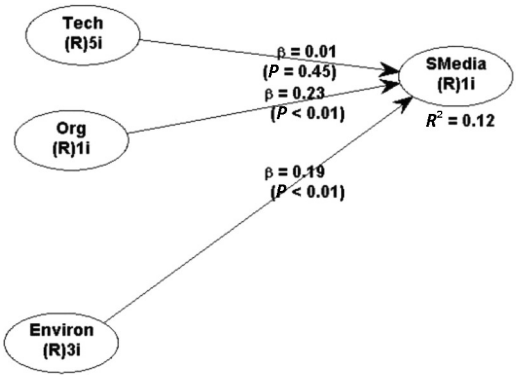

Figure 1.
Resulting path coefficients with loadings, significance and R^2

Variable	Hypothesis	Path coefficient	*t*-stats	Result
Technological context	*H1*: Technological context has a significant impact on SMEs' adoption of social media	0.010	0.120	Not supported
Organizational context	*H2*: Organizational context has a significant impact on SMEs' adoption of social media	0.233	2.950	Supported
Environmental context	*H3*: Environmental context has a significant impact on SMEs' adoption of social media	0.193	2.412	Supported

Notes: *Significant at $p \leq 0.01$; R^2 for social media adoption = 0.12

Table IX.
Results of hypothesis testing

argued that the decision to adopt specific technology such as ERP systems is more likely to be affected by internal than business-related factors. Other studies have noted that the primary reason why businesses adopt new technologies is their anticipated benefits (Iyanda and Ojo, 2008; Rogers, 2003; Vishwanath, 2009). These perceived benefits are largely determined by the firm's knowledge and understanding of how the technology would benefit them (Beatty *et al.*, 2001; Vishwanath, 2009). This knowledge could be the result of selective perception, because firms with technologically led motives see different expected benefits from firms with business-led motives (Velcu, 2007). Abu Bakar and Ahmed (2015), in line with Palumbo (2001), noted that it must be easy to use the technology, but just using it is not the end purpose: some business benefits must also accrue.

Previous studies have found that management support is critical to organizational adoption of technology, including in SMEs (Ahmad *et al.*, 2015; Ramdani *et al.*, 2013), which was confirmed by this study. The findings suggest that the adoption of social media technology in organizations requires a top-down mandate that forces managers to apply the technology in their tactical or marketing operations. It was noticeable that the owners/managers were relatively young and well-educated. They are therefore likely to be using social media as consumers, which may influence organizational adoption.

Finally, the influence of business environment showed that social media popularity affects its use among SMEs. This may be the result of relationships between companies, which can affect industry and sector structure (Johnston and Gregor, 2000). Firms may feel pressure when other organizations in their sector adopt a particular technology and therefore adopt it to remain competitive (Kuan and Chau, 2001). The trend in social media use among firms could therefore be a result of the combined effects of competitive intensity, bandwagon and competitive pressure in anticipation of the market trends.

Theoretical contributions

This study makes several contributions in the areas of social media adoption within SMEs. The first is that it tested the TOE framework plus relevant concepts from the diffusion of innovation theory. This is important because IT applications are highly differentiated technologies, and the results of previous studies on different technologies may not be generalizable to social media. By testing the widely accepted TOE framework using advanced statistical analysis, this research helped to analyze some of the issues relevant to an emergent research phenomenon. The findings also provide valid explanations for the relationships between concepts of the proposed research framework.

The study has developed a multi-perspective framework covering different factors linked to intention to use social media in SMEs. It will help researchers to better understand the factors influencing SMEs' social media adoption in a developing country. It also contributes by testing the framework empirically in a developing country (the UAE) and among small businesses. Most social media adoption studies have considered developed countries. There are, however, very real differences between developed and developing countries, and research findings from developed countries should therefore not be generalized to developing nations (Durkin *et al.*, 2013; Lorenzo-Romero *et al.*, 2014). This paper adds to our knowledge of social media use in business by studying SMEs based in a Middle East country.

Finally, the results of the study highlighted that SMEs adopt social media technology because of business environment pressure. This is alarming, because it may mean that adoption does not fit with the firm's strategy or take into account the likely influence of the technology on business performance. Adopting a technology simply to "keep up with the Joneses" is a precarious decision-making process. In sum, this study appears to be one of the

few to develop an empirical theory of social media technology adoption by SMEs in the UAE. The findings should help to reduce the general paucity of studies on both the Middle East region and SMEs.

Practical implications

This study has two significant practical implications for SMEs intending to adopt social media technology. First, the most widely used social media applications were social networking services. They were also the most popular social media tools used by the citizens of the country in question. This implies that SMEs are using these applications primarily for external communication purposes. This finding corresponds with Batikas *et al.*'s (2013) study on social media use by European SMEs. The second implication, for managers in particular, was that management support was critical in firm adoption of social media technology. Firms' market orientation behavior toward their competitors and customers leads to a market sensing posture in which they respond to competition and customers by adopting technologies that are widely accepted by consumers or users.

Limitations and future research

This study did, however, have some limitations. It was designed to identify factors affecting the use of social media applications, but it could not identify whether these varied between applications. This is because of the type of data, which restricts analysis using PLS. Second, the majority of the firms in the study were in the business services, professional services, construction and contracting and ICT sectors. It would be interesting to know whether the findings would be different in other sectors, particularly those that are more influenced by social media, such as entertainment, fashion and travel. Finally, the findings of the study showed that firms' adoption of social media technology is heavily influenced by competitive intensity, bandwagon and competitive pressure. It would be interesting to know whether firms had adopted social media strategically and if its adoption had improved business performance (Premkumar and Ramamurthy, 1995).

Conclusion

This research addresses SMEs' adoption of social media technology by using the TOE framework. Social media has received considerable attention in the literature, but the determinants of its adoption by organizations, especially SMEs, remain unclear. Previous studies have concentrated largely on individual adoption or use by large organizations. This study developed and tested a conceptual model that describes a number of factors hypothesized to influence the adoption of social media in SMEs in the UAE. The results of analysis using PLS-SEM showed support for the conceptual model and two of the proposed hypotheses. The results suggest that the adoption of social media is driven largely by managers and pressure from the business environment. The conceptual model developed in this study could provide a foundation for future studies investigating the organizational adoption of social media.

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Appendix

Table AI.
Factor loadings of the organization and environmental constructs

Measurement Items *LABEL*	Organization Management support *MGTSPT*	Environmental Factor Competitive Intensity *CMPIND*	 Bandwagon pressure *BWGPRE*	 Competitive pressure *CTPRES*
It is easy for our customers to switch to another company for similar services or products		0.853		
Our customers are able to easily access several existing products or services in the market which are different from ours but perform the same functions		0.846		
Social media is a popular application, so our firm would like to use it as well			0.753	
We follow others in adopting social media			0.805	
We choose to adopt social media because many other firms are already using it			0.883	
Social media would allow our firm a stronger competitive advantage				0.634
Social media would increase our firm's ability to outperform competition				0.575
Social media would allow our firm to generate higher profits				0.879
Top management in my organization is interested in adopting social media	0.920			
Top management in my organization considers social media adoption important	0.934			
Top management in my organization has shown support for social media adoption	0.913			
Reliability scores	*0.927*	*0.774*	*0.777*	*0.706*

Note: Factor loadings < 0.5 are suppressed

Measurement items *LABEL*	Relative advantage *RELADV*	Compatibility *CBTILITY*	Complexity *COMPLEX*	Trialability *TRIAL*	Observability *OBSERVE*
Social media provides new opportunities	0.609				
Social media allows us to accomplish specific tasks more quickly	0.687				
Social media allows us to enhance our productivity	0.654				
Social media allows us to learn more about our competitors	0.597				
Social media allows for better advertising and marketing	0.621				
Social media enhances the company's image	0.663				
Social media is compatible with our culture and values		0.745			
Social media is compatible with our preferred work practices		0.700			
Social media security is compatible with us		0.803			
Social media legal issues are compatible with us		0.680			
It would not affect the firm if it finally chooses not to adopt social media		0.522			
I find it easy to get social media to do what I want to do			0.670		
It is easy to become skillful at using social media			0.843		
I find social media easy to use			0.824		
Interaction with social media is clear and understandable			0.754		
Social media is flexible to interact with			0.839		
Social media-created changes are compatible with our business				0.651	
Social media is compatible with our customers				0.796	
Being able to try out social media was important for the firm to use it				0.617	
Social media is relatively cheap/free, so the firm could pilot its use				0.425	
We can see our customers like social media when we use it					0.734
We have no difficulty telling our customers and partners what our social media program is					0.768
Our customers know about our firm when we use social media					0.685
We can see the results of our social media program					0.741
Reliability scores	*0.744*	*0.751*	*0.861*	*0.562*	*0.760*

Table AII. Factor loadings of technological constructs

Table AIII.
Factor loadings of social media adoption

Measurement items LABEL	Social media adoption
Firm's level of use of social media	0.770
Years of organizational use of social media	0.643
Extent to which social media is used as a marketing tool in organization	0.676
Hours per week company uses social media	0.714
Total marketing budget allocated to social media	0.606
Reliability scores	*0.719*

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