

The practice of e-commerce and its obstacles: A field study on SMEs in the Al-Qassim region



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ABSTRACT

The aim of this study was to explore the practice of e-commerce among SMEs in Al-Qassim region, Saudi Arabia and the obstacles to e-commerce faced by managers. In order to collect the required data, a questionnaire was developed on the basis of an extensive review of the literature, and this was distributed to a sample of 100 SMEs in the Al-Qassim region. Of the distributed questionnaires, 74 completed questionnaires were returned, giving a response rate of 74%. The questionnaire comprised four main domains: the practice of e-commerce as a dependent variable while organizational, technological and environmental factors as independent variables. Each of the independent domains covered six dimensions. The results of the study supported the hypotheses that organizational factors (top management support, employee skills and experience, and business strategy alignment), technological factors (internet service quality, information technology security, perceived benefits, e-payment services, and number of technical officers), and environmental factors (customer preferences, industry characteristics, socio-cultural factors, and competitor pressure) have significant and positive relationships with the practice of e-commerce in SMEs. The absence of these factors can therefore be regarded as a barrier to the practice of e-commerce.

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1. Introduction

Small and medium-sized enterprises (SMEs) form about 90% of business enterprises in Saudi Arabia. SMEs in Saudi Arabia include companies in the micro, small, and medium categories. These enterprises can be defined in terms of the number of their employees. Micro enterprises have one or two employees, small enterprises between three and 49 employees, and medium enterprises between 50 and 200 employees (JEG, 2016). Ezzi (2015) indicated that the practice of e-commerce by Saudi SMEs has been enhanced because of several developments initiated in Saudi Arabia. Examples of these developments include the electronic payment system introduced by the Saudi Arabian Monetary Authority, which is an online system dedicated to bill payments and fund transfers, and developments introduced by Saudi Post such as electronic delivery methods and an e-shopping portal. The author reported that e-commerce sales amounted to about

10% of the total retail sales in 2015. As for the growth rate of e-commerce among large companies, Albugami and Ahmed (2015) mentioned that in 2014 Saudi Arabia had the highest rate of growth among Middle East and North African countries.

However, the practice of e-commerce among SMEs is still in its initial stages. Ezzi (2015) stated that in 2009 only 12% of Saudi SMEs had a dynamic website and that about 88% of such enterprises had no e-payment services. The percentage of companies using dynamic websites had grown to 33% by 2015. With respect to barriers to e-commerce business in Saudi Arabia, Ezzi (2015) declared that risk is the key barrier to the use of e-commerce by customers; this risk is the risk to customer privacy, the risk of a lack of commitment by the vendor, and financial risk. Another barrier to the use of e-commerce by customers is their preference for actual shopping rather than virtual shopping. They regard the internet as a source for searching for products but not for buying them. For the enterprises, it was concluded that a lack of management support, a management that was unsure of the perceived benefits, a resistance to change, and the high cost of starting up e-commerce services were barriers to the use of e-commerce.

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In order to study e-commerce practice in SMEs in Saudi Arabia, an intensive literature review was carried out of studies from Saudi Arabia and other countries. The findings of the review were that numerous factors affect the practice of e-commerce. These factors were categorized into three main types: organizational, technological and environmental factors (Bahaddad et al., 2012; Ajmal and Yasin, 2012; Shemi and Procter, 2013). The primary aim of this study is to study the practice of e-commerce in SMEs in Saudi Arabia, and the obstacles met by these enterprises.

2. Literature review, research hypotheses and model

2.1. Factors enhancing and inhibiting the practice of e-commerce

Senarathna and Wickramasuriya (2001) proposed that the adoption of e-commerce in SMEs in Sri Lanka is a function of numerous variables such as top management support, organizational culture, and the availability of technological resources (measured by such things as the number of personal computers, website presence, and the number of technical officers), internet access methods, and the presence of backup facilities. Their results indicated that top management support, website presence and organizational culture, particularly an adhocracy culture, have significant effects on the adoption of e-commerce.

MacGregor and Vrazalic (2004) studied the adoption of e-commerce in SMEs in Australia and Sweden, and indicated that the most significant obstacles to the adoption of e-commerce are a lack of fitness between e-commerce and business ways, a lack of technical knowledge, security risks, and the high cost of implementation. One of the most vital factors cited by Kartiwi (2006) that help the adoption of e-commerce in SMEs in Indonesia is the alignment of business strategy with the adoption of e-commerce.

Wilson et al. (2008) studied the diffusion of e-commerce in the United Kingdom. Their results revealed five factors that affect the adoption of e-commerce: top management support, availability of information technology (IT) skills, availability of consultants, perceived benefits of e-commerce and e-commerce priority. Lip-Sam and Hock-Eam (2011) explored the factors that affect the adoption of e-commerce among SMEs in Malaysia, using a framework consisting of three factors: organizational, technological and external factors. According to them, the influential organizational factors are organizational readiness, technological factors including IT strategy and security as well as internet service quality, and external factors relate to external support from government and expertise.

The case of e-commerce adoption in South Africa was studied by Chiliya et al. (2011). The study provides insights on the following barriers: absence of government support and employee training,

employee resistance, low levels of IT investment, lack of perceived benefits, and lack of security. Nezakati et al. (2012) assessed the adoption of e-commerce in Malaysia, Singapore and Thailand, and found that technical knowledge in e-commerce, perceived usefulness of e-commerce applications, and perceived benefits of e-commerce were the most important challenges to the adoption and use of e-commerce. Using a sample of 227 participants from Saudi Arabia, El-Sofany et al. (2012) investigated the influence of trust factors on the development and improvement of e-commerce. According to these authors, relevant trust factors include five groups of sub-factors – e-commerce-related factors (e.g. secured financial services), marketing factors (e.g. approaching the right target), security factors (e.g. privacy and e-payment availability), human interaction factors (e.g. understanding of users' expectations), and knowledge factors (e.g. website richness).

Zaied (2012) examined the barriers to the adoption of e-commerce among SMEs in Egypt, looking at several factors among organizational, political, legal, economical, technical, social and cultural factors. The results show that the most important barriers to the adoption of e-commerce include high costs, employees' resistance to change, the absence of technical officers, a lack of e-commerce standards and a legal framework, low levels of internet security, continuous modifications in government policies and regulations, a lack of awareness of e-commerce benefits, and restricted use of e-payment services. Bahaddad et al. (2012) explored the practice of e-commerce among Saudi plants using the following factors: organizational and human factors, technological and environmental factors, and traditional and cultural factors, collecting data from a sample of 110 SMEs in Saudi Arabia. Their results revealed that experience and skills in IT, IT education, website characteristics, communications, and security of payment methods were the most critical factors affecting the practice of e-commerce. Ajmal and Yasin (2012) proposed a model for the adoption of e-commerce in SMEs that consisted of two types of variables: external and internal variables. External variables included environmental variables such as competitive pressure and government support. On the other hand, internal variables encompassed organizational, managerial, technological, individual (education and skills), trust (security and privacy), and implementation issues (e.g. products, payment and delivery). Blackburn and Athayde (2000) point out that the level of international marketing in the addition to the size and industry of the business are business characteristics that are closely related to adoption of E-commerce.

Abdulkader and Abualkishik (2013) identified the following barriers to e-commerce adoption: high costs of implementation, lack of hardware, software requirements, and lack of technical staff, low levels of internet security, change management issues and the new behaviour needed to conduct this business.

Ochola (2013) used a sample of 540 micro, small and medium enterprises from Kenya in order to study the determinants of e-commerce adoption among SMEs. The research model of that study covers three main factors: organizational factors (e.g. company and manager profiles), technological factors (e.g. compatibility and confidentiality) and environmental factors (e.g. customer, supplier, and competitor pressures).

Shemi and Procter (2013) categorized the obstacles to the practice of e-commerce into the following groups: organizational factors (e.g. skilled staff, finance, and culture), technological factors (e.g. internet access and speed), environmental factors (e.g. regulations, nature of the industry and local business environment) and management factors (e.g. management vision, perceived benefits, and management characteristics).

Poorangi et al. (2013) used Rogers' model (Diffusion and Innovation) to investigate the factors affecting the adoption of e-commerce in SMEs in Malaysia. The conceptual framework of their study was developed based on seven factors: relative advantage of innovation, observability, compatibility, trialability, complexity, management confidence, and employee resistance to change.

On the other hand, Mohammed et al. (2013) summarized the barriers to e-commerce adoption in SMEs as the following: the size of the enterprise, the lack of technical staff, the opinion of the management or owner, a wish to avoid risk and complex applications, financial constraints, a low level of market share, the lack of IT infrastructure, there being no perceived benefits, and a lack of government support. For Mutua et al. (2013), the cost of e-commerce applications, a lack of e-commerce experience and skills, along with internet security, were the major obstacles to e-commerce practice in SMEs.

Bagale (2014) studied the influence of organizational factors on the implementation of e-commerce in SMEs in India, and found that both organizational and technological factors had a significant impact on e-commerce adoption and use.

Almaimouni et al. (2014) explored social influence (the perception of others' beliefs about adopting or using a new system) on e-commerce use in Saudi Arabia, using a sample of 90 micro and small enterprises. Their results clarified that the intention to use e-commerce is significantly affected by personal social influence, business social influence, perceived ease of e-commerce use, and perceived usefulness of e-commerce.

Rumanyika and Mashenene (2014) found that there were the following obstacles to e-commerce practice: poor technological infrastructure, absence of IT education, training and expertise, a low level of organizational readiness, and dissenting socio-cultural beliefs.

Zafar et al. (2015) confirmed the importance of information systems for SMEs in Saudi Arabia. They argued that these SMEs are still experiencing poor information technology and a lack of the necessary

related skills. In their study on e-commerce in China, Chen and Zhang (2015) studied three types of factors that influence the use of e-commerce: an organizational factor (organization size), a technological factor (IT investment), and two environmental factors (market structure and network facilities). In a study carried out on Tunisian micro-enterprises, Omri et al. (2015) found that human, social, and financial factors have a significant relationship with small business success, and that the relationship is mediated by innovation.

Fahrizzaman and Subriadi (2015) analysed the adoption of e-commerce by SMEs from Indonesia, and highlighted numerous factors that affect this, such as company size, employee training, government support, user awareness of e-commerce use, IT infrastructure, compatibility of the enterprise with e-commerce, and management opinion.

In their study on SMEs in Kuwait, Al-Alawi and Al-Ali (2015) concluded that there were significant relationships between e-commerce adoption and top management support, the perceived benefits of e-commerce, and government regulations.

In their study on SMEs in Nigeria, Agwu and Murray (2015) considered barriers to the adoption of e-commerce. Their study demonstrated that the following barriers exist: first, factors related to the external environment, such as socio-cultural factors and external pressures; second, factors related to the internal environment, such as size, resources and culture; and finally, the perception of risks, benefits, cost and trust.

Rahayu and Day (2015) found that the usage of e-commerce in Indonesia depends on factors such as the readiness of the enterprise for technology, its IT competences and skills, innovation, management characteristics, and the perceived benefits of the utilization of e-commerce. According to Kit et al. (2015), organizational factors such as organizational size and technological factors have a significant impact on e-commerce, while environmental factors such as external pressures from competitors and suppliers have no significant impact on e-commerce adoption.

Okadapau and Emaase (2016) investigated the influence of five socio-cultural factors such as decision making process, trading partner relationships with the company, maintenance of a good company image, Personal innovation and creativity and socializing on e-Commerce. However, it is observed that the most important socio-cultural factors rated by respondents in applying e-commerce applications were: relationship of trading partners and suppliers with the company, develop business contacts by socializing, and finally maintain the image of the company.

Chivasa and Hurasha (2016) found a significant relationship between e-commerce usage and other factors such as internet cost, top management support, financial risks, management familiarity with the benefits of e-commerce, and IT infrastructure. In a study on the e-commerce challenges faced by SMEs in Nigeria, Akanbi (2016) found that IT

infrastructure, customers' resistance to change, finance, and organizational structure were key challenges for e-commerce success.

Rehman and Alam (2016) divided e-commerce barriers into organizational (the perceived benefits of e-commerce), financial (the cost of investment in technology), technical (the cost of software), legal (e-commerce laws) and behavioural barriers (resistance to change). According to the JEG (2016)

on SMEs, the lack of IT infrastructure is one of the most important challenges faced by SMEs in Saudi Arabia. After considering various literatures, it was preferred to sum up the factors that may affect the practice of e-commerce in one table to facilitate referring to them.

Thus, Table 1 shows the organizational, technological, and environmental factors that may affect the practice of e-commerce.

Table 1: Factors affecting the practice of e-commerce in SMEs

Factors affecting practice of e-commerce	References
Organizational factors	Senarathna and Wickramasuriya (2001)
Strategic objectives	MacGregor and Vrazalic (2004)
Organizational readiness	Kartiwi (2006)
Top management opinion	Wilson et al. (2008)
Top management support	Lip-Sam and Hock-Eam (2011)
Training and skills development	Chiliya et al. (2011)
Employee experience	AlGhamdi et al. (2012)
Organizational resistance to change	Shemi (2012)
Communication processes	El-Sofany et al. (2012)
Size of organization	Nezakati et al. (2012)
Financial resources	Zaied (2012)
Personal and business social influence	Ajmal and Yasin (2012)
Business strategy alignment	Bahaddad et al. (2012)
Project management	Ochola (2013)
Technological factors	Poorangi et al. (2013)
Information technology strategy	Shemi and Procter (2013)
Information technology security	Abdulkader and Abualkishik (2013)
Internet service quality	Mohammed et al. (2013)
Presence of a dynamic website	Mutua et al. (2013)
Number of technical officers	Almaimouni et al. (2014)
Internet cost	Bagale (2014)
Users' ability to use e-commerce	Rumanyika and Mashene (2014)
Information technology infrastructure	Ezzi (2015)
Employee IT knowledge	Kit et al. (2015)
Security risks	Omri et al. (2015)
Network size	Al-Alawi and Al-Ali (2015)
Perceived benefits of e-commerce	Agwu and Murray (2015)
Perceived ease of e-commerce applications	Chen and Zhang (2015)
Cost of e-commerce applications	Fahruzzaman and Subriadi (2015)
E-payment services	Rahayu and Day (2015)
Environmental factors	Chivasa and Hurasha (2016)
Industry characteristics	Rehman and Alam (2016)
Market structure and share	Zhu and Kraemer (2005)
Government regulations and support	Zhu and Kraemer (2002)
Expertise support	
E-commerce business standards and laws	
Competitors' and suppliers' pressure	
Customers' needs and preferences	
Customers' fear of related risks	
Economic recession	
Socio-cultural factors	

2.2. Research hypotheses

Based on the above literature review, the following hypotheses were suggested. Hypotheses 1.1-1.6 refer to organizational factors, hypotheses 2.1-2.6 concern technological factors, and finally, hypotheses 3.1-3.6 relate to environmental factors.

H1: there is a significant relationship between organizational factors (1.1 top management support, 1.2 resistance to change, 1.3 employee experience, 1.4 business strategy alignment, 1.5 financial resources and, 1.6 communication processes) and the practice of e-commerce in SMEs.

H2: there is a significant relationship between technological factors (2.1 internet service quality, 2.2 information technology security, 2.3 number of technical officers, 2.4 perceived benefits, and, 2.5

cost of hardware and software, and, 2.6 e-payment services) and the practice of e-commerce in SMEs.

H3: there is a significant relationship between environmental factors (3.1 government regulations, 3.2 e-commerce standards, 3.3 competitors' pressure, 3.4 industry characteristics, 3.5 customers' preferences, and, 3.6 socio-cultural factors) and the practice of e-commerce in SMEs.

2.3. Research model

Fig. 1 displays the conceptual framework for the study. As can be seen, the model consists of three main independent variables (organizational, technological and environmental factors) and one dependent variable (e-commerce practice).

3. Research methodology

3.1. Research sample and data collection

The sample of this study consisted of 100 SMEs in the Al-Qassim region of Saudi Arabia. The questionnaire that had been developed to collect the required data was distributed to 100 participants. The total number of questionnaires returned was 74, giving a response rate of 74%.

3.2. Measures

The conceptual model of the current study contains one dependent variable (e-commerce) and it was measured based on previous studies (Senarathna and Wickramasuriya, 2001; MacGregor and Vrazalic, 2004; Kartiwi, 2006), ten items were developed to measure this variable, and three independent variables: organizational, technological and environmental factors.

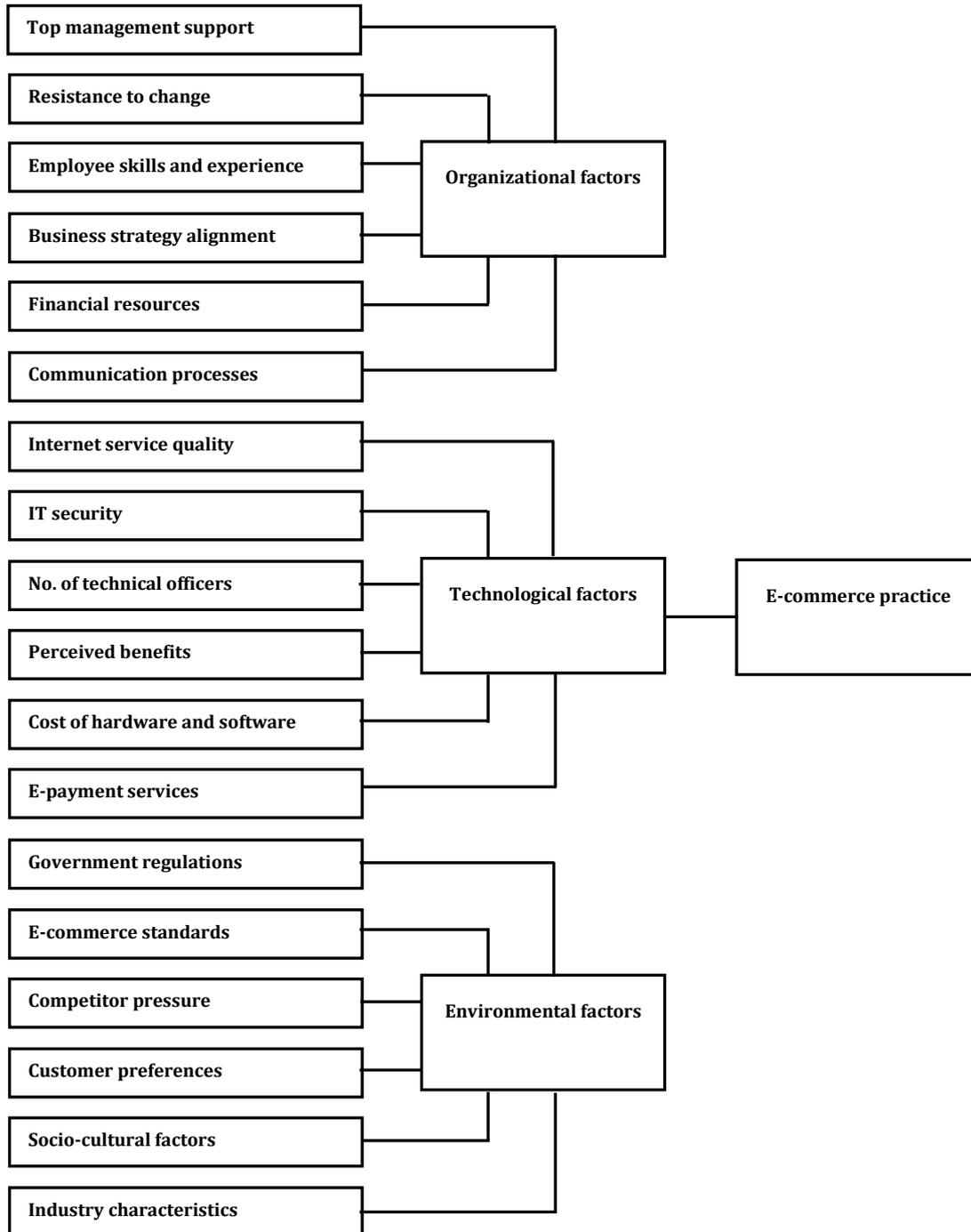


Fig. 1: Research model

Each of these factors was measured using six sub-factors extracted from the literature, as shown in Table 2.

The sub-factors were measured using two items for each. Therefore, the total number of items in the

questionnaire was 46. The questionnaire was anchored with a scale consisting of five points (1 = strongly disagree, 2 = disagree, 3 = unsure, 4 = agree, and 5 = strongly agree).

3.3. Validity and reliability

Table 3 shows the values of the average variance extracted (AVE) and the values of Cronbach's alpha, with which validity and reliability were assessed. As can be noted, all AVEs were greater than 0.5 and the reliability coefficients were greater than 0.60, meaning that the survey employed in this study is valid and reliable.

4. Results

4.1. Correlation analysis

From the results for the correlation between the organizational factors and the practice of e-commerce, as shown in Table 4, there is a statistical correlation between all the independent factors and

the practice of e-commerce. Top management support has the greatest correlation with the practice of e-commerce ($r = 0.493$), followed by employee skills and experience ($r = 0.483$), business strategy alignment ($r = 0.468$), financial resources ($r = 0.399$), and resistance to change ($r = 0.324$). The lowest correlation value was found between communication processes and the practice of e-commerce ($r = 0.1$).

For technological factors, the results shown in Table 5 indicate that all dimensions of technological factors have significant relationships with the practice of e-commerce. The largest correlation was with internet service quality ($r = 0.551$), followed by the perceived benefits ($r = 0.423$), IT security ($r = 0.399$), e-payment services ($r = 0.386$), number of technical officers ($r = 0.367$) and finally the cost of hardware and software ($r = 0.362$).

Table 2: Measures of organizational, technological, and environmental factors

Factors	Sub-factors	Authors
Organizational factors	Top management support	Bagale (2014)
	Resistance to change	Almaimouni et al. (2014)
	Employee skills and experience	Rumanyika and Mashenene (2014)
	Business strategy alignment	Omri et al. (2015)
	Financial resources	Agwu and Murray (2015)
	Communication processes	Al-Alawi and Al-Ali (2015)
Technological factors	Internet service quality	Ezzi (2015)
	IT security	Chen and Zhang (2015)
	No. of technical officers	Fahruzzaman and Subriadi (2015)
	Perceived benefits	Zafar et al. (2015)
	Cost of hardware and software	Rahayu and Day (2015)
	E-payment services	Kit et al. (2015)
Environmental factors	Government regulations	Rehman and Alam (2016)
	E-commerce standards	Akanbi (2016)
	Competitor pressure	Chivasa and Hurasha (2016)
	Customer preferences	Zhu and Kraemer (2005)
	Industry characteristics	Zhu and Kraemer (2002)
	Socio-cultural factors	

Table 3: Validity and reliability results

Variables	No. of items	Cronbach's Alpha	AVE
1. Organizational factors	12	0.83	0.77
1.1 Top management support	2		
1.2 Resistance to change	2		
1.3 Employee skills and experience	2		
1.4 Business strategy alignment	2		
1.5 Financial resources	2		
1.6 Communication processes	2		
2. Technological factors	12	0.87	0.71
2.1 Internet service quality	2		
2.2 IT security	2		
2.3 No. of technical officers	2		
2.4 Perceived benefits	2		
2.5 Cost of hardware and software	2		
2.6 E-payment services	2		
3. Environmental factors	12	0.79	0.69
3.1 Government regulations	2		
3.2 E-commerce standards	2		
3.3 Competitor pressure	2		
3.4 Industry characteristics	2		
3.5 Customer preferences	2		
3.6 Socio-cultural factors	2		

In relation to environmental factors, the results highlighted in Table 6 showed that industry characteristics have the greatest correlation with the practice of e-commerce ($r = 0.537$).

Additionally, the results showed that customer preferences were the second major factor associated

with e-commerce ($r = 0.498$), followed by socio-cultural factors ($r = 0.469$), competitor pressure ($r = 0.366$), then government regulations ($r = 0.322$). It was revealed that e-commerce standards was the factor that has the lowest correlation with e-commerce ($r = 0.210$).

4.2. Regression analysis

Simultaneous regression analysis was conducted in order to identify the influence of each

independent variable on the practice of e-commerce. The results, shown in [Table 7](#), were that 12 out of the 18 sub-hypotheses were accepted.

Table 4: Results of correlation analysis between organizational factors and e-commerce

	1	2	3	4	5	6	7
1	-	0.401	0.397	0.511	0.278	0.229	0.493
2		-	0.361	0.119	0.147	0.301	0.324
3			-	0.331	0.450	0.312	0.483
4				-	0.284	0.350	0.468
5					-	0.109	0.399
6						-	0.104
7							-

1: top management support; 2: resistance to change; 3: employee skills and experience; 4: business strategy alignment; 5: financial resources; 6: communication processes; 7: practice of e-commerce. $P < 0.05$.

Table 5: Results of correlation analysis between technological factors and e-commerce

	1	2	3	4	5	6	7
1	-	0.330	0.211	0.440	0.364	0.245	0.551
2		-	0.300	0.411	0.240	0.301	0.399
3			-	0.101	0.315	0.298	0.367
4				-	0.472	0.366	0.423
5					-	0.313	0.262
6						-	0.386
7							-

1: Internet service quality; 2: IT security; 3: no. of technical officers; 4: perceived benefits; 5: cost of hardware and software; 6: e-payment services; 7: practice of e-commerce. $P < 0.05$.

Table 6: Results of correlation analysis between environmental factors and e-commerce

	1	2	3	4	5	6	7
1	-	0.339	0.177	0.219	0.360	0.108	0.322
2		-	0.250	0.241	0.258	0.118	0.210
3			-	0.389	0.420	0.255	0.366
4				-	0.385	0.312	0.537
5					-	0.400	0.498
6						-	0.469
7							-

1: government regulations; 2: e-commerce standards; 3: competitor pressure; 4: industry characteristics; 5: customer preferences; 6: socio-cultural factors; 7: practice of e-commerce. $P < 0.05$.

The practice of e-commerce is affected by top management support ($\beta = 0.447$), employee skills and experience ($\beta = 0.436$), perceived benefits ($\beta = 0.421$), socio-cultural factors ($\beta = 0.411$), industry characteristics ($\beta = 0.396$), IT security ($\beta = 0.368$), business strategy alignment ($\beta = 0.353$), customer preferences ($\beta = 0.348$), competitor pressure ($\beta = 0.336$), e-payment services ($\beta = 0.321$), and the number of technical officers ($\beta = 0.294$).

5. Discussion

This study explores the practice of e-commerce among SMEs in Al Qassim region, Saudi Arabia and the obstacles to this practice from the managers' point of view. The results indicated that organizational factors such as top management support, employee skills and experience, and business strategy alignment have significant influences on the practice of e-commerce in SMEs.

These results are in agreement with the works of [Senarathna and Wickramasuriya \(2001\)](#), [Tsao et al. \(2004\)](#), [Kartiwi \(2006\)](#), [Wilson et al. \(2008\)](#), [Chiliya et al. \(2011\)](#), [El-Sofany et al. \(2012\)](#), [Bahaddad et al. \(2012\)](#), [Ajmal and Yasin \(2012\)](#), [Shemi and Procter \(2013\)](#), [Mutua et al. \(2013\)](#), [Rumanyika and Mashene \(2014\)](#), [Fahruzzaman and Subriadi \(2015\)](#), [Al-Alawi and Al-Ali \(2015\)](#) and [Chivasa and Hurasha \(2016\)](#).

However, the other organizational factors (resistance to change, financial resources, and communication processes) have no significant influence on the practice of e-commerce in SMEs. This paper confirmed the significant relationships between the practice of e-commerce and top management support, employee skills and experience, and business strategy alignment.

The results also showed that technological factors such as perceived benefits, IT security, e-payment services, and the number of technical officers have significant effect on the practice of e-commerce by SMEs. The same results were revealed by [Wilson et al. \(2008\)](#), [Nezakati et al. \(2012\)](#), [Cosgun and Dogerlioglu \(2012\)](#), [Shemi and Procter \(2013\)](#), [Mohammed et al. \(2013\)](#), [Almaimouni et al. \(2014\)](#), [Al-Alawi and Al-Ali \(2015\)](#), [Agwu and Murray \(2015\)](#), [Rahayu and Day \(2015\)](#), [Chivasa and Hurasha \(2016\)](#), and [Rehman and Alam \(2016\)](#). The only factor that has no influence on the practice of e-commerce is the Cost of hardware and software. Finally, the results indicated that environmental factors such as socio-cultural factors, industry characteristics, customer preferences, and competitor pressure have influence on the practice of e-commerce.

In the works of [Blackburn and Athayde \(2000\)](#), [MacGregor and Vrazalic \(2004\)](#), [El-Sofany et al. \(2012\)](#), [Zaied \(2012\)](#), [Ajmal and Yasin \(2012\)](#),

Ochola (2013), Shemi and Procter (2013), Mutua et al. (2013), Bagale (2014), Almainouni et al. (2014), Rumanyika and Mashenene (2014), Ezzi (2015), Chen and Zhang (2015) and Al-Alawi and Al-Ali

(2015) the same factors were found to have a significant relationship with the practice of e-commerce.

Table 7: Results of simultaneous regression analysis

Hypotheses			β^*	t	Results	
Organizational factors						
1.1	Top management support	×	e-commerce	0.447	6.524	Accepted
1.2	Resistance to change	×	e-commerce	0.220	1.003	Rejected
1.3	Employee skills and experience	×	e-commerce	0.436	7.331	Accepted
1.4	Business strategy alignment	×	e-commerce	0.353	5.001	Accepted
1.5	Financial resources	×	e-commerce	0.144	0.612	Rejected
1.6	Communication processes	×	e-commerce	1.401	1.140	Rejected
Technological factors						
2.1	Internet service quality	×	e-commerce	0.371	5.114	Accepted
2.2	IT security	×	e-commerce	0.368	13.10	Accepted
2.3	No. of technical officers	×	e-commerce	0.294	9.120	Accepted
2.4	Perceived benefits	×	e-commerce	0.421	4.332	Accepted
2.5	Cost of hardware and software	×	e-commerce	1.140	0.094	Rejected
2.6	E-payment services	×	e-commerce	0.321	7.558	Accepted
Environmental factors						
3.1	Government regulations	×	e-commerce	2.100	1.274	Rejected
3.2	E-commerce standards	×	e-commerce	1.991	1.054	Rejected
3.3	Competitor pressure	×	e-commerce	0.336	6.351	Accepted
3.4	Industry characteristics	×	e-commerce	0.396	8.121	Accepted
3.5	Customer preferences	×	e-commerce	0.348	5.444	Accepted
3.6	Socio-cultural factors	×	e-commerce	0.411	5.744	Accepted

In fact, the absence of these factors was regarded by many authors of previous studies as an inhibitor of e-commerce practice (Shemi and Procter, 2013). Examples of e-commerce barriers found in studies conducted in SMEs include lack of financial resources, security factors, knowledge factors, personal and business social influence, and perceived usefulness of using e-commerce, in addition to a lack of IT skills, customers' preferences for actual shopping rather than online shopping, a lack of top management support, resistance to change, and the high cost of applications (El-Sofany et al., 2012; Bahaddad et al., 2012; Almainouni et al., 2014; Zafar et al., 2015 and Ezzi, 2015). However, in this study two of the environmental factors (Government regulations and e-commerce standards) show no effect on the practice of e-commerce.

The results of this study indicate that organizational factors, technological factors, and environmental factors, as illustrated by the study, play a significant role in the practice of e-commerce in SMEs, and the results are similar to the study of Zhu and Kraemer (2005).

6. Conclusion and Further studies

The aim of this study was to explore the practice of e-commerce among SMEs in Al Qassim region, Saudi Arabia and the obstacles to this practice from the managers' point of view. The results indicated that organizational factors such as top management support, employee skills and experience, and business strategy alignment have significant influences on the practice of e-commerce in SMEs. While the absence of any of the organizational factors (top management support, employee skills and experience, and business strategy alignment) included in this study would create an obstacle to

companies' ability in applying e-commerce effectively; no serious hurdle would be experienced if factors such as resistance to change, financial resources, and communication processes were not there.

From the results also it can be concluded that technological factors such as perceived benefits, IT security, e-payment services, and the number of technical officers have a significant effect on the practice of e-commerce by SMEs. This also means that absence of these factors would affect the practice of e-commerce in SMEs. However, no obstacles would exist when the cost of hardware and software rises.

Finally, environmental factors such as socio-cultural factors, industry characteristics, customer preferences, and competitor pressure have an influence on the practice of e-commerce. And any shortage of these factors would limit the practice of e-commerce. However, Government regulations and e-commerce standards would not affect the practice of e-commerce in SMEs.

Tsao et al. (2004) have stated that the support of top management is a significant demanding factor for e-commerce practice in businesses. Therefore, the study recommends that policy makers in the company must ensure the support of top management of e-commerce application process, and provide regular training programs to employees to enhance their exposure to e-commerce technology. However, a comprehensive business strategic alignment must be looked at for its importance to improve e-commerce performance as stated by Kartiwi, (2006).

Moreover, the study suggests that benefits of e-commerce should be spread among the employees because of their importance in improving the business process from one side and satisfying customers' needs on the other, Cosgun and

Dogerlioglu (2012) have confirmed a positive significant relation of perceived benefits on e-commerce conduct. Al-teet and Nakhleh (2014) have suggested in their research that the more secured e-payment system is, the more it encourages customers to use the services without inhibition. Nonetheless, e-payment services and IT security remain a crucial issue in businesses; however, companies must provide a secure e-payment system to enhance the effective use of e-commerce. Furthermore, the number of technical officers, according to this research affects the practice of e-commerce and, to prevent it from not becoming an obstacle in the future, the company must employ enough staff to look after the e-commerce practices.

The SMEs practices e-commerce has a great opportunity to create and strengthen their relationships with customers and the market, furthermore protect the image of the company and thus agree with the study of Okadapau and Emaase (2016). Industry characteristics (e.g. Business size, business sector) play a significant role in the practice of e-commerce (Blackburn and Athayde, 2000) Managers need to build and strengthen a long-term relationship with their customers, as well as understand the preferences of the customers. Furthermore, managers must ensure customers' ability to meet their requirements from the e-commerce.

The competitive pressure reflects the degree of pressure felt by the company from its competitors. When competitors adopt e-commerce technology, companies will compete fiercely to adopt e-commerce technology broadly, considering it as a competitive advantage (Zhu and Kraemer, 2005). Thus, companies should always keep an eye on the competitors in their industry, which in return will enable them to adopt e-commerce widely and then create a competitive advantages.

From the research that has been carried out, it is possible to conclude that organizational factors, technological factors, and environmental factors, as illustrated by the study, play a significant role in the practice of e-commerce in SMEs in Al Qassim Region, Saudi Arabia.

7. Limitation of the study

More research on the application of e-commerce and its obstacles is still necessary to obtain a definitive answer to the certain variables which affect the use of e-commerce in SMEs. However, there are two main limitations in this research one of which is the sample size; a larger size is preferable to accurately evaluate the practice of e-commerce among SMEs in in Al Qassim region, Saudi Arabia. The types of SMEs selected in this study belonged to different sectors. However it is desirable to focus on particular sector at a time in order to get deeper insight into the preferences for e-commerce applications for different sectors. Thus, the next stage of this research will focus on performing a

wider study on the practice of e-commerce and its obstacles.

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