FIRM'S SIZE EFFECT IN THE E-SERVICE INDUSTRY: THE CASE OF A DEVELOPING COUNTRY

Research paper

Barbour El Rassi, Mary Ann, Saint Joseph University, Lebanon, jadelios@yahoo.com

Abstract

Globalization and technology effects emerge to spur firms around the globe to embrace e-business practices. Nevertheless, while many studies have focused on identifying factors that might influence e-business adoption to ensure success and avoid failure in developed countries, investigating e-readiness influential factors among small and larger firms in the e-service industry and more specifically in developing countries haven't been investigated widely enough. The major objective of this research is to understand how e-readiness affects the e-business adoption by shedding the light on the importance of the firms' size. A survey data was collected from 261 senior managers, among which 42.5% where identified as managers operating in small and medium enterprises (SME) and 57.5% in large enterprises (LE). The results indicate that large enterprises are influenced by external and organizational factors while smaller enterprises are influenced only by organizational factors.

Keywords : E-Service , Developing Countries, e-Business Adoption, ICT, , SMEs and LEs.

1. Introduction

Understanding e-business adoption has increasingly become vital for organizations in developing countries. The internet has contributed to value creation in today's worldwide economy and e-business acts as a global medium for carrying out businesses. Nevertheless, e-readiness continues to progress around the world but attaining it is becoming more complicated. E-readiness is generally determined by how ready organizations are to adopt e-business in order to create a competitive advantage. This is associated with the company's e-readiness to manage ICT in order to successfully recognize, accumulate, process and distribute the information and compete fairly (Park, Yeon-Tae & Hong-Seok, 2013). This is not only the case of large enterprises (LEs) but small and medium-sized enterprises (SMEs) as well. Unlike large enterprises, SMEs have tendencies to become less implicated in e-business operations even though they implement the same investments in IT adoption and that is due to several operational and market constraints (Love & Irani, 2004). SMEs are identified as a vital business entity in developing economies and have also been recognized as important contributors to a country's economic growth (Van Huy, Rowe, Truex, & Huynh, 2012).

E-readiness has been of a major interest in several studies but till today, the difference between SMEs and LEs hasn't been investigated enough from senior executives' perspectives. Some studies for example, have discussed the organizational e-readiness factors that might influence e-business adoption in general such as financial and technological readiness, technical competences and managerial support. Other researchers have only studied the external factors that would possibility have an impact on organizations or even factors related to technology (Benbasat & Barki, 2007; El Rassi & Harfouch, 2016; Iacovou,; et al, 2014;Van Huy et al,

2012; Yang et al, 2015). Most of these studies represent the organizational crucial perspectives in general and none of them had gone further to investigate if there is a difference between SMEs and LEs, in terms of e-readiness in developing countries. Therefore, the objective of this research is to answer the following research question:

-Is there any difference in e-readiness factors that influence SMEs and LEs in the e-service industry in developing countries?

Since small and medium enterprises play a crucial role in nations building and especially in developing countries where most of the enterprises fall between small and medium, answering this question seems to be worth investigating it further.

This study intends to address a topic that is still unexplored and that is by using a survey of 261 participants that hold a senior position in organizations that have adopted e-business in a developing country. The results revealed that adopting one model and generalizing it is not enough as there is a difference between the factors that could possibly affect e-readiness when comparing SMEs and LEs.

The current paper is structured as follows: it starts with a brief overview of the key characteristics of e-readiness by organizations and their ICT use. Then the e-business adoption obstacles encountered by organizations in developing countries (DC) are presented. A brief discussion of the enterprises characteristics and firms' size in general and the e-service sector in Lebanon follows this section. Then the methodology is presented in addition to the major findings of this study. Finally, a conclusion is presented with a discussion that concerns the SMEs, LEs managers and scholars as well.

2. Literature Review

In the following section we present an overview of the literature concerning the above mentioned subject. Our major concern is to provide an overview about e-readiness, major obstacles encountered when adopting e-business in developing countries, the firm's size and the e-service industries in Lebanon.

2.1. E-readiness, a complex multilayered phenomenon

E-Business dimensions consist of several aspects and are considered as a complex multilayered phenomenon. Dimensions could vary from telecommunication infrastructures, human, technological resources, legal policies and frameworks as well. According to Porter's value chain framework (Porter, 1985), e-Business could be defined as Internet-enabled value chain activities that include all type of activities such as selling and purchasing products or services online, while generally, the use of Internet is considered as a supplementary channel that supports the entire value chain activities.

Many scholars have considered that the vital factors that influence the acceptance of IT adoption and diffusion could be considered as important factors to evaluate the organization's e-readiness (Iacovou, Benbasat, & Dexter, 1995; et al 2012; Kuan & Chau, 2001; Low et al, 2011; Molla & Licker, 2005; Tan & Ludwig, 2016; Yang et al, 2015). E- Readiness could correspond to any purpose with different types of cultures, events or people. According to Dada (2006), e-readiness is defined as the stakeholders' ability to take advantage of the probable benefits that the technology and information could present.

Although several scholars were interested in this subject from a micro point perspective to study organizations' e-readiness in a certain environment, it remains a vital topic for discussion today especially in developing countries (Dutta, Lanvin, & Paua, 2004; Mutula & Van Brakel, 2006; Tan & Ludwig, 2016; Yang et al, 2015).

Thus, and for the purpose of our research, e-readiness is described as an assessment of the e-business external and internal environment where organizations operate. The importance of this assessment is that it could enable those organizations to pursue opportunities created by the internet. However, finding the adequate measure to evaluate the electronic readiness would be very crucial for organizations especially in developing countries as they could differ in their e-readiness level, economic, legal, cultural and technological-level.

2.2. E-Business adoption obstacles encountered by organizations in Developing Countries

The growth of electronic business in developed and developing countries differ ultimately when it comes to e-business framework and technology adoption. Organizations in developing countries for example, are faced with many challenges and constraints from their internal and external environment that could potentially expose them to larger risks when adopting e-business (Chau & Turner 2005; et al, 2014; Molla and Licker, 2005; Yang 2015). Some challenges include the accessibility to technology use which can influence the electronic business adoption and assimilation process, (Iacovou, Benbasat and Dexter, 1995). In addition to the nonexistence of an adequate supporting industries infrastructure, unskilled employees, lack of awareness and the lack of an efficient payment and delivery system are also considered as examples of such barriers (Chau & Turner 2005; Molla & Licker 2005; Tan & Ludwig, 2016). A study concerning electronic business adoption acceptance by small and medium enterprises in South Africa showed that e-Business adoption is influenced by internal organizational factors (Elgarah et al, 2005). Furthermore, in an attempt to identify key elements that help e-business adoption in developing countries, Molla and Licker (2005), for example, proposed a Perceived e-Readiness Model (PERM) that is based on managers' perceived factors due to their intrinsic significance and have grouped these factors in two different dimensions whereas one of them includes Perceived Organizational e-Readiness (POER) and the second includes Perceived Environmental e-Readiness (PEER). Based on this model, several scholars have investigated the PERM model with other possible factors. et al (2014) have used this model to study how e-readiness affects the website in SMEs with a focus on the aspects of technology, management, organization, and environmental dimensions in China. The results revealed four factors of e-readiness which had an impact on both intention and degree. Hence, this study did not specify if there was a difference between SMEs and LEs. Yang et al (2015) that had adopted the same model concluded that technology resources, upper management commitment and support in addition to the market force pressure form a strong influence on the information system adoption in Chinese organizations. Another study conducted in the Middle East (El Rassi & Harfouch, 2016) also revealed that advanced adopters are more influenced by external factors than beginners are. Nevertheless, there haven't been many studies investigating the variability of e-readiness factors among SMEs and LEs in the e-service industry in developing countries. Most of those studies have taken only one aspect of it or one type of firm: SMEs or firms in general. In the current study, and based on the PERM model, we intend to investigate the factors that influence e-Business adoption in developing countries and more specifically investigating if the firm's size has a significant impact. While other models in the literature where done for the case of developed countries, this model seems to be the most suitable for our study as it was developed for the case of a developing country and takes into consideration internal and external factors as well.

2.3. Firm's size and e-service sector in Lebanon.

The firm's size influence has been of a major interest in the technology adoption literature. Several studies have pointed out that large firms usually have several advantages over smaller counterparts as they are expected to achieve economies of scale and have a better accessibility to enough resources that could smooth the e-business adoption which is a crucial point due to

the considerable amount of investment that is required to invest in projects. In general, they are enough skilled to tolerate high risk situations that could encounter them in the early stages of investment in e-business (Eikebrokk & Olsen, 2007; Rogers, 1995). Small and medium enterprises today account for approximately 95% of the global businesses and at least 68% of the developed economies working class income. In addition, small and medium size enterprises contribute significantly to local GDPs and are the engine of the social and economic growth while large enterprises are vital for boosting economic growth by delivering a broader globalization (Lebanon's Ministry of Economy and Trade report, 2014).

Consequently, several countries have taken into consideration the small and medium enterprises development in their economic growth due to their economic contribution but despite all these efforts, SMEs and LEs still face major challenges in their development.

Thus, it is imperative to note that defining SMEs and LEs could differ from one nation to another, with typically advanced threshold sets in developed countries. Conventionally, SME and LE definitions have been defined by using the number of employees as an indicator. Nowadays, the majority of benchmarked nations employ a combination of both financial indicators and employees. For example, in Lebanon, and according to Lebanon's Ministry of Economy and Trade report (2014), a small or medium firm should have no less than 5 and no more than 250 employees with an annual turnover between 3.300 USD and 16.5 million USD. Exceeding either of these thresholds would lead to considering firms in the LEs category.

Furthermore, and according to the same report, SMEs in Lebanon represent 93% of the local enterprises where most of them are from the service industry. The service industry in 2016 accounted for 60% of the total GDP which is not surprising in a country where the economy is service-oriented and its main growth sectors include banking, tourism and retailing. In 2002, the Lebanese Ministry of Economy and Trade have identified the importance of e-business as an important tool that could help position Lebanese firms to expand globally and benefit from the international exposure through the use of ICT and the international community has offered much help and support to help SMEs in Lebanon to take advantage of this new economy since 2002. Regardless of these facts, today most of the firms in Lebanon still face challenges that hinder their development and expansion while the ICT adoption remains an important factor for their successful growth.

3. Research Design

3.1. Research model

Based on the PERM model discussed above, we propose to examine the factors that could affect electronic business adoption among SMEs and LEs as well. The theoretical origin of this model is interactionism, which allows a multi-perspective assessment of the inter-organizational and external contextual factors to offer significant predictors of e-Business adoption in developing countries (Molla and Licker, 2005). The model suggests the "e-Business Adoption Level" as a dependent variable and this dependent variable is composed of two dissimilar levels: 1) Initial adopters of electronic business and 2) Institutionalization of electronic business; furthermore, it considers two major constructs: perceived organizational e-readiness (POER) and perceived external e-readiness (PEER). POER represents senior managers' insights concerning their firms' capabilities to recruit the adequate resources or the fact of being aware, committed and have the right governance in place to implement e-business. While the second construct represents senior managers' insights concerning their firms' external environmental readiness and is called PEER. It includes government e-readiness, market forces e-readiness and supporting industries e-readiness as well. For the purpose of our research, we have considered the dependent variable as a variable that includes all

levels of adopters. We have targeted companies that have already adopted e-Business. Firms that have made the effort to create a website and are publishing fundamental information on their web are considered as early adopters as they are already online and have demonstrated the intention to invest in it. Therefore, in order to compare the results between SMEs and LEs, we propose two models: Model A that represents the SMEs, and model B that represents LEs. The variables and hypothesis are presented below and the research model is presented in figure 1.

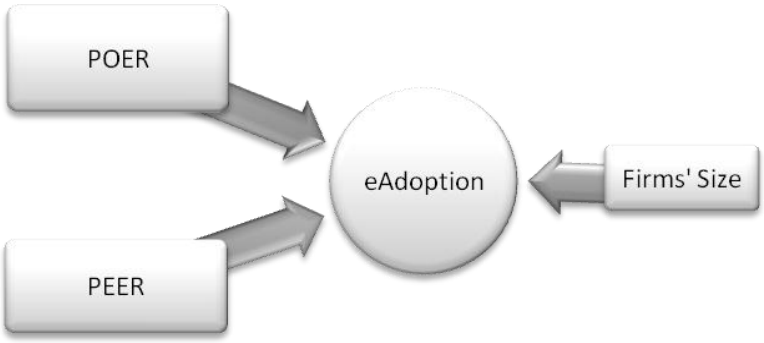

Figure 1 . Proposed Research Model Based on the PERM Model (Molla, & Licker, 2005)

3.2. Research hypotheses

Rogers (1995) proposes the DOI theory in which he identifies the variables that are related to the firm's innovation decision. In this model, the diffusion of innovation process is manipulated by individuals' characteristics in addition to other internal and external factors. This author suggests that the early stage of innovation adoption starts when the organization is aware of the importance of this innovation and starts searching for a way to evaluate and reach its objectives. The first phase considers recognizing and prioritizing requirements and problems then moves on to identifying any possible innovation from the firm's environment that could possibly help in adding value (Rogers 1995). At this stage, evaluating the organization's needs for a solution influences heavily its choices and decision to adopt this new innovation and its ability to perceive, comprehend and manage any possible benefits, threats or opportunities. Prior studies had evidently agreed on that awareness is a vital factor for technology adoption diffusion (Lin & Lin, 2008; Hang et al, 2014; Molla and Licker 2005; Yang et al, 2015). Summarizing the views of these scholars, this research proposes the following hypothesis:

-Hypothesis 1: Awareness has a significant contribution to e-business adoption among SMEs and LEs.

Resources: represents the technological, human and business resources level in a firm. The firm's capability to act in response to any challenges or changes in its environment depends on the resources' availability (Hartman, Sifonis, and Kador, 2000; Yang et al, 2015). Human Resources for instance could refer to the employees' skills or accessibility to IT services that are required to start or accomplish a task with e-business (Hartman et al 2000; Molla and Licker , 2005; Powell and Dent-Micallef, 1997;Yang et al, 2015), whilst business resources could possibility refer to capacities and assets such as to which degree the organization could be open and capable of adapting its strategies to any changes, risk taking actions and communications (Hartman et al 2000).

-Hypothesis 2: Human resources have a significant contribution to e-business adoption among SMEs and LEs.

-Hypothesis 3: Business resources have a significant contribution to e-business adoption among SMEs and LEs.
-Hypothesis 4: Technological resources have a significant contribution to e-business adoption among SMEs and LEs.
Commitment: Commitment refers to the senior management's support, especially when attempting to promote electronic business projects which is an important factor. Whenever there is a lack of commitment, the majority of e-business initiatives could be subject to failure and might not attain more than the entrance level (Daniel, & Grimshaw, 2002; Hartman et al, 2000). The senior executives' commitment and support in adopting the innovativeness at each level could be an important element in determining the overall information technology failure or success of e-business (Low et al, 2011; Hang et al, 2014; Yang et al, 2015).Given the arguments above, this research proposes the following hypothesis:
-Hypothesis 5: Commitment has a significant contribution to e-business adoption among SMEs and LEs.
Governance: Willcocks and Griffiths, (1997) define governance as the tactical, operational and strategic model that identifies the way firms organize their structure to set up objectives, search up for resources and make decisions . The term ''governance'' is considered as a goal setting, resource distribution and a strategic operational model for decision-making, whereas most of the firms who adopt e-business set up a formal plan to monitor their outcome (Molla and Licker 2005; Hang et al, 2014; Yang et al, 2015).
According to those authors, the organizational governance should have a significant effect on the degree of e-business adoption and implementation as well, therefore, the hypothesis is proposed as follows:
-Hypothesis 6: Governance has a significant contribution to e-business adoption among SMEs and LEs.
Perceived External e-Readiness refers to all external environmental factors that could affect the firms. Such factors could be due to Market Force e-Readiness, Government e-Readiness and Supporting Industries e-Readiness.
Market Forces e-Readiness results from all counterparts that the organization deals with. Thus, market pressure is a major reason for an organization to acknowledge when adopting e-business (Dos Santos, & Peffers ,1998; Low et al, 2011; Raymond, 2001; Van Huy et al, 2012; Yang et al, 2015).In conclusion, this study proposes the following hypothesis:
-Hypothesis7: Market Forces e-Readiness has a significant contribution to e-business adoption among SMEs and LEs.
Government e-Readiness: Government e-Readiness has a major significant role in promoting e-business by encouraging e-business adoption and supporting industries as well and could help the private business sector to adopt ICT (Kuan, & Chau, 2001; Montealegre, 1998; Van Huy et al, 2012). Several studies have investigated the government role in promoting e-business and have agreed that the presence of sufficient supportive projects held by the government, the right infrastructure as well as the adequate laws and regulations would lead to a higher level of adoption (Oxley, & Yeung, 2001; Van Huy et al, 2012; Yang et al, 2015). Hence, this research infers the following hypothesis.
-Hypothesis 8: Government e-readiness has a significant contribution to e-business adoption among SMEs and LEs.
Supporting Industries e-Readiness: The role that the supporting industries play is very crucial. When the right services are accessible and at a reasonable price, organizations would be more encouraged to adopt e-Business. Most importantly is how easy those services are and how efficient could they be in order to facilitate the tasks. Supporting Industries e-Readiness is considered as a vital factor that influences e-business adoption (Molla, & Licker, 2005; Van Huy et al, 2012; Yang et al, 2015). Thus, this research proposes the following hypothesis:
-Hypothesis 9: Supporting industries e-readiness has a significant contribution to e-business adoption among SMEs and LEs.

		e-Business Adoption	References
Organizational e-readiness	H1	Awareness	Lin & Lin, 2008; Hang et al,2014; Molla and Licker 2005; Rogers, 1995; Yang et al, 2015.
	H2	Human Resources	Hang,2014;Hartman, Sifonis, and Kador, 2000; Molla and Licker, 2005; Powell and Dent-Micallef, 1997; Yang et al, 2015.
	H3	Technological Resources	Hang,2014;Hartman, Sifonis, and Kador, 2000; Molla and Licker, 2015; Powell and Dent-Micallef, 1997; Yang et al, 2015.
	H4	Business Resources	Hang,2014; Hartman, Sifonis, and Kador, 2000; Molla and Licker, 2015; Powell and Dent-Micallef, 1997; Yang et al, 2015.
	H5	Commitment	Daniel, & Grimshaw, 2002; Hartman et al, 2000; Lim, & McKnight, 2007; Low et al, 2011; Yang et al, 2015.
	H6	Governance	Molla and Licker, 2005; Willcocks and Griffiths, 1997; Hang et al, 2014; Yang et al, 2015
External e-Readiness	H7	Market Force e-Readiness	Dos Santos, & Peffers ,1998; Low et al, 2011; Raymond, 2001; Van Huy et al, 2012; Yang et al, 2015
	H8	Government e-Readiness	Kuan, & Chau, 2001; Montealegre, 1998; Oxley, & Yeung, 2001; Van Huy et al, 2012; Yang et al, 2015.
	H9	Supporting Industries e-readiness	Molla, & Licker, 2005; Van Huy et al, 2012; Yang et al, 2015.

Table 1. Hypothesis and references

4. Research Methodology

4.1. Data collection and analysis

To identify our panel, we have used the Five Index registered data. Five Index is a complete database that consists of an electronic search engine and is prearranged in a way that categorizes the nature of businesses by activities, name, senior managers contact numbers and firms' size. The sample chosen concerned companies that were already adopting e-business and were classified into two groups: SMEs and LEs where the firm size choice was based on the Lebanese Ministry of Economy and Trade Report (2014).The survey was conducted during a period of 6 months throughout which the panel consisted of 1890 senior executives from different service industries such as banking, tourism and retailing. 276 questionnaires were filled out, among which 15 were biased as they were completed by non qualified people, leaving us with 261 valid responses making the valid response rate 13.8% among which 42.5% were identified as SMEs and 57.5% as LEs.

4.2.Data analysis

For the purpose of our research and because the dependant variable is categorical (nominal) while the independent variables were interval (ordinal), we have decided to use the multiple discriminate function analysis (MDFA) as it is the most appropriate technique for this case (Hair, Anderson, Tatham and Black, 1995). Discriminate function analysis is useful in determining whether a set of variables is effective in predicting category membership. Therefore, we have started by testing the normality distribution and the results had shown that the normality assumption is reasonably accepted (see table 2).

Constructs	Valid n	Mean	SD	Skewness	Kurtosis
Awareness (A)	261	1.90	0.85	1.242	1.566
Human resources(HR)	261	2.41	1.13	0.556	-0.519
Business resources(BR)	261	2.46	0.75	0.553	0.420
Technological resources (TR)	261	2.14	0.74	0.693	0.510
Commitment (C)	261	2.36	0.79	0.456	0.260
Governance (G)	261	2.49	0.80	0.273	-0.200
Market Forces eReadiness(MFeR)	261	2.42	0.95	0.446	-0.302
Government eReadiness (GeR)	261	3.37	0.97	0.066	-0.880
Supporting Industries eReadiness (SIeR)	261	2.80	0.83	0.513	-0.327

Table 2. Descriptive statistics for the components

We then proceeded by examining the variables multicollinearity to check if there is any problem (see table 3). The results indicated that all the correlation coefficient values were less than 0.8 (Hair, Anderson, Tatham, and Black, 1995) which allows us to state that there is no multicollinearity problem identified between the variables.

	1	2	3	4	5	6	7	8	9
A	1.000								
HR	0.185	1.000							
BR	0.518	0.414	1.000						
TR	0.563	0.209	0.510	1.000					
C	0.588	0.199	0.493	0.633	1.000				
G	0.568	0.192	0.608	0.624	0.743	1.000			
MFeR	0.387	0.101	0.286	0.354	0.427	0.411	1.000		
GeR	0.031	-0.119	0.049	0.154	0.174	0.228	0.233	1.000	
SIeR	0.205	-0.093	0.165	0.288	0.260	0.315	0.419	0.517	1.000

Table 3. Correlation between components (Pearson Correlation Matrix)

In order to conduct the analysis through MDFA, we have started by the derivation stage to determine if there is a statistical significant discriminate function to separate the groups then we proceeded with the validation stage which is the predictive accuracy of the function that was then checked through the hit ratio and the Mahalanobis distance. Finally, the independent variables that had a factor loading $\geq$ 0.30 (Hair et al, 1995) were retained. The data was analyzed and the missing values were removed and a 5% significance level was maintained in most of the cases.

4.3. Validation test:

The verification process started by validating the Kaiser-Meyer-Olkin's Measure and the Bartlett's Test. The initial stage involved checking the factorability of the data. To this end, two tests were performed: the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and the Barlett's test of sphericity. KMO values usually vary between 0 and 1 whereas a value below (0.5) is considered as the cutoff point for acceptable results. For the Bartlett's test of sphericity a value of ($p< .05$) is essential for considering the results as acceptable. Both tests were performed to test the scale items in the questionnaire used for the data collection. The KMO test of Sampling Adequacy is above the required level of (0.5) for recognizing the acceptability of the results. Hence the results of the KMO tests are significant for all nine factors. Furthermore the results for the Barlett's Sphericity test are also significant for all nine factors with ($p=.000$) and accordingly factor analysis is regarded as appropriate.

Constructs	KMO Measure of Sampling Adequacy
A	0.928
HR	0.500
BR	0.794
TR	0.818
C	0.831
G	0.912
MFeR	0.500
GeR	0.795
SIeR	0.780

Table 4. Results of KMO test

Constructs	Approximate Chi-Square	Significance
A	1301.801	0.000
HR	97.228	0.000
BR	625.370	0.000
TR	658.923	0.000
C	680.416	0.000
G	1458.808	0.000
MFeR	143.499	0.000
GeR	573.334	0.000
SIeR	256.139	0.000

Table 5. Results of Barlett's Sphericity test

Constructs	Number of components	Initial Eigenvalues	
		Total	% of Variance
BR	1	3.248	54.128
TR	1	3.489	58.144
G	1	5.331	66.643
C	1	3.367	67.345
A	1	4.913	70.193
SIeR	1	4.913	70.193
GeR	1	2.913	72.824
HR	1	1.560	77.995
MFeR	1	1.653	82.634

Table 6. Results of Eigenvalues test

In order to decide on the number of factors to preserve, we adopted the Kaiser's method that suggests retaining factors with eigenvalues > 1. The results of the Eigenvalues test reveal that a high percentage of the variance in the sample is explained by the factors included in the scale. As such the findings are regarded as adequate and the construct explains 82% of the variation.

4.4.Cronbach Alpha

As the Cronbach Alpha value could vary from 0 to 1, a coefficient that is closer to 1 indicates a good consistency of the items that form the measure. Thus, and according to Carricano and Poujol (2008), items that reduce the Alpha value should be taken out .The suggested alpha value could vary based on the nature and objective of the research. A coefficient ≥ 0.7 could be accepted when it concerns a research as the

minimum threshold is usually 0.8 for confirmatory research (Nunnally and Bernstein, 1994). In this study, we considered setting the minimum for the Alpha value as 0.7. All the Cronbach Alpha values are > 0.7 which shows a strong consistency and reliability (see table 7).

Constructs	Num of items	Cronbach's Alpha
A	7	0.928
HR	2	0.715
BR	6	0.809
TR	6	0.855
C	5	0.879
G	8	0.928
MFeR	2	0.789
GeR	4	0.861
SIeR	4	0.756

Table 7. Results of the Cronbach Alpha test

5. Results and Discussions: SMEs versus LEs

As shown in table 8, SMEs were evaluated for enterprises that accounted less than 250 employees and that have been initial adopters and institutionalized adopters as well. We examined the discriminate loadings and the probabilities for the f statistics of each of the independent variables. In doing so, our objective was to determine the relative importance of every independent variable in discriminating among the groups. The results had shown, and by a descending order, that Awareness and Governance are significant and positively contribute to the discriminate function while Technology Resources are significant even though negative. This supports three of the six hypotheses (H1; H4; H6) in the first construct. Therefore, e-Business adoption is significantly influenced by Awareness, Governance and Technology Resources in SMEs which are identified as Perceived Organizational e-Readiness (POER).
We have continued by examining the discriminate loadings and the probabilities for the f statistics of each of the independent variables for LEs. The variables that contribute significantly and positively to e-Business adoption and in a descendent order are: Commitment and Market Force e-Readiness while Supporting Industries e-Readiness contributes significantly but negatively. In this case, the results support the following hypothesis as seen later in table 8: (H5; H7; H9).

	Model A: SMEs			Model B: LEs		
Variable	Discriminate loading	F-value	p-level	Discriminate loading	F-value	p-level
1-A	0.919	79.876	0.000*	-0.142	1.002	0.318
2-HR	-0.085	4.855	0.030	0.014	0.224	0.637
3-BR	-0.040	16.866	0.000	-0.078	0.191	0.663
4-TR	-0.439	9.675	0.002*	-0.767	0.003	0.955
5-C	0.097	19.003	0.000	1.072	6.671	0.011*
6-G	0.434	26.082	0.000*	-0.046	3.213	0.075
7-MFeR	0.208	20.421	0.000	0.650	6.777	0.010*
8-GeR	-0.035	1.031	0.312	0.271	0.918	0.340
9-SIeR	0.113	6.294	0.014	-0.605	4.580	0.050**

**p<0.05 ; **p<0.10*

Table 8. Discriminate Analysis for SMEs and LEs

5.1. Discussion

The outcome of this study resulted in several interesting findings and presents a practical insight on why SMEs and LEs adopt e-Business, by recognizing the diverse factors that hinder or facilitate this adoption and the factors that could possibility influence the SMEs and LEs adopters as well.

In SMEs, Awareness, Governance and Technology Resources seem to have significant effect on e-Business adoption. Awareness emerged as the most significant factor in adopting e-Business. When Small and medium enterprises are aware of the potential benefits that e-Business could bring to their business, they are most likely to adopt this new technology. Furthermore, and in a descending order, Governance shows to be important for e-Business adoption. SMEs that realize the importance of adopting e-Business strive to adopt the right tactics and strategies by defining clear roles, strategies, and empowering their employees to be able to implement and manage accordingly any e-Business activities. Technology Resources have a significant influence but with a negative effect on e-Business assimilation. Finally, the other factors of e-readiness do not emerge to be important or positively related to e-business adoption in SMEs especially the external factors. These factors might be important but not significant enough and most of the influential factors come solely from internal organizational readiness.

For large enterprises, factors affecting e-business adoption come from environmental and organizational e-readiness: Commitment, Supporting Industries e-Readiness and Market Force e-Readiness show significant results. Commitment in the current situation refers to the senior management's support in championing e-business initiatives and IT implementation which is an imperative factor (Willcocks and Griffiths 1997). Many research studies in developing countries concerning the IS adoption and assimilation have confirmed that the lack of commitment from the organization's upper management can be a significant factor that holds back the success of such projects (Montealegre 1998; Wang, and Cheung 2004; Hang et al , 2014; Yang et al, 2015). In addition, the MFeR factor is significant and positive. This is similar to the Institutional Theory that asserts that the organizational environment could affect the expansion of a proper structure in an organization due to their surroundings. Organizations usually identify the valuable profits of this move by their contacts, whether they come from suppliers, competitors or clients, therefore, it becomes appropriate for them to adopt it (DiMaggio and Powell, 1983; King et al 1994; Hang et al , 2014; Yang et al, 2015). Another interesting factor that seems to be significant and positive is the Supporting Industries e-Readiness even though negative. The improvement of the information technology communication, transportation industries and finance is the key in creating a profitable and affluent business environment as they could offer support for firms to outsource their IT related tasks. Therefore, when these organizations are offered a secured and suitable business operational environment, it would facilitate LEs e-business adoption.

In order to summarize the results, the below table represents the supported variables of the two models:

		e-Business Adoption	Model A results (SMEs)	Model B results (LEs)
Organizational e-readiness	H1	Awareness	Supported	Not supported
	H2	Human Resources	Not supported	Not supported
	H3	Technological Resources	Not supported	Not supported
	H4	Business Resources	Supported	Not supported
	H5	Commitment	Not supported	Supported
	H6	Governance	Supported	Not supported
External e-Readiness	H7	Market Force e-Readiness	Not supported	Supported
	H8	Government e-Readiness	Not supported	Not supported
	H9	Supporting Industries e-readiness	Not supported	Supported

Table 9 Hypotheses results

6. Implications and Contributions

While prior research have differentiated e-business models in developed countries from developing countries in general, the major objective of this research is to better understand how e-readiness affects the e-business adoption in SMEs and LEs and more specifically in developing countries by investigating if there is a difference between the two sizes. This research has several contributions and implications, some of them are specific to managers while others could be broadly functional to the research field.

Today, business managers should take into consideration internal and external factors when adopting e-business strategies depending on their firm size. This might help them in better understanding and identifying the factors that assist them in the adoption and assimilation process and help them in managing any potential risk that might possibility occur from their operational environment.

The PERM model suggested earlier by Molla and Licker (2005) and that was adopted later by many scholars (et al 2012; Low et al, 2011; Tan & Ludwig, 2016; Hang et al , 2014;Yang et al, 2015) could be more precise in developing countries when taking into consideration the firms' size effect. Even though there isn't always one best way for managing in all situations, the results of this current study indicates that in such situations, the size of the organization might be of a great influence to firms' e-readiness. SMEs are clearly influenced by the internal environment and the external environment has less influence while the LEs are influenced by factors from both environments: internal organizational and external. Referring back to Eikebrokk & Olsen (2007), small organizations have more flexibility than large enterprises in their internal operations which might be a reason that allows them to operate more flexibly and to quickly recognize any possible changes or opportunities in their environment. Small and medium size firms that are seeking to expand their business globally and are aiming at taking advantage of what e-business could potentially bring to their organizations should constantly be aware of the potentials that this new business can bring to them. Working further on strengthening their internal organizations capabilities such as business resources and governance would help them to focus on improving their competitive position.

Large enterprises, on the contrary, are more likely to be influenced by organizational and external factors. This could be explained by the fact that large firms usually are part of an international affiliation or are exposed more to larger counterparts such as international suppliers and competitors due to their large size, which could influence their need to comply according to these norms and therefore, strive to adopt technological innovation (Rogers 1995). The role of the market and supporting industries is very crucial in promoting e-business adoption and encourages them to be committed by facilitating their initiatives. In addition, their level of commitment is very important, the more they are committed to adopting and implementing e-business, the more successful they are.

Thus, the above e-readiness factors that have been identified in both models can be used as an essential reference to promote e-business adoption and implementation and develop appropriate policies for companies in developing countries. Despite there being several studies that explored the e-business adoption in firms, the associate research focusing on examining the size effect from an internal or external perspective is still not extensive. Most prior studies have focused on investigating the internal factors or/and external factors without paying attention to the firms' size in developing countries. The firms' conditions and environments' in developing countries differ from developed countries in terms of infrastructure availability, facilities and governments policies and so on. Nevertheless, this study was conducted to fill this gap in knowledge and the findings could be used by the academics as a basis for future research to investigate the important factors for LEs and SMEs when migrating to the online platform.

7. Limitations and Future Research

Regardless of the fact that significant factors associated to e-Business adoption and assimilation in this model have been taken into consideration and included in the study, we cannot ignore the fact that there might be some additional vital constructs that could have been taken into consideration while studying e-business adoption. It is recommended for example to measure the senior managers' role and their understanding and motivation in setting up strategies. Furthermore, in situations where there is such a variation in the same field, investigating institutional factors that might influence firms to adopt e-business might also be interesting. Institutional theory helps in determining whether the decision to adopt was based on mimetic, coercive or normative pressure.

Based on the acknowledgment of the above stated limitations and given the fact that we are in a field that grows and changes rapidly, it is vital to consider the fast growth of technology and software that are in constant transformation. Therefore, the panel of e-readiness could be taken into consideration to follow up with the technological transformation.

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