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EMPLOYEE PERSPECTIVES OF FACTORS INFLUENCING E-BUSINESS TECHNOLOGY ADOPTION AND USE BY SMALL AND MEDIUM RETAIL ENTERPRISES

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-Abstract-

Several sources suggest that the use of e-business technologies has offered opportunities for both large and small businesses, such as gaining global access, providing new products as well as enhancing customer satisfaction levels. This paper examines the employee perspective on the factors that influence e-business adoption and use by small and medium-sized retail enterprises that operate in the Eastern Cape Province. Studies on employee perspective on e-business technologies adoption within the South African small and medium-sized retailers are limited. This study explores the perception of employees working in small or medium-sized retail enterprises on five factors, namely, leadership, employee technological aptitude, business culture, perceived relative advantage, and perceived ease of use. Statistical analyses that included the assessments for validity and reliability, descriptive statistics, Pearson's product moment correlations and multiple regression analysis were undertaken. The results of this study showed that leadership, employee technology aptitude, perceived relative advantage, and perceived ease of use have a significant positive influence on employees' uptake of business culture within the retail sector.

Key Words: *E-business technologies, Employee perception, Adoption factors, Small and medium-sized retail enterprises*

JEL Classification: O31, O32, O33

Vol 8, No 1, 2016 ISSN: 1309-8047 (Online)

1. INTRODUCTION

A successful retail sector is often seen as a symbol of economic success for both developed and developing economies (Iscan, 2012). In South Africa, the retail sector is regarded as a growing sector in the economy and it is among the key sectors that contribute to the Gross Domestic Product (GDP) (W&RSeta, 2014:27) and is considered one of the six primary sectors of the economy (Dakora, Bythemay & Slabbert, 2010). The sector contributes about 12.5 per cent towards the national GDP (Statistics South Africa, 2013). According to the Durban Chamber of Commerce and Industry (2015), these retailers account for one in four formal jobs in South Africa. This reveals the importance of this sector to the South African economy in terms of job creation. What is not known is that most of the small and medium-sized enterprises that operate in South Africa are retailers. About 75 per cent of SMEs in South Africa are found in the retail sector (W&RSeta, 2014).

However, the emergence of e-business technologies such as the internet, the use of social networking and the multi-channel media has since shifted the conventional or traditional way of thinking in the retailing space (Pillay, Hoosen, Wajooden, Fisher, Mseleku & Gqalo, 2013:3). According to the Nielsen Global E-commerce (2015:4), technology has changed the way industries operate. This has resulted in an increased use of digital technologies to enhance the consumer shopping experience. Iscan (2012:17) asserts that these changes, however, contribute to the economic growth nations.

2. PROBLEM STATEMENT

E-business technologies provide various business prospects for both large and small businesses through enhancing efficiencies (Dubihlela & Ngxukumeshe, 2016), improving business operations (Faloye, 2014), expanding markets, broadening customer base as well as competing in the international markets (Wanjau, Macharia & Ayodo, 2012:76). While many SMEs have successfully tried to use e-business technologies to enhance their competitiveness and competitive advantage (Nurhadi, Nimran, Syafi'ie Idrus & Utami, 2015:1; Faloye, 2014:54), other businesses failed to achieve competitive advantage, particularly retail operations. According to Wanjau *et al*., (2012:76), SMEs in the developing economies have been slow in adopting and using e-business technologies, this is

Vol 8, No 1, 2016 ISSN: 1309-8047 (Online)

in spite of the potential benefits derived from technology. Various studies confirm that SMEs are slow in adopting and using e-business technologies (Hove & Chikungwa, 2013:63). Nguyen and Waring (2013:825) stress that one of the aspects that distinguish SMEs from larger organisations is their tendency to be risk averse that justifies low adoption success rates in these organisations. Small and medium-sized retail enterprises are posed with various challenges that negatively affect their business success levels. Technology such as POS and self-service technologies keeps on widening the technology gap between SMEs and larger retailers (Jere, Jere & Aspeling, 2014:6). This calls for the need to invest in e-business technologies to further the growth of the economy. Dauda and Akingbade (2011) argue that few studies have explored the employee dimension on e-business technology adoption. Therefore, the current study was formulated to investigate the perception of the employees working in the SME retail sector about the factors that influence the adoption and use of e-business technologies.

3. PURPOSE OF THE STUDY

The use of e-business technologies is fast growing in the world (Dlodlo & Dhurup, 2010:167). Universally, e-business technologies have been regarded as important tools to improve the competitiveness of the economy of a nation (Nurhadi *et al.*, 2015:1) that provide new ways of conducting business (Vasileiadis, 2014:179). Several authors have argued that SMEs are not prepared to adopt e-business technologies owing to various factors such as high costs of installing infrastructure and price of technology, lack of management vision and support (Johnstone & Wright, 2004:228), the organisation environment and the level of complexity of the technology (Arpaci, Yardinci, Ozkan & Turetken, 2012:37). The purpose of this study is to investigate the perception of the employees working in the SME retail sector about the factors that influence the adoption and use of e-business technologies.

4. FACTORS INFLUENCING THE ADOPTION AND USE OF e-BUSINESS TECHNOLOGIES

This study used five factors sourced from various existing literature and theories, namely, leadership, business culture, employee technological aptitude, perceived relative advantage, and perceived ease of use. These factors were adjusted to fit the purpose of the current study and were considered to the most relevant factors

Vol 8, No 1, 2016 ISSN: 1309-8047 (Online)

to be tested for employees' perspective.

4.1 Leadership

According to Fillis, Johannson and Wagner (2004:183), SMEs initially revealed low levels of interest in e-business technology, therefore, there is a need to increase participation in e-business usage among these organisations. Management may have either positive or negative attitudes towards the adoption and use of e-business technology. (Wanjau *et al.,* 2012). Leaders who possess traits such as open to risk, proactivity, flexibility, creative orientation, aggressiveness, are enthusiastic in nature and are more likely to see the need of adopting and use e-business technology in their firms (Fillis *et al*., 2004:184). On the other hand, those that fear change or technology, lack drive and imagination, are unwilling to learn new skills and not likely to employ e-business technology within their organisations.

In the study conducted by Faloye (2014:61) regarding the barriers to e-commerce adoption in small businesses in Nigeria retail sector, results revealed a lack of interest of owner on e-business technology. In their study of the factors determining the adoption of e-business among Korean SMEs, Joen, Han and Lee (2006) found that the involvement and support of the leader had a significant influence towards the adoption of e-business technology.

4.2 Business culture

Organisations are seen as social instruments that produce goods and services, as well as distinctive cultural products such as norms, values and social ideas, and assumptions (Schein 1990; Smircich, 1983). Nguyen (2009) and Marquardt (2002) define culture as beliefs, values practices, as well as a way of doing and sharing things within an organisation. Hough, Thompson, Strickland and Gamble (2011:297) highlight that the success of an organisation is often attributed to the culture of that organisation. This is due to its influence on the way in people make decisions, interpret and the way in which they manage their environment. Van Fleet and Griffin (2006:702) further concur that the employee behaviour within their working environment is shaped by the organisation's culture that develops over time.

Mahadea and Youngleson (2013:81) argue that the business culture can be a

Vol 8, No 1, 2016 ISSN: 1309-8047 (Online)

barrier or a stimulant to the business in adopting technology. A business culture that allows employees to explore current processes and technologies is seen to have greater chances of success towards the business performance than one that uses traditional business boundaries. Ghobakhloo, Sabouri, Sai Hong and Zulkifi (2011:65) assert that an organisation that is more open and receptive to organisational changes is more likely to adopt new technology. The use of e-business technology depends on how well a business cultures suit to the way e-business technology in business (Faloye, 2014:61) as well as the work style of employees within an organisational context (Zailani, Dahlan & Jallaludin, 2009:46).

4.3 Employee technological aptitude

Ardjouman (2014:187) found that e-business technology can be associated with employee attitude towards technologies. This could mean that employees who do not possess a positive attitude toward e-business technology are more likely to avoid the use of technological advancement that may be available within the organisation. This attitude could be influenced by factors such as inadequate employee training as well as skills in e-business technology (Ghobakhloo *et al*., 2011:58; Zailani *et al*., 2009:54). The use of technology relies heavily on a sound knowledge base of the employees (Mahadea & Youngleson, 2013:75). Employee expertise in terms of technology can go a long way in ensuring that technology is adopted and efficiently utilised within organisations. Ghobakhloo *et al.* (2011:56) add that employee technological skills are critical for employees to be committed to using technological advancements as well as supporting the top management's effort in meeting the goals of the organisation. Employees that possess technological skills are always found wanting to demonstrate a desire for business growth by bringing up innovations within the organisations (Otatokun & Bankole, 2016; Ghobakhloo *et al*., 2011:57). However, Abid, Rahim and Scheepers (2011) found that lack of technical expertise amongst employees has no significant influence on the adoption of technologies among SME suppliers.

4.4 Perceived relative advantage

Atkinson (2007:613) defines perceived relative advantage as the degree to which technology is perceived as being superior to the other technologies that it surpasses. An employee attitude toward the use of technology is influenced by

Vol 8, No 1, 2016 ISSN: 1309-8047 (Online)

employee's perception of the usefulness of such technologies (Qteishat, 2014:231). When employees derive benefits from using technologies, their intentionality to use technology increases (Qteishat, 2014:231). Benefits offered by such technology may range from economic to social factors (Atkinson, 2007:613). These benefits include the positive changes or improvements that contribute to the functionality of business operations (Ghobakhloo *et al*., 2011:59) as well as supply chain management. The need to use e-business technologies within organisations by employees is mainly influenced by the ability of that technology to relieve employees' from their daily work and ensure that employees' tasks are fulfilling and enjoyable (Ardjouman, 2014:185), as well as enable employees to conduct their tasks more quickly (Martins, Oliveria & Popovič, 2014:11; Mndzebele, 2013:474).

Organisations adopt technology when they see a need for adopting such a technology (Tornatzky & Klein, 1982). Existing and potential problems are more likely to be solved when an organisation adopt technology that brings about increased productivity and improved operational efficiency with the business operations (Zhu & Kraemer, 2005:65).

4.4 Perceived ease of use

Adapted from the Technology Acceptance Model (TAM), perceived ease of use is defined as the degree to which an individual subjectively believes that using technology does not require a great deal of effort (Yaghoubi & Bahmani, 2010). Ohk, Park and Hong (2015:89) add that the perceived ease of use is interpreted as the level of freedom one enjoys or experiences in using technology. If an employee believes that e-business technology is difficult to use, he or she will have a negative attitude toward the technology. This is true even when an employee perceives the technology to be useful and beneficial to his or her work duties (Qteishat, 2014:231). This is believed to have a negative influence on the motivation to use technology.

Saade and Bahli (2005) assert that perceived ease of use is influenced by factors such as prior knowledge with similar technologies and employee skills. Freedom in using technology is experienced when individuals perceive using e-business technologies as easy, reliable and responsive (Qteishat, 2014:231), useful to their businesses (Ohk *et al*., 2015:89), and easy to learn how to operate (Martins *et al*.,

Vol 8, No 1, 2016 ISSN: 1309-8047 (Online)

2014:11; Venkatesh *et al*., 2003. In their study, Shukla and Singh (2014:88) found that technology provides convenience to both customers and as well as employees of the Delhi banking sector. In addition, Chan and Lu (2004) found a significant indirect relationship between perceived ease of use and the intention to adopt and use of technology.

5. RESEARCH METHODOLOGY

5.1 Research design

The study followed a quantitative research design, deemed appropriate when using multivariate statistical techniques to identify dimensions that influence e-business technology adoption and usage within the retail sector. Face to face survey interviews were used by way of a structured questionnaire to collect data, and in the effort to control bias. The respondents were required to relate their own perceptions free from researcher influence and independent responses as well as respondents' rights of withdrawal were valued in the data collection process (Maholtra, 2010). The data collection method used in the study was deemed appropriate in facilitating the collection of data from large groups of respondents in a short period of time. It was inclusive and captured all the variables that were under study, requiring minimum time spent and resource investment to develop and administer (Zikmund & Babin, 2010).

5.2 Data collection instrument

A structured questionnaire was used in the data collection process. Section A of the questionnaire asked for general and biographical information of the respondents, their education and experience. Section B elicited information on the factors influencing adoption of e-business technologies within their organisation, while section C solicited information on the electronic business technologies used by the respondents' employers. The questions in both Sections B and C were adapted from previous studies conducted by Saade and Bahli (2005) as well as Shukla and Singh (2014). With the exception of Section A, all construct items for Sections B and C were on a five-point Likert scale that ranged from 1 = *strongly disagree* to 5 = *strongly agree*, where the larger values represented stronger perceptions of each construct variable.

Vol 8, No 1, 2016 ISSN: 1309-8047 (Online)

5.3 Data collection

The target population comprised employees of various retail organisations in Port Elizabeth in the Eastern Cape province of South Africa over a period from January and June 2016. The first half of the year was chosen as the school vacations fall during this time, and also there are flexible working arrangements within the retail sector in South Africa unaffected by the pressure of the festive season. The sample frame for the study was the obtainable lists from retailers in Port Elizabeth as guided by the Wholesale & Retail Sector Training Authority (W&RSeta). A non-probability sampling procedure was adopted for this study to seek information from a purposively selected sample of 356 participants. Trained fieldworkers (5 postgraduate students) assisted in collecting the data. The questionnaires were administered at strategic locations such as inside the malls, outside the main retailers, during lunchtime, and in the halls and restaurants of popular hotels. Because the questionnaires were administered face-to-face to ensure fairly reasonable honesty in completion, a total of 500 were distributed and an excellent 356 usable questionnaires account for the final analysis.

6. DATA ANALYSIS

Preliminary data analysis included the aggregation of frequencies to profile the respondents' characteristics; the computation of the scale reliability to test internal consistencies (Cronbach alpha). Pearson correlation analysis was used to quantify the strength of association among the constructs being investigated in this study. A regression analysis was run to establish the predictive nature of factors influencing e-business technology adoption and use by small and medium retail enterprises

6.1 Characteristics of respondents

A total of 356 adequately completed useable questionnaires were captured for data analysis. The sample consisted of 59.3% (n=211) and females comprised a mere 40.7% (n=154) of the sample. The age groups of the respondents ranged from below 30 years (n=137; 38.5%), between 30-39 years (n= 109; 30.6%), between 40-49 years (n=76; 21.3%), between 50-59 years (n=27; 7.6%) to over 60 years plus (n=7; 2.0%). This showed that there were more young respondents between the ages of 20-29 years, attributed to the drive that the retail sector has embarked

Vol 8, No 1, 2016 ISSN: 1309-8047 (Online)

on to employ the youths and the W&R SETA sponsored internships. Preliminary frequencies also showed the majority employees (n= 176; 49.4%) in retail are black Africans and a mere 23.1% (n= 82) are white, while the remainder represented both the coloureds (n= 73; 20.5%) and the Asian (n= 25; 7.1%). A fairly good number of the respondents (n= 156; 43.8%) were in possession of a tertiary (post matric) qualification or an industry specific training certificate.

6.2 Reliability and validity

The study first established the internal consistency which was guided by the computation of coefficient values of Cronbach alpha. The five subscales, namely, leadership style, business culture, employee technological aptitude, perceived relative advantage and perceived ease of use showed acceptable internal consistencies as shown in Table 1. The reported reliability indicators are in line with recommendations of Malhotra (2010), that the Cronbach alpha coefficient should be at least 0.70. The mean scores computed and reported in Table 1. All the mean scores are above the midpoint (2.5), showing strong perceptions of the respondents towards the investigated dimensions.

Table 1: Reliability indicators: Cronbach alpha coefficients

Dimension	*Cronbach Alpha (α)*	*Mean scores*
Leadership style (LeadS)	0.819	4.036
Business culture (BusCu)	0.781	2.907
Employee technology aptitude (EmpTA)	0.847	3.178
Perceived relative advantage (PerRA)	0.793	3.702
Perceived ease of use (PerEU)	0.699	3.913

The discriminant validity and convergent validity were established through pre-tests and correlations as illustrated in Table 2.

6.3 Inter construct correlation analysis

Correlations were computed between the various factors influencing internal controls, namely perceived relative advantage, perceived ease of use, employee technology aptitude with business culture and leadership in order to establish the strength and direction of their relationships. These correlations reveal the positive associations among the variables, thus providing some evidence of convergent validity. In addition, leadership is reported as have a much stronger association

Vol 8, No 1, 2016 ISSN: 1309-8047 (Online)

with and business culture thus providing evidence of discriminant validity. The results are reported in Table 2.

Table 2: Construct Correlations

Constructs	LeadS	BusCU	EmpTA	PerRA	PerEU
Leadership (LeadS)	1.000	0.259*	0.110	0. 117	0.193
Business culture (BusCU)		1.000	0.206**	0. 301**	0. 137*
Employee technology aptitude (EmpTA)			1.000	0.026	0.213
Perceived relative advantage (PerRA)				1.000	0. 071
Perceived ease of use (PerEU)					1.000

** Correlation is significant at the 0.05 level (2-tailed).*
*** Correlation is significant at the 0.01 level (2-tailed).*

6.4 Regression analysis

The study also tested if business culture could be explained in a linear format by performing a multiple regression analysis in the manner of Vijayakumar and Brezinova (2012:239). The model summary of the regression analysis is reported in Table 3. The regression model indicates that approximately 12.18% of the variance in business culture (also commonly referred to as organisational culture), can be explained by leadership (LeadS), employee technology aptitude (EmpTA), perceived relative advantage (PerRA) and perceived ease of use (PerEU)). Of particular importance is that the four predictor variables have a significant positive impact ($p < 0.05$) on employees' uptake of business cultures within the small and medium-sized retail enterprises.

Table 3: Regression analysis

Variable relationships (independent)	Dependent variable: Business culture					Collinearity statistics	
	Unstandardized coefficients		Standardised coefficients	t-value	Sig	Tol	VIF
	Beta	Std. error	Beta				
Leadership (LeadS)	0.317	0.091	0.250	3.577	0.000*	0.971	1.026
Employee technology aptitude (EmpTA)	0.194	0.083	0.177	3.813	0.001*	0.973	1.033
Perceived relative advantage (PerRA)	0.167	0.091	0.049	0.601	0.023	0.901	1.016
Perceived ease of use (PerEU)	0.097	0.086	0.417	0.584	0.033*	0.916	1.069

$R = 0.349$; $R^2 = 0.1218$; Adjusted $R^2 = 0.0973$; Significant at $p<0.05$; Tol=Tolerance values;

Vol 8, No 1, 2016 ISSN: 1309-8047 (Online)

VIF=Variance inflation factor.

7. DISCUSSION OF THE RESULTS

In examining the correlation matrix the leadership variable was reported to be positively associated with business culture (r= 0.259; *p<0. 05*). The results of the regression analysis also show that employee technological aptitude is positively associated with business culture (r=0.206; *p<001*). Perceived relative advantage and perceived ease of use also showed positive associations with business culture at r=0.301(*p<0.01*) and r=0.137 (*p<0.05*) respectively. The results support other previous researchers (Van De Vliert & Van Yperen, 1996; Curry, Wakefield, Price & Mueller, 1986) who also found strong positive associations between leadership and business culture. Accordingly, if employees perceive that using the new technology will be advantageous to them, they will be happy with their work environment, increasing their confidence in the business culture. This will, in turn, increase their satisfaction with their managers and the organisational culture. It could, therefore, be said that such business culture can be cultivated by leadership, based on the theory of person-environment fit (Curry *et al*., 1986). The misfit between the employees and their work environment is also influenced by their attitude towards new technologies and the dynamics of business culture. Thus if an employee fits in well with the environment and the changing technical challenges, technology would often reduce work processes, enhance efficiencies and kerb dissatisfaction. Thus if an enabling business culture is present in the company (internal organisational environment), workloads may not pose a problem to retail employees; instead, they will be more than willing to adapt (Van De Vliert & Van Yperen, 1996). Therefore, when employees feel a sense of fit with the business culture, they are more likely to adjust to technological changes within their workplace in an optimistic way.

Employee attitude is often enhanced by training and skills development, which are often afforded by the leadership (Mndzebele, 2013:474). Perceptions towards technology advantages as well as perceived usefulness result from an enabling organisational culture; often causing employees to perform optimally thereby creating platforms for employee propensity to get promotion and other work related rewards (Martins *et al*., 2014:11). Frustrations may occur with the adoption or use of new technologies making it difficult for the employees to perform; often causing some strain and giving them the feeling of a misfit in

Vol 8, No 1, 2016 ISSN: 1309-8047 (Online)

organisations (Mndzebele, 2013). In such an instance, retail employees fail to meet management expectations bearing with it employee dissatisfaction and operational disruptions. Thus, the more performance-oriented the retail business is the more it will adopt many different technologies to optimally compete in the market.

In addition, the results of the regression analysis revealed significant predictive relationships between business culture and the stated constructs as shown in Table 3. The results show that retail employees who characterise technology adoption and usage as vital steps towards enabled operational environments, perceive that the dynamic culture of technological advancement brings with it efficiencies and effectiveness (Ali & Kurnia, 2011). Such perceptions often make it easier for employees to learn new technologies as they are self-motivated. Such a business culture enhances the advantages of technology adoption and re-skilling processes, thereby reducing employee frustrations.

8. CONCLUSION

This study provides an employee perspective on e-business adoption and uses for the South Africa's retail sector by considering various factors, namely leadership style, business culture, employee technological aptitude, perceived relative advantage and perceived ease of use. The results are especially important for those wishing to encourage and support the penetration and diffusion of new e-business technologies in the retail sector. It is our view that methods, resources, tools, and training should thus be concerned with increasing the pro-activeness and time-frame of retail businesses and demonstrate the advantages of common information infrastructures and e-business technology (Ali & Kurnia, 2011).

From a prescriptive point of view, the relationship between e-business technologies, leadership style, business culture, employee technological aptitude, perceived relative advantage and perceived ease of use should be expanded to include performance. The purpose of this study was to gain an in-depth understanding of the inter-linkages of these components and their influence in the South African context. The findings demonstrate the complexity and predictive nature of the constructs are discussed in Section 7 with recommendations provided in the following section.

Vol 8, No 1, 2016 ISSN: 1309-8047 (Online)

9. RECOMMENDATIONS

The following recommendations are made from the study. For academic research, this study sets an example of an application of multilevel e-business technology adoption research from an employee perspective, which is not commonly reported in the existing literature. Scholars could benefit from the use of the framework used in this study to evaluate e-business technology adoption and the usage phenomenon in other contexts of the retail sector. This study is thus an attempt in this regard to inform and grow awareness of e-business technology in retailing from employees' perspectives in South Africa. The significant influence for adopters of technology shows equal perceptions regarding the impact of e-business technologies on retail business operations. This implies that technological advancements in retail are not only pervasive but also intrusive with impact on the working environment and overall business performance.

For policymakers, identification of factors with a policy aspect could lead to an increase in adoption of e-business technologies by retailers. Industry leaders could take steps to increase e-business technology awareness, poking on standards and structures, thereby providing uniformity and quality within the sector. The Wholesale and Retail Sector Education and Training Authority (W&RSETA) of South Africa would also find it useful in human, financial and technological resources allocation to facilitate the adoption of e-business technologies by retailers. For organisations considering adoption and use of any form of e-business technology, the focus could be placed on raising awareness of the potential benefits of these technologies, building internal readiness and aligning policies and procedures. This also implies that leadership needs to know and understand the potential benefits of e-business technologies by learning from the experiences of other adopters, and access better training programs provided by industry-affiliated organisations such as the W&RSETA.

10. LIMITATIONS AND IMPLICATIONS

Despite the study contributions both academia and practice, there are some limitations which future studies should address. Firstly, the measures were self-reported which could result in a possible inflation of the relationships between the independent and dependent variables. The use of a sizeable yet small sample from Eastern Cape Province constraints the ability to generalise the results beyond the

Vol 8, No 1, 2016 ISSN: 1309-8047 (Online)

retail industry for South Africa. Future studies should attempt to include a large number of retailers across the country. To add greater depth and richness, future studies may involve multiple case studies which could highlight potential interactional effects among the levels of factors included in the framework.

Second, focusing only on South Africa's Eastern Cape Province as the study context affects the applicability of the study findings across developing countries. As South Africa has been used as one exemplar of Southern Africa, similar research in other countries (for example, Angola) would be useful. Such a study would provide a unique aspect to technology adoption research. The research would also facilitate comparisons between industries in the various countries and the presentation of opinions and views regarding the influences of the factors. Additionally, although this study predicts the influence of leadership, employee technological aptitude, business culture, perceived relative advantage, and perceived ease of use on technology adoption, it is difficult to infer a causal relationship between them due to the sample size. Therefore, future studies should explore causal relationships between other readiness factors.

Finally, additional factors may influence technology adoption in developing countries that were not explicitly included in this study. Of particular note, attributes of technology such as complexity, compatibility and adoption risks have not been captured in this study. Other elements such as trust between employees and managers could be considered. Future studies assessing the influence of these factors would, therefore, complement and enrich the findings of this study.

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Vol 8, No 1, 2016 ISSN: 1309-8047 (Online)

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Vol 8, No 1, 2016 ISSN: 1309-8047 (Online)

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