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Adaptation of the UTAUT Model - Customers Influence on Technology Adoption

Dr. Rishaad Ebrahim [DBL]
Graduate School of Business Leadership
University of South Africa

Prof. Visvanathan Naicker [PhD]
Faculty of Business and Management Sciences
Department of Business and Information Administration
Cape Peninsula University of Technology

ABSTRACT

The role of technology adoption has become more important within SMEs for both their strategies and future sustainability. It's important that SMEs are able to effectively deal with their business partners, be they suppliers or customers. The study considered the influence of competitive forces on SME technology adoption in developing economies, with a focus on customers. The primary objective of this study was to develop a working framework that will include the influence of competitive forces on SME technology adoption. An independent research organisation conducted 12 interviews with various SMEs, and thereafter conducted a survey which involved 214 SMEs around South Africa. A mixed method exploratory research was conducted. The Unified Theory of Acceptance and Use of Technology model was used as a baseline for the study. The findings have shown that technology adoption, in relation to competitive forces, is linked to Age, Experience and Voluntariness of Use. The findings suggest that the new Combined UTAUT model is vital when dealing with technology adoption. The UTAUT model was adapted and is now dedicated to SMEs in developing economies, which highlights the influence that customers have on SME technology adoption. The emphasis on customers has not been emphasised in previous technology acceptance models.

Keywords: Technology adoption, SME, Customers, Suppliers, UTAUT

INTRODUCTION

With the increase in focus on business and technology, customers demand faster and more efficient solutions to meet their needs. The technology businesses invest in and use, may determine the customers a business attracts and maintains. For this reason, it is important to analyse if customers influence technology adoption in businesses. The research into technological growth rate has also been a focus point, indicating an exponential rise in growth rate, as suggested by (Lojeski and Reilly, 2010). The phenomenal increased technological growth rate, however, does pose some difficulty in keeping up with the latest available technology. It has been argued that SMEs may face the possibility of being incapable of trading with customers, should SMEs practice ineffective technology adoption. Hence, it is important to conduct research that will assist SMEs by highlighting the degree influence that customers have on technology adoption.

LITERATURE REVIEW

Small businesses that do not adopt the required technology to effectively communicate with all their stakeholders, may find it difficult to be competitive in the future. Dai, (2010) also argues that, in modern electronic environments, individual businesses, including SMEs, cannot survive on their own. It is highly desirable that SMEs can engage effectively with their business

partners and customers. Some larger firms require specific ways of electronic business interactions with their suppliers, placing more burdens, including costs, on SMEs, but at the same time offering business opportunities. Some authors concur, stating that technology adoption and use thereof allow for more effective and successful SMEs (Ghobakhloo, Arias-Aranda and Benitez-Amado, 2011). SMEs should regard software applications as an essential tool when competing with organisational adaptation, as well as environmental changes. Furthermore, the environment, in which SMEs operate, is changing to promote technology usage in business. The perceived benefits and obstacles of e-business, technology readiness, competitive pressure, and trading partner collaboration are the drivers that are important for all industries (Oliveira and Martins, 2010 and Fatoki and Asah, 2011). Similarly, (Yeboah-Boateng and Essandoh 2013) state that technology such as cloud computing services is being touted as a major enabler for small businesses lately. In addition, they suggest that technology such as cloud computing creates innovativeness, increases competitive advantage and impacts their operations and processes (Yeboah-Boateng and Essandoh, 2013). Moreover, technology has advanced beyond having simple electronic mail and printing services. The introduction of cloud computing in business also places additional pressures from competitive forces on small businesses to move towards technology. In the majority of businesses, the management of technology is important in technology adoption. Recently there has been rapid growth in the significance of technology inclusion in business to business and business to customer transactions. Hence, SMEs will adopt technology based on its business environment. SMEs should acquire knowledge that is required for technology adoption, and then become more aware of the role of technology adoption within SME businesses. There is emphasis that one of the reasons why SMEs fail to adopt technology is owing to the lack of awareness, knowledge and skills within SME environments (Dai, 2010). Technological product knowledge of existing products may be limited, and hence many SMEs tend to not invest in new technology. SMEs will fail to exist, should they not adjust to new technological requirements (Özyurt and Guironnet, 2011). Communication through internet access interphases has become part of common business practice. Since customers are preconditioned to expect a certain service level, which is promoted by technology, SMEs will have to produce a similar level of customer satisfaction in order to be competitive. Hence, it is important that SMEs should continue to adopt the required technology. Based on the above discussion the research problem is stated as:

> *There is no framework in small businesses that highlights the influence that customers have on SME technology adoption.*

Theoretical foundation

In a study by Dulle and Minishi-Majanja, (2011) on open access technology adoption, effective results were achieved by using the UTAUT model as a base. That study's findings suggested support for the application of the UTAUT model in studying the adoption of technology. From the progression of research models in technology adoption, the UTAUT model was found to be most suitable as a baseline for the study into the adoption of technology by SMEs. This research theoretical model is built on the foundation of two models, namely the Porter's Competitive Forces model and the UTAUT model. Competitive forces, i.e. the degree to which SMEs are influenced by competitive forces to adopt technology. Competitor forces definitions are from Porter's Five Forces, namely: Industry Competitors; New Entrants; Substitute Products; Suppliers and Buyers. In this research the technology construct is been defined as the tools that managers require to cope with technological changes. The working definitions for technology adoption now, is choosing or incorporating new hardware and software components as an integral part of the processing activities within small businesses. The theoretical framework used in the ambit of this research study now includes competitive forces as part of the UTAUT model. The study aims to determine the validity of this new

framework by understanding the degree to which SMEs are influenced by competitive forces to adopt technology. The various software application categories may or may not be applicable to many smaller organizations, given the different needs of SMEs compared to larger enterprises. Hence, the research question: "What influence does competitive forces have on technology adoption in developing economy SMEs?"

METHOD

An exploratory approach was used in which qualitative data collection was first completed to determine the statements to be used in the quantitative questionnaire. After analysing the data, the quantitative questionnaire was finalised. This approach employed ensured that there was an informed understanding of the perceptions of the role of technology adoption use amongst SMEs in the population. The findings were then tested amongst a larger sample to determine the validity of the qualitative findings. Reliability and validity checks were conducted on the questionnaire. It was important for the pilot study to be conducted after the qualitative research, because this was when the quantitative questionnaire was finalised. Ten respondents were used to conduct the pilot study. No changes were required after the pilot study. Interviews were conducted with 12 random SME managers to determine the barriers to technology adoption and their respective environments. The qualitative interviews were conducted with various SME managers to further determine the systems in place for technological growth approaches that are used in the organisation. The qualitative interviews provided insight into strategies which are used to deal with new technologies. In the quantitative research a questionnaire was used for primary data collection. SME managers were requested to complete the questionnaire in respect of the status of the organisations represented. An independent organisation was employed to distribute the questionnaires to random SMEs for completion. The random sampling removed biasness from the research.

Sampling Strategy

South African SMEs in the agriculture, manufacturing and construction sectors were targeted for this research. This study incorporated telephonic qualitative interviews and survey questionnaires for the quantitative study. The questionnaires were randomly distributed to SMEs in different areas of South Africa.

Data analysis

Qualitative data that was received from the interviews were analysed and documented. Upon the results of this analysis, a quantitative questionnaire was compiled for the quantitative analysis. Raw data from the questionnaires were categorised through frequency of occurrences in each category. The numeric results were displayed by using graphs and charts to present the data. A statistical software program (SPSS) was used to analyse the data that was received. A mixed method approach was used for this research. Data analysis included testing the correlation in the quantitative data that was received.

FINDINGS

Qualitative

An independent research organisation (iFeedback) was employed to conduct the qualitative research, thus reducing the level of biasness in the study. iFeedback is a research organisation in Cape Town, South Africa and specialises in research projects and data collection. The qualitative research involved 12 respondents, each from different SME organisations. From the data that was collected, the respondents were from organisations which range from one to 140 employees. Although some of the respondents were part of multinational organisations, the local company met the requirements of being classified as an SME.

Age of the respondents

The age of the 12 respondents ranged from 44 years to 67 years. Given that the study targeted major decision makers in the SME organisations, the respondents were middle aged. It was sought to determine if a correlation existed between the age of the respondents and their attitude towards adopting technology.

Experience of the respondents

The experience of respondents in the business was another aspect that was important to be considered. The experience of the respondents ranged from 1 year of business experience to 45 years. It was also determined what the age of the business was in the market place. This would indicate how well established the business is, and hence have an impact on the way that the SME adopts technology. The SME respondents manage businesses that have been in existence from one-year up to 64 years. It was also necessary to determine if there was a link between the number of years of establishment of the SME, and the organisation's choice to adopt technology.

Technology adoption owing to Competitor Force - Customer

It was imperative to determine the degree of importance to adopt technology based on customer demand. Three questions were posed based on the customer's requirements, which related to technology, and these are highlighted in the following text.

Do customers require certain technology to effectively deal with you?

Product quality and innovation have become especially important to producers and consumers in the 21st century, where competition and the need for change have forced both parties to search for new means and ways to create value and to satisfy needs and wants by using limited resources (McFarlane, 2013). Regarding this question, nine of the 12 respondents indicated that the use of technology is important. These tools are important for normal day-to-day business to proceed, and hence is mandatory for the business to have. There were some exceptions, however, where respondents indicated differently as shown below.

Respondent 5	*"beyond emails, Cell, photo, scanner, electronic orders are vital to deal with customers"*
Respondent 6	*"Full Internet access and email correspondence with customers is highly important"*
Respondent 7	*"The internet , software packages such as Ms office as well as email are important to deal with customers"*

Do you require a certain technology to attract customers to you?

The respondents presented mixed reactions to this question, pertaining to whether technology is required to attract customer business. The respondents had the following to say:

Respondent 1	"*No technology is used, Facebook is not effective as is doesn't attract business*"
Respondent 4	"*Technology is not needed. We rely on word of mouth and referrals which is sufficient*"
Respondent 10	"*No, technology is not required. We are 12-15 years in this business*"

However, five of the 12 respondents stated that they use technology to attract customers, as indicated below.

Respondent 2	"*We use Google ad words and internet advertising to attract customers*"
Respondent 7	"*Google ad words and internet advertising*"
Respondent 8	"*Yes latest equipment as well as company website*"
Respondent 11	*"We will be starting Facebook as well as a Webpage"*
Respondent 12	*"Yes technology is used, marketing website, ad words, content, Facebook"*

The type of technology, which is used by SMEs to attract customers allow easier contact between organisations and their customers. In addition, (Ruane and Wallace, 2013) argue that technology adoption that includes social media and marketing are becoming a prevalent tool to develop and maintain engaging with customers which also influences purchase shopping behaviour. Hence, we are able to notice that some SMEs are already adopting this type of technology to attract and benefit from the change in shopping behaviour. It was important to determine if technology has benefitted SME business and its relationship with customers.

Has this technology benefitted your business with customers?

An effective system is one that provides accurate, reliable, complete and immediate results (Khlif and Jallouli, 2014). These performances and quality characteristics encourage users to provide better services; hence, customers are then satisfied and profitability will improve. Of the 10 respondents who answered this question, eight said that technology has benefitted SME businesses. The following responses were noted.

Respondent 6	*"Search engines has benefitted absolutely"*
Respondent 7	"*Internet has benefitted, breakfast advertising worked well"*
Respondent 10	*"Look at our products , customers know me already"*
Respondent 11	"*Webpage gets some contacts, tenders by email"*
Respondent 12	"*Yes, reaction time, tracking communication"*

Not all SMEs proactively use available technology to their advantage. It was noted that of the 58% of who use technology to attract customers, respondents suggested that they benefitted from the use of customer technology. Respondent 10, who is now 75 years of age, suggested that using technology to attract customers is not required. Respondent 10 seemed reluctant to the evolving change that is required for technology adoption. Hence, this is one of the respondents who has not managed to attract customers by using technology, and therefore, has not benefited from it. The majority of respondents suggested that although technology was required to effectively interact with customers, the technology, which was used was very basic, and not much special upgrading was required. Through their study of customer relations management implementation, some researchers argue that the importance of the role of IT is to enable organisations to manage one-to-one relationships with potentially huge numbers of customers, and to assist with the development of improved customer relationships (Akroush, Dahiyat, Gharaibeh and Abu-Lail, 2011).

Customer versus Age

Although the respondents were pro-technology, a weak pattern arose between customer technology adoptions versus age. A total of 50% of the respondents suggested that the customer technology was used, were in the 60+-age bracket. With 20% of the respondents in the 50-60 years' age group and the rest in the 40-50 years' bracket. It is suggested that this customer technology adoption relationship with age does exist; however, it is not very strong.

Customer versus Organisation Size

Three questions were used to determine if a trend existed between the size of the organisation and its decisions to adopt technology with respect to competitor forces. Although all of the different organisation size groups indicated positivity towards technology adoption, the age group of between 6-50 employees produced noticeable results above that of the other age groups. When questioned if the respondents used technology to attract customers, 41% of the positive respondents were from the 6-50 size group, while 17% were from the 1-5 size group and there were no positive responses to this question in the 100-200 size group. Again, a slight trend is evident, as a certain size group of respondents is more proactive towards technology adoption in terms of the customer, as compared to other age groups in the survey.

Customer versus Respondent Experience

The qualitative survey dedicated three questions to customer technology adoption. The respondents were asked the following question in the survey: "Do you require certain technology to attract customers to you?" At least 50% of the respondents in the 10-20 years' category agreed that they require certain technology to attract customers. The following category 20+ years, contained six respondents with experience of up to 47 years in business. The results of the respondents from this category indicated that at least 66% suggested that technology is required to attract customers. Although 75% of the respondents agreed that technology has benefitted customer engagement, it is suggested that a slight trend does exist between the customer related technology adoption and the experience of the respondent. The importance of relationships is that business relationships play a fundamental role in connecting the organisation with its environment in both directions in terms of its suppliers and buyers (Mandják and Szántó 2010).

Summary of qualitative analysis

Once the qualitative analyses were completed, there were clear indications that customers do influence technology adoption. The respondents were unanimous in supporting technology, of which all of the respondents had at least the basic communication technology. However, only a few of the respondents were voluntarily active to enhance their business through technology. Although a few of the respondents use specialised software, these were more industry based, of which competitors in the same industry had the same technology. One could argue that technology sometimes creates a barrier to entry owing to high costs and maintenance, as indicted by one of the respondents. The technology adopted by the majority of respondents indicates that technology is vital for their businesses and for supplier and customer engagement. The data shows that the basic technology are required by most suppliers and customers in their industry; however, the areas where technology adoption may be used as a competitive advantage is still a voluntary option.

QUANTITATIVE FINDINGS

The quantitative part of the research involved using a survey of 25 questions which were presented in a Likert scale format. In order to increase the accuracy of these results and to determine the repeatability of the results, two primary sources of data collection were utilised, namely: (Source 1) which was iFeedback from an Independent Research Organisation and (Source 2) from Survey Monkey. 75 valid responses were received by using Survey Monkey. iFeedback was tasked to conduct random research with respondents that met the SME criteria to determine the degree of influence that technology adoption has on SMEs. iFeedback presented valid responses from 214 participants. The data received from both sources were analysed by using the IBM SPSS Statistics 23 software program. The Cronbach Alpha coefficient for the related customer questions produced a Cronbach alpha greater the 0.7. This meant that

the internal consistency regarding the questions related to customer technology adoption was acceptable. There were 213 valid responses with acceptable standard deviations and high mean values. This data produced an acceptable level of internal consistency in order to proceed with the rest of the data analysis. The next step involved factor analysis to determine how many factors are present in the dataset. Firstly, the data required screening to ensure the clearance of missing data, outliers and unengaged responses. The next screening ensured that the standard deviation of the data was not 0 to ensure the variability in the data. The Kurtosis analyses then determined the distribution of the data surrounding the mean values. The standard deviation showed that the data has variability and was usable. For most of the data, the Kurtosis, which describes the type of distribution curve, has higher peaks than the normal distribution. However, there are a few questions with negative Kurtosis, indicating that the curve is flatter than the normal distribution curve. This usually happens when the respondents have different viewpoints. The skewness of the data also shows that many of the questions skewed to the left. This means that in those questions the respondents had higher scores than expected in a normal distribution. The initial factor analysis that was conducted included the Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity. The KMO measures sampling adequacy, which should ideally be greater than 0.5 for a satisfactory factor analysis. Bartlett's Test was to determine if the variables in the correlation matrix are uncorrelated. The significance value should be less than 0.001. The KMO of the data set in 0.808 was greater than the minimum 0.5 value, which is required for a satisfactory factor analysis. The Bartlett sig is 0.000 and this means that there is some scope to reduce the number of dimensions in the dataset.

Company size

The size of the different organisations that were used in the survey was considered. The respondents had to place their organisation into a particular size category based on the number of people that the organisation employed. The size of the organisations of the random respondents from Source 1 allowed 214 organisations to participate. A total of 19.6% of the organisations were between 1-5 employees; 50.5% were between 6-50; and 15.4% were between 51-100 employees. This means that 85.5% of the organisations that participated in the survey from Source 1 employed less than 100 employees. This is significant for the research in order to understand technology adoption from an SME perspective. The data that was received using Source 2 was considered. The size of the organisation analysis allowed determining the different SME organisation sizes represented in the research. From Source 2, 75 respondents completed the questionnaire successfully. Of these respondents 14.7% were between 1-5 employees; 42.7% were between 6-50 employees; and 10.7% were between 50-100 employees. Of these respondents, 68.1% of the organisations employed less than 100 employees as compared to the 85.5% from Source 1.

Age of the respondents

It was important to determine the ages (see table 3) of the different respondents in order to understand, which age groups completed the questionnaire. It was also important to determine if the age of the respondents affected the decisions that they made in terms of technology adoption later on in this analysis.

The age of the respondents varied from 20 to above 60 years of age. A majority of the respondents from Source 2 were between 41-60 years of age. This totals approximately 64.5% of the respondents who were in this age category. The younger group, the 20-30s, were only 2.8% of the population from Source 1. Source 2 data used 75 respondents. It could be argued that there could be a possibility of different decisions that are made regarding technology adoption, which could be linked to the age of the respondents. The respondents from Source 2

seemed much more evenly spread, with the larger respondent group at 30.7% being between 40-50 years of age. The next group at 29.3% were employees between 50-60 years of age. Those employees between 30-40 years formed the 20% part of the survey that was conducted through Source 2.

Experience of the respondents

As part of this research, it sought to understand how much experience the respondents have in terms of business (see table 4). Source 1 indicates that a large number of the respondents, namely 46.7% had over 20 years of business management experience. The second highest experienced group of respondents was 27.1% of the sampled population and had between 11-20 years of business management experience. It was later determined if the business experience of the respondents produced different results in terms of technology adoption. The data that was received from Source 2 regarding the respondents' business experience follows. The data was presented in a frequency table in order to determine, which experience group is most common in the data collection.

Source 2 results also show that the highest number of respondents, namely 34.7% has more than 20 years of experience. The next two highest groups were 10-20 years and 5-10 years namely 25.3% and 24%, respectively. The two different sources also show that the responses are repeatable in terms of business management experience.

General industries

The respondents had four main choices in terms of industries, namely Agriculture, Construction, Manufacturing and other (viz. *hospitality, tourism, mining and retail* (see table 5). Using the information that was retrieved from Source 1, 74.8% of the respondents represent the general industry. This was followed by Manufacturing at 13.6%, then Construction and Agriculture. By combining this data with data that was received from Source 2, there was adequate evidence that the sample was sufficient to determine if a conclusion could be made for SMEs rather than industries. Although certain industries may require different types of technology, the concept of technology adoption remains the same for SMEs in different industries. The data from Source 1 is displayed in Table 1. Respondents from Source 2 also provided industry of origin data which was important to assist the researchers to determine if the results that were obtained were industry related or not.

Table 1
Size of organisation

Industry of Respondents	Source 1	Source 2
Respondents	Valid Percent	Valid Percent
Agriculture;	2.8	13.3
Construction;	8.4	20
Manufacturing;	13.6	14.7
Other;	74.8	52
Total	100	100

Source 2 data that was taken from 75 samples revealed that 52% of respondents operate in an industry other than Agriculture, Construction or Manufacturing. From this particular source, Construction is the second highest, namely 20%, followed by manufacturing at 14.7%. This segmentation is sufficient to draw a conclusion in terms of whether the industry in which an SME operates, determines its approach to technology adoption.

Technology adoption - Customer

In order to determine the influence of the Customer forces on technology adoption, the survey used eight questions. These questions were analysed first separately, (*see Appendix A for questionnaire*) before a summary of the eight questions were produced. The results were compared from the two different sources separately in order to understand if it was consistent. A five point Likert scale which ranged from "Very important" to Not important at All" was used as depicted in Table 2 below.

Table 2
Customer force on technology adoption

	Customer-Basic Technology Adoption				Customer-Computerised System				Source 1: Customer-Printer				Customer-Internet			
	Source 1		Source 2		Source 1		Source 2		Source 1		Source 2		Source 1		Source 2	
	Frequency	Valid Percent	Frequency	Valid Percent	Frequency	Valid Percent	Frequency	Valid Percent	Frequency	Valid Percent	Frequency	Valid Percent	Frequency	Valid Percent	Frequency	Valid Percent
1. Not important at all	1	0.5	0	0	2	0.9	1	1.3	6	2.8	1	1.3	2	0.9	1	1.3
2. Not very important	3	1.4	0	0	6	2.8	1	1.3	10	4.7	1	1.3	6	2.8	0	0
3. Neutral	2	0.9	8	10.7	13	6.1	7	9.3	26	12.1	8	10.7	8	3.7	10	13.3
4.Somewhat important	7	3.3	4	5.3	26	12.1	7	9.3	30	14	4	5.3	12	5.6	8	10.7
5. Very important	200	93.5	63	84	166	77.6	59	78.7	141	65.9	60	80	185	86.4	56	74.7
Total	214	100	75	100	214	100	75	100	214	100	75	100	214	100	75	100

	Customer-Special Software or Training				Customer-Electronic Payment				Customer-Without Technology				Customer-Technology Business Enhance			
	Source 1		Source 2		Source 1		Source 2		Source 1		Source 2		Source 1		Source 2	
	Frequency	Valid Percent	Frequency	Valid Percent	Frequency	Valid Percent	Frequency	Valid Percent	Frequency	Valid Percent	Frequency	Valid Percent	Frequency	Valid Percent	Frequency	Valid Percent
1. Not important at all	9	4.2	2	2.7	4	1.9	2	2.7	32	15	4	5.3	77	36	1	1.3
2. Not very important	12	5.6	8	10.7	11	5.1	1	1.3	27	12.6	2	2.7	0	0	2	2.7
3. Neutral	47	22	11	14.7	16	7.5	9	12	47	22	16	21.3	0	0	23	30.7
4.Somewhat important	42	19.6	17	22.7	31	14.5	13	17.3	34	15.9	11	14.7	0	0	17	22.7
5. Very important	103	48.1	37	49.3	151	70.6	50	66.7	73	34.1	42	56	136	63.6	32	42.7
Total	214	100	75	100	214	100	75	100	214	100	75	100	214	100	75	100

Do your customers require you to have a computerised system?

It was aimed to determine how important computerised systems are to SMES in relation to dealing with customers. The results that were attained from Source 1 showed a similar pattern, where 77.6% of the respondents indicated that adoption of a computerised system is "Very important". In addition to this result, a further 12.1% indicated that a computerised system is "Somewhat important" for their SME business. Only 3.7% indicated that this technology adoption was either "not very important" or "not important at all". The results from Source 2 also produced a similar trend, whereby only 2.6% of the respondents indicated that this type of technology adoption is either "not very important" or "not important at all". A total of 88% of the respondents indicated that adopting a computerised system in their SME business is either "very important" or at least "Somewhat important". Again, the results from the two sources are similar indicating that the adoption of computerised technologies in SMEs businesses are important for an SME as means to interact with customers effectively. These results also indicate that the customer does have a major influence on the adoption of technology by SMEs.

Do your customers require you to have special software or technology training?

It was aimed to determine if technology adoption amongst SMEs has become more specialised, so much so that it has become a requirement to effectively deal with customers in SME businesses. The respondents of Source 1 show exactly how important specialised technology is within SME businesses. The results from Source 1 indicate that 67.7% of the respondents require customers to have either special training or training in technology in order for the SME to deal with the customer. A total of 22% of the respondents chose to remain neutral regarding this question. The results attained from Source 2 indicated that 72% of the SMEs require their customers to either have specialised software or to undergo technology training in order to effectively deal with their customers. A total of 14.7% of the respondents chose to remain

neutral from Source 2. It is evident from the two sources that the respondents indicated a lesser demand for customer software or customer technology training as compared to the previously tested variables. However, the results also show that customer software adoption is still quite significant for effective customer interaction.

Do customers expect you to have electronic payment technology?

It was sought to determine the importance of electronic payment technology adoption in SMEs. This would indicate the degree to which SMEs rely on technology for payment over traditional cash payments. The data from Source 1 indicates that at least 85.5% of the 214 respondents suggested that electronic payments was either "Very important" or "Somewhat important" for their business when dealing with customers. Source 1 results are shown above. It was necessary to determine if these results are repeatable. Source 2 indicated that 84% of the 75 respondents agreed that electronic payment technology adoption is important for SME customer interaction. Only 5% of the respondents indicated that this technology is either "Not Very important" or "Not important at All". The data from the two sources align, indicating that electronic payment technology adoption is required for SMEs in order to deal with customers.

Will you be able to assist customers effectively without technology?

It was required to determine if SME businesses would be able to survive without technology. The data indicates whether the business will be at risk should this technology not work. The results from Source 1 indicate a split, as only 50% of the respondents indicated that they would be able to continue to deal effectively with customers without the required technology. Source 2, however, produces higher results, as 70.7% of the respondents indicated that they would be able assist customers without technology, and 10% of the respondents indicated that they would not be able to effectively deal with customers, without technology. A large part of the answers to this question was owing to the fact that although customers push towards technology; many businesses have to adopt technology to effectively deal with customers. Without technology adoption, the SMEs would not be able to find means to continue business and hence there is also an element of voluntariness in this technology adoption. Although this element does exist, the previous discussions clearly indicate that the customer dictates the importance of SME technology adoption.

Do you focus on technology that will enhance your business with customers?

It was necessary to understand how much focus SMEs have on technology adoption in relation to the customer. The customer is a competitor force, and hence this question would determine how important the customer is when dealing with technology adoption. The data from Source 1 suggests that 63.6% of the 214 respondents actively consider customers when deciding about technology adoption. Source 2 data also indicated that about 65.4% of the respondents agreed that there is a customer focus element when adopting technology. This result is similar to the results that were achieved by Source 1. Both sources produced similar results, indicating that at least two-thirds of the SME population considered the customer before adopting new technology.

Correlations

The analysis in Table 3 below determines if any correlation exists between the size of the organisation and the questions, which relate to the customer competitor forces. The survey comprised of eight questions, which sought to determine if a relationship exists between the size of the organisation and technology adoption decisions that are taken in terms of the customer.

Table 3
Size – Customer Quantitative Correlation Analysis

		Size	VAR00012	VAR00013	VAR00014	VAR00015	VAR00016	VAR00017	VAR00018	VAR00023
VAR00001	Pearson Correlation	1	.089	.235**	.180**	.099	.174*	.183**	.125	-.139*
	Sig. (2-tailed)		.196	.001	.008	.151	.011	.007	.068	.043
	Sum of Squares and Cross-products	253.925	10.549	43.535	43.779	16.986	46.427	41.230	42.005	-13.155
	Covariance	1.198	.050	.205	.207	.080	.219	.194	.198	-.062
	N	213	213	213	213	213	213	213	213	213
VAR00001, Spearms rho	Correlation Coefficient	1.000	.060	.279**	.218**	.095	.210**	.188**	.111	-.156*
	Sig. (2-tailed)		.381	.000	.001	.166	.002	.006	.106	.023
	N	213	213	213	213	213	213	213	213	213

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

The table shows that a correlation does exist between at least five of the eight questions that were posed in the questionnaire. Four of these questions that relate to customer technology adoption, according to Spearman, are significant. The correlation, although not very strong, is, however, significant as noted. This result indicates that there is a relationship between the size of the organisation and customer competitor force technology adoption. The analysis presented in Table 4 was conducted to determine if a relationship exists between the age of the respondents and technology adoption in line with the customer. It was important to determine if the age of the respondent influences the choices that are made to adopt technology, which is in line with the customer.

Table 4
Age – Customer Quantitative Correlation Analysis

		AGE	12	13	14	15	16	17	18	23
VAR0 0002	Pearson Correlation	1	.108	.005	.020	.030	.015	-.035	-.038	.092
	Sig. (2-tailed)		.118	.941	.773	.665	.831	.610	.585	.179
	Sum of Squares and Cross-products	226.911	12.042	.887	4.573	4.845	3.700	-7.469	-11.948	8.296
	Covariance	1.070	.057	.004	.022	.023	.017	-.035	-.056	.039
	N	213	213	213	213	213	213	213	213	213
VAR0 0002	Correlation Coefficient	1.000	.091	-.045	-.008	-.005	.020	-.056	-.039	.117
	Sig. (2-tailed)		.187	.512	.905	.944	.770	.413	.569	.088
	N	213	213	213	213	213	213	213	213	213

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

Both the Pearson and Spearman correlations identify that no significant correlation exists between the age of the respondent and their decision to adopt technology, which is in line with the customer. This means that the age of the respondents is not a determinant variable when choosing technology in respect of the customer. Eight questions were posed to the customers to identify if there is a correlation between the answers that were received and the industry of operation. The results of this analysis are presented in the Table 5 below.

Table 5
Industry – Customer Quantitative Correlation Analysis

	Industry	VAR00012	VAR00013	VAR00014	VAR00015	VAR00016	VAR00017	VAR00018
Pearson Correlation	1	.008	-.003	-.006	.050	.016	-.075	.033
Sig. (2-tailed)		.909	.965	.932	.469	.817	.279	.633
Sum of Squares and Cross-products	122.657	.648	-.394	-.995	5.958	2.948	-11.643	7.681
Covariance	.579	.003	-.002	-.005	.028	.014	-.055	.036
N	213	213	213	213	213	213	213	213
Correlation Coefficient	1.000	.026	.029	.021	.060	.001	-.096	.019
Sig. (2-tailed)		.704	.678	.764	.382	.984	.162	.787
N	213	213	213	213	213	213	213	213

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

No significant level of correlation exists between any of the questions, which relate to customer technology adoption versus the industry in which the SME operates. Hence, this means that from the quantitative analyses the industry does not affect the decision to adopt technology with respect to the customer. Analyses were conducted to see if there may be a relationship between supplier technology adoption and the industry in which the SME operates. Table 6shows the results of this analysis. The analysis began by determining the relationship between customer related technology adoption and the experience of the respondents.

Table 6
Experience – Customer Quantitative Correlation Analysis

	Age	Experience	VAR00012	VAR00013	VAR00014	VAR00015	VAR00016	VAR00017	VAR00018	VAR00023
Pearson Correlation	.756**	1	.264**	.124	.098	.160*	.091	.044	.076	.020
Sig. (2-tailed)	.000		.000	.072	.155	.020	.184	.522	.269	.776
Sum of Squares and Cross-products	167.498	216.066	28.817	21.155	21.962	25.338	22.413	9.146	23.554	1.718
Covariance	.790	1.019	.136	.100	.104	.120	.106	.043	.111	.008
N	213	213	213	213	213	213	213	213	213	213
Correlation Coefficient	.744**	1.000	.193**	.071	.082	.139*	.083	.008	.080	.017
Sig. (2-tailed)	.000		.005	.301	.235	.042	.226	.906	.242	.801
N	213	213	213	213	213	213	213	213	213	213

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

Analysing the Spearman and Pearson correlation results in terms of the customer - it was found that there was a significant relationship between the age of the participants and their experience. It was also noted that a significant relationship existed between at least two of the questions, which relate to customer technology adoption. Both the Pearson and Spearman correlation results suggest that there is a relationship between customer technology adoption and the experience of the respondents. Similarly, it was necessary to identify if a correlation existed between the experience of the respondents and the supplier technology adoption.

Age versus customer

The age of the respondents compared to the technology that was adopted required that interaction with customers more effectively was also covered. The technology that was adopted for customers has been a priority for SMEs. Although the customer is a focus for any business, no definite correlation was found between the age of the respondent and the customer technology that was adopted. Respondents of various age groups suggested that this type of focus on customers in relation to technology adoption is important; however, there is no distinctive trend which suggests that the age of the respondent influences the adoption of this particular technology focus. The quantitative correlation analysis suggests that there is a negative relationship with some questions, which relate to adopting technology in relation to more effective customer interaction; however, this correlation is not significant enough as a definite relationship between the two variables.

Experience

The experience of the respondent versus technology adoption in relation to the customer was also important to determine. At least 67% of the customers in the qualitative survey suggested that customer technology adoption benefits the business. For this reason, experience that is

gained in business may have an advantage regarding the way that the respondent adopts technology to benefit the relationship with customers. The quantitative surveys present a similar picture about the importance of having the right technology that is adopted to interact with customers. However, the interest was to check if a trend existed between the experience of the respondent and the focus on the customer when adopting technology. The correlation analysis suggests that at least two of the questions show signs of positive correlation. The correlation indicated that the more experience the respondent had, the more prone the respondent was to adopt electronic communication and internet based services to customers. The qualitative study suggested that through experience, the respondents believed that there is benefit from this customer technology adoption. Customer technology adoption is of high importance in SMEs and it is further noted that a correlation does exist between the respondents and technology adoption in relation to the customer.

RESULTS

The findings suggest that SMEs do focus on technology when dealing with various customer aspects of their businesses. To develop the level or type of business-to-business technology, which is currently used by SMEs in South Africa, the SME's understand that their businesses require technology in order to be successful. At least 75% of SMEs agreed that technology adoption improves their relationships with customers, 42% of the respondents in the qualitative survey mentioned that technology assisted them with supplier relationships. Dulle and Minishi-Majanja (2011) argue that the UTAUT model, in comparison to existing models, is the most promising when explaining individual behaviour towards technology acceptance. The UTAUT model includes four main constructs viz: Performance Expectancy (i.e*. how an individual believes the technology will assist to make the job easier*); Effort Expectancy (i.e. *the degree of ease associated with using the system*); Social Influence (i.e. *relates to how an individual is affected by peers* and Facilitating Conditions (i.e. *the degree to which an individual believes that technical support for the system exists within the organization*).

From the data that was presented, it is clear that not all SMEs adopted the same technology. The customer technology adoption showed an average standard deviation of 0.8 over all of the customer relation questions, 0.47 over the barrier to entry questions, and 0.9 on supplier technology questions. Although the SMEs were pro technology adoption, the individual responses varied within the different questions, indicating that gaps exist in technology adoption between the SMEs in different areas of the business. Interestingly, the findings showed that the internet has become more important to customers than having print technology.

CONTRIBUTION TO THE BODY OF KNOWLEDGE

The Competitive force construct, which is Customer force technology should be added to the UTAUT model. In order to prove that the competitive forces construct is fit for this model, the research conducted correlation analysis with respect to Age, Experience and Voluntariness of Use. Together with frequency analysis on the different constructs within competitive forces, it was determined that there are relationships between Age, Experience and Voluntariness of Use. This research has proven that the relationships between these constructs exist, and discussed in the findings the Development of the Combined UTAUT model which is depicted in Figure 2 below.

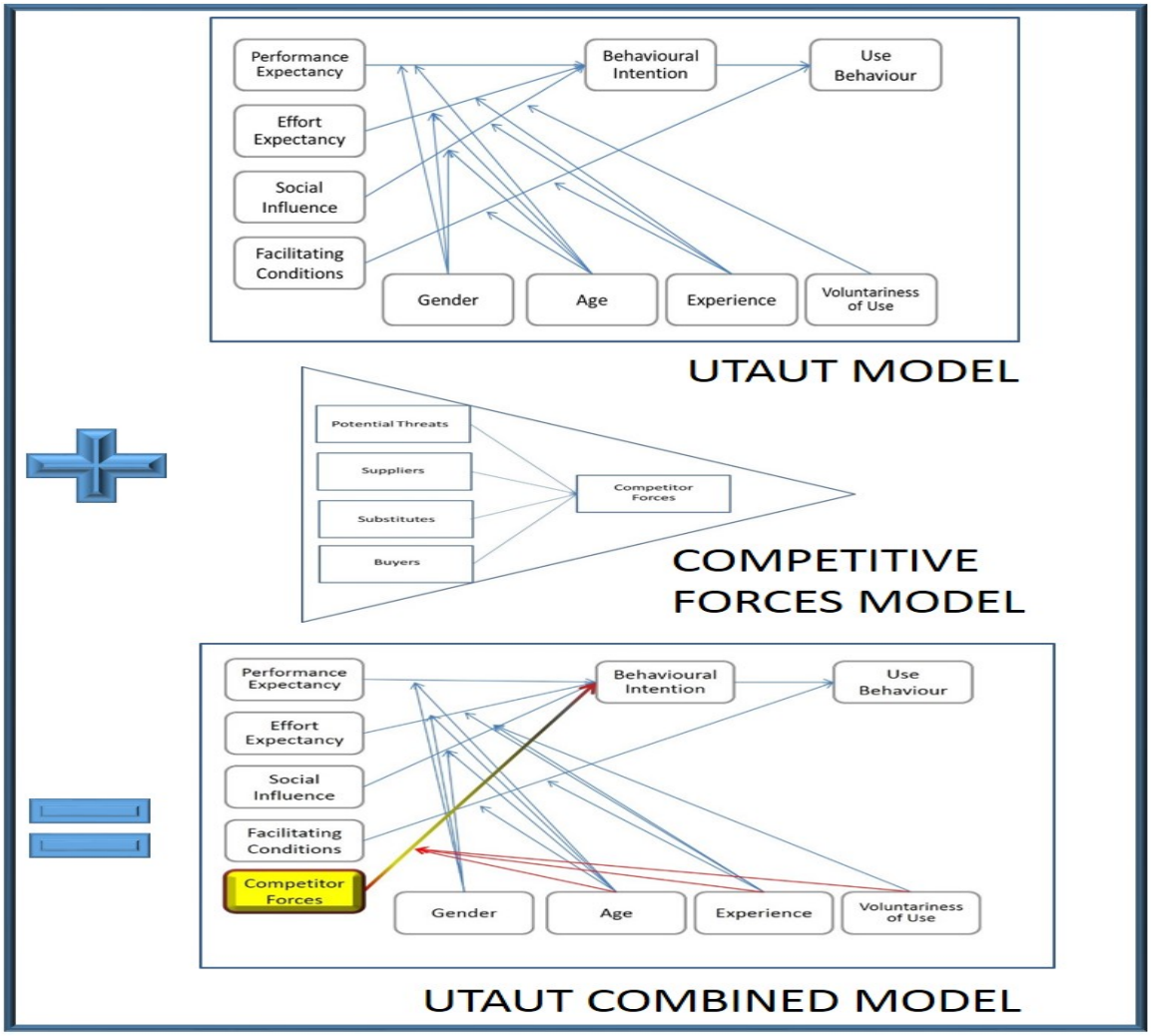

Fig.2
UTAUT Combined Model

CONCLUSION

Sufficient investigation in this research has been conducted to introduce competitor forces into the UTAUT model. This inclusion will allow SMEs to understand that the competitor forces constructs are of importance when determining the behavioural intention of SME technology adoption. Other researchers, business owners, entrepreneurs will also benefit by way of understanding SME behaviour in line with technology adoption and behavioral intention to adopt technology. The modified Combined UTAUT model will allow other researchers and SMEs to actively focus on competitive constructs when dealing with technology adoption.

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