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TO WHOM IT MAY CONCERN

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- Relevancy of the subject to Web applications
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Internet usage in lower-end SMMEs in South Africa

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Abstract

Small and medium sized enterprises (SMMEs) encompass a broad range of firms, from established traditional family businesses down to the survivalist self-employed, informal micro enterprises. Many lack the skills, support, finance and other resources necessary to sustain their businesses. This low rate of sustainability is particularly prevalent in developing countries. Businesses require information relating to current market conditions; market opportunities; sales prospects; where and how to improve their technology and skills; where and how to access finance and how to access appropriate business development services. The internet is an important source of business information as well as a source of potential business ideas. Access to technology is important both in accessing business information prior to starting a business and in allowing existing businesses to remain competitive in the market. This study of SMMEs in South Africa explores the level of internet usage, and how the internet is accessed by lower-end SMMEs. The findings indicate that there is a significant digital divide even within the lower-end SMME sector in South Africa, with business size and educational levels both identified as key characteristics that determine internet usage.

Introduction

In developed economies, the rapid spread of ICT has led to a decrease in the price of communication and allowed markets across the world to become more connected. Given that the global economy is currently characterised by an increased level of domestic, regional and international competition, in order to compete successfully, SMMEs (small, medium and micro enterprises) will need to be able to adapt to this rapidly changing environment, and their ability to adapt is becoming increasingly dependent on the use of more sophisticated technology. Businesses require information relating to current market conditions; market opportunities; sales prospects; where and how to improve their technology and skills; where and how to access finance and how to access appropriate business development services and the internet has become an important source of business information as well as a source of potential business ideas. SMMEs will need to use more sophisticated information and communication technologies (ICT) such as the internet to access timeous and accurate information regarding the supply of and demand for products and services in various markets; for accessing business information prior to starting a business and in allowing existing businesses to remain competitive in the market. This study of SMMEs in South Africa explores the level of internet usage, and how the internet is accessed by lower-end SMMEs. The study explores the characteristics that could have a predictive value with respect to internet usage and the primary functions of internet access in lower-end SMMEs.

Literature review

ICT usage in SMMEs

Frempong (2007) argues that the most common constraints preventing the development of ICT usage in the SMME sector are in fact basic business issues, namely access to finance, government red-tape, the high cost of training, lack of personal skills, labour laws and poorly or inadequately skilled workforce. While businesses are still grappling with basic business issues it is less likely that they will be in a position to understand or put in place a strategy to adopt new technology. Sundstrom (2006) argues that the characteristics of SMMEs influence their IT adoption process. Due to limited business and IT skills SMMEs adopt a short-term view with respect to IT adoption decisions and that the IT adoption is driven primarily by customers or suppliers and is therefore rarely part of a long-term strategy. Wolf (2001) argues similarly that as SMMEs operate in a particularly uncertain environment, entrepreneurs often have a short-term planning horizon. The decision to invest in ICT will therefore depend on the entrepreneurs' training and experience as well as their view of the future economic outlook. This means that IT adoption is determined by the characteristics of the enterprise, the characteristics of the entrepreneur and the environment in which the business operates. SMME owners are often so involved with the day-to-day operations of the business that they do not have time to develop an understanding of the various technologies that are available. Their own lack of knowledge is compounded by the lack of qualified IT staff. This lack of knowledge acts as a strong deterrent when deciding on possible ICT spend.

SMMEs often feel that many of their day-to-day operations can be conducted as efficiently off-line, and this belief negates the need for more sophisticated ICT. SMMEs will often start with the basic uses of IT i.e. improving administration function of business, word processing etc. and will only proceed to more advanced uses of IT if they perceive a tangible benefit i.e. cost reduction or if their suppliers or customers use technology. SMMEs often rely on relatively simple technology such as fixed line/mobile phones and fax machines that allow businesses to communicate effectively with suppliers, employees and customers without requiring face-to-face meetings. Upgrading to a basic personal computer would allow the business to run basic word processing software and accounting packages which would allow the business to automate and manage key aspects of their businesses cheaply and efficiently. Businesses that intend to have advanced communication capabilities within the business would, at this time, require an internet connection (Kotelnikov, 2007). Modern technology means that businesses' access to the internet is not necessarily limited by the lack of a personal computer. Many of the new generation mobile phones allow businesses to access the internet without having to invest in a personal computer. The usefulness of this type of connectivity is limited however by broadband connectivity, bandwidth issues and cost.

Education and ICT usage

A United Nations (2004) study in four Asian countries describes businesses as internet users, prospective internet users or traditional businesses (no internet usage). The study found that in businesses described as internet users i.e. businesses that made relatively extensive use of the internet, the owners tended to have higher educational qualifications than the other two

classifications. The study argued that there is a strong link between the educational qualifications of the owner/manager and the effectiveness of the internet usage in the business. Businesses described as prospective internet users are still struggling with internal challenges such as access to finance and although the owners have some knowledge of ICT and its potential benefit, the business has not made use of technologies such as the internet. Businesses described as traditional businesses are characterised by a lack of awareness about potential benefits of ICT and generally do not even have access to ICT technology such as computers. The owners of these businesses tend to have low levels of formal education.

Research (United Nations 2004, Frempong 2007) has argued that primary and secondary schooling must equip citizens with basic computer skills as well as a good basic education as a poorly educated workforce reduces the efficiency and speed with which IT can be adopted and used within businesses. Research (ECLAC 2005: 45) has further argued that basic literacy is critical to internet use and countries with higher illiteracy rates will cause a deep-rooted digital gap both within and between countries. This gap is likely to be insoluble in even the medium term. Research has also shown that secondary education is considered vital for effective ICT use (ECLAC, Brazil, 2005:176). Given the link between education and ICT adoption it is of growing concern that the *Global Competitiveness Report 2008 – 2009* continues to paint a bleak picture with respect to education within South Africa. With respect to the quality of the educational system, South Africa was ranked 110 out of 134 countries. What is of particular concern is the quality of maths and science education where South Africa was ranked 132 out of 134 countries.

ICT usage in South Africa

While 83.3 per 100 inhabitants in South Africa subscribe to a mobile phone, South Africa scores significantly lower with respect to personal computers, Internet users and broadband Internet subscribers. Only 8.4 per 100 inhabitants have access to personal computers, while only 7.8 per 10 000 inhabitants are Internet users and 0.7 per 100 inhabitants are broadband subscribers. South Africa's rankings out of 134 countries are 68th, 95th and 77th respectively (*Global Competitiveness Report 2008 – 2009*). Studies have noted that the uptake of internet services in South Africa was still relatively low in comparison to other developing countries and indicated that reasons for this included high costs, a lack of high speed connections and security issues including virus transmissions.

Research design

The study focused on lower-end SMMEs that used government-funded business support services. The sample was drawn from client lists provided by the Small Enterprise Development Agency (SEDA). The data was collected by means of face-to-face structured interviews employing an interviewer. The questionnaire designed for this study consisted predominantly of closed questions but included four open-ended questions to allow for additional information from the respondents.

A descriptive survey research design was chosen for this study as it was considered to be the most appropriate to achieve the research aims. Respondents were selected using simple random sampling and data was collected using face-to-face structured interviews. The coded responses from the questionnaires were analysed, quantitatively, using SPSS software.

Content and description of the questionnaire

The questionnaire was structured using primarily dichotomous questions with fixed-response (close-end) alternatives as well as open-ended questions with no pre-specified response format. The design suited the type of data to be obtained, namely demographic profile, business profile, skills, ICT usage and ICT requirements.

- **Section A: Demographic profile:** The questions within the first section were designed to determine the demographic profile of the respondents: age, race, gender and level of education.
- **Section B: Business profile:** This section included questions relating to the location of the business, the length of its existence, whether the business operated in an urban or rural setting, turnover, number of employees and whether or not it was registered.
- **Section C: Skills:** This section identified whether or not the owner/manager of the business believed that he/ she had the necessary skills to manage the business successfully. The section also included questions relating specifically to ICT skills and familiarity with using various ICT devices.
- **Section D: ICT usage:** This section examined what ICT had been adopted within the business and what exactly the ICT was used for.
- **Section E: ICT requirements:** This section required the respondents to identify any areas within their businesses where ICT solutions could be adopted, and how great their need was for an ICT solution.

Sample size

The sample of 1 914 potential respondents was drawn from client lists provided by the Small Enterprise Development Agency (SEDA). The 1 914 responses were checked and 107 were rejected due to incomplete information. The large sample size facilitates the collection of valid and reliable data, which can be analysed with a high level of confidence.

Data collection, coding and capture

The data was collected using face-to-face interviews with all the respondents. The fieldwork was conducted between April and August 2008. In total, 60 fieldworkers were used, and each completed approximately 30 questionnaires.

Findings and discussion

Access to the internet

In order for SMMEs to become involved in businesses that have the potential to become high value businesses, both the ability to use technology and the access to technology are important. For businesses to become competitive, develop relationships with customers and suppliers and

have easier access to information regarding new business opportunities, it is important that they have access to both communication methods and technology. It is therefore of concern that 42% of the respondents indicated that they did not use the internet for business purposes. These results, namely that 42% of the respondents do not use the internet; indicate that internet-based business services are likely to be ineffective in reaching the majority of these businesses, as access to the requisite technology is extremely limited. Tenders and other government contracts that require businesses to access information via websites or email correspondence will exclude businesses that do not have access to these technologies. Even if businesses are able to collect paper-based application forms, these businesses would incur higher travel and time costs and it would be extremely difficult for them to compete on an equal footing. Given that research indicates that the internet has numerous positive benefits for business, Frempong (2007:8) questions why so few SMMEs have adopted the internet in their business. Although the majority of SMME owners in his study had completed secondary education, he argues that this does not necessarily mean that they are computer or internet literate. Freepong also puts forward a number of additional barriers to internet usage facing SMMEs, namely:

- Products/services not suitable for sale over the internet
- Customers not ready to participate in e-commerce
- Security problems concerning payments
- Logistical problems – internet may allow the business to find new markets but the business will still need to be able to supply the product or service to the customer. If the business is located in an area with limited transport possibilities, finding the customer via the internet will not make it any easier to supply the product.

The survey did not specifically ask why businesses did not make use of the internet; however, it may be useful to question why these businesses make no use of the internet. Reasons could include the high cost of internet services, language of the internet or lack of connectivity. Sahlfeld (2007:26) questions whether, in developing countries, sufficient local content would be available to benefit SMMEs. She also raises the concern that local languages are not accommodated on the internet. This would decrease the benefit to SMMEs, particularly in cases where the owner/manager has limited schooling. Morris (2006) quotes research by the South African Foundation that indicates that the cost of internet access in South Africa is 400% greater than in 13 other comparable countries. While internet costs have been decreasing, South African charges are still considerably higher than in many developing countries.

The size of the business affects access to the internet. Just over half the micro businesses (54.7%) have access to the internet while three-quarters of small businesses have access to the internet (75.8%). Micro businesses are less likely to have access to the internet with 46% of micro businesses having no internet access (Table 1) and it is likely that these businesses would rely on the cell phone, informal gatherings and personal contacts to collect information. The high costs would most certainly micro businesses more, and may partially explain the lower internet usage by micro businesses.

Table 1: Do you have access to the internet, by business size?

	Yes	No
Micro	54.7%	45.3%
Very small	63.1%	36.9%
Small	75.8%	24.2%
Total	57.8%	42.2%

By contrast, only a quarter of small businesses (24.6%) had no access to the internet. As Dumcombe and Heeks (2001) indicate, the small businesses are more likely to have a greater need for information and therefore need to access a variety of information sources.

Where is the internet accessed?

Given that respondents could use more than one form of internet access device, the respondents (58% with access) were asked to indicate where they accessed the internet, namely an office computer, home computer, a cell phone or from an internet cafe. Table 2 shows that the majority of the respondents with internet access accessed the internet through an office computer (57.5%). Approximately a third of the respondents regularly used an internet cafe (31.3%) or a home computer (30.8%). When analysing the respondents that access the internet via a cell phone (22.9%) it was found these respondents were almost exclusively urban-based (93.5%) and male (67%). Ninety percent of these respondents had and used a computer in their business and also accessed the internet from a business or home computer, which seems to indicate that the overwhelming majority of these businesses used a cell phone to complement, rather than replace, internet access to their business.

Table 2: Where do you regularly access the internet?

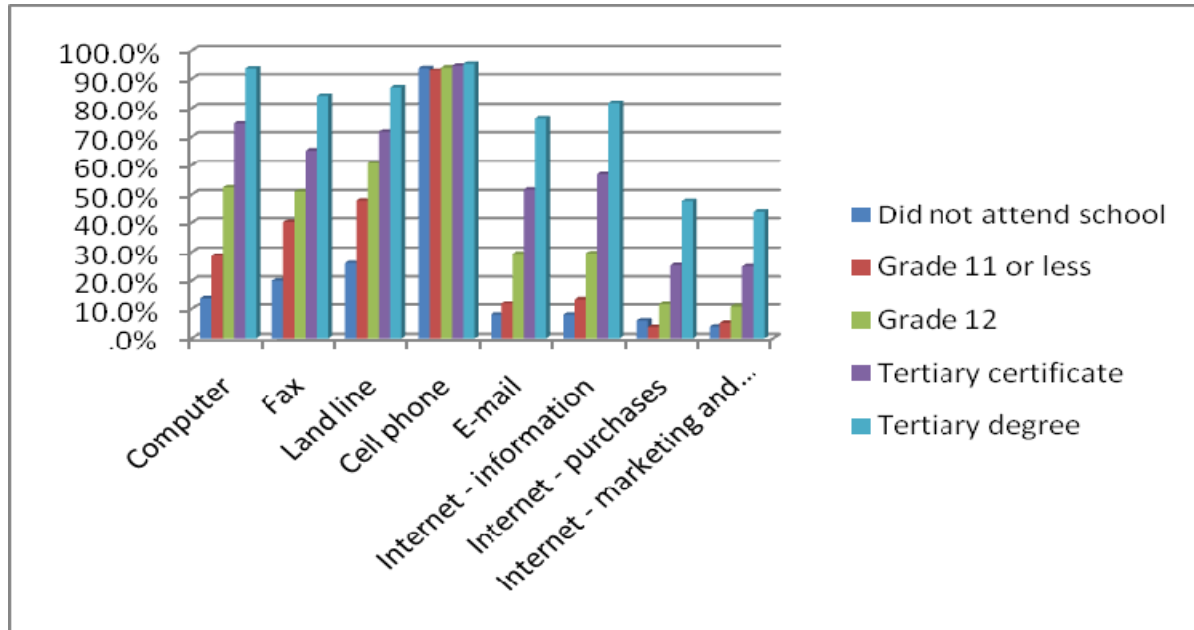
Business computer	Home computer	Cell phone	Internet cafe
57.5%	30.8%	22.9%	31.3%

The survey found that almost half of the small businesses (49.2%) with internet access accessed the internet from a computer at their business premises. Accessing the internet from a business computer was not as prevalent amongst very small businesses (37.1%). With only 17.3% of micro businesses accessing the internet from a business computer, home-based computers or internet cafes are far more significant internet access options for these businesses.

Educational level of SMME owners

Educational levels have no impact on whether a business owner/manager uses a cell phone for business purposes (Figure 1) with over 94% of all respondents, regardless of level of education, using a cell phone for business purposes. Other than a cell phone, business owners that have a Grade 11 or less in formal education as their highest qualification make less use of all ICT types surveyed. The use of a landline and fax machine is influenced by the high cost of a fixed line as well as the likelihood that a number of these businesses do not have formal business premises. The high cost and long delivery time for fixed lines, as well as the mobility afforded by cell phones, would make cell phone telephony a far more convenient and more accessible means of communication for business owners with a Grade 11 education.

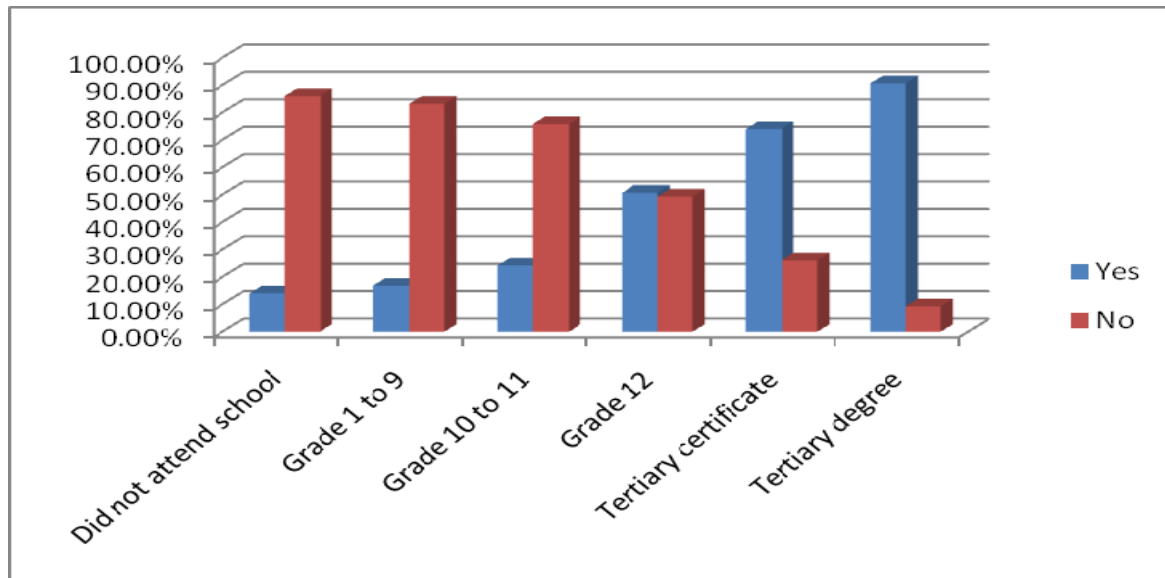
Figure 1: Which of the following have you used for business purposes, with education?



Educational levels seem to have the greatest impact on the use of more sophisticated ICT adoptions. Wolf (2001), in a study in South Africa, found that business using no ICT or only a telephone had lower levels of schooling than businesses using a greater range of ICT. In this survey, 81.8% of respondents with a tertiary degree use the Internet to access information for their business, which is in stark contrast to the 8% of respondents with no formal education and 14% with Grade 11 or less who use the Internet to access information (see Figure 2). This trend is also apparent in the use of email. Frempong (2007:5) argues that modern ICTs, particularly Internet-based services, are knowledge intensive and therefore require users to have a certain level of formal education to be able to use them effectively in a business situation. Duncombe and Heeks (2001) indicate that being comfortable with computers is a prerequisite for the email or Internet.

The study found that education was significant in improving business owners' perceived competence of IT skills as educational levels increase, with respondents with less than Grade 10 rating their skills at 1.51/5 and respondents with a tertiary degree rating their skills at 3.16/5. Education is therefore important in improving individuals' perceived competence of IT skills and is likely to increase the likelihood of the individual being comfortable with computers, and with using email or Internet.

Figure 2 shows a clear relationship between educational attainment and internet usage. Only 14% of business owners with no schooling accessed the internet. The percentage of business owners accessing the internet increases as their level of schooling increases. The increase is most noticeable from Grade 12 onwards. Half of the respondents with Grade 12, almost three-quarters of the respondents with a tertiary certificate and 91% of the respondents with a tertiary degree accessed the internet. As indicated in the 2004 United Nations study quoted above, the majority of the internet users had a higher educational qualification.

Figure 2: Internet access and educational level

For what do businesses use the internet?

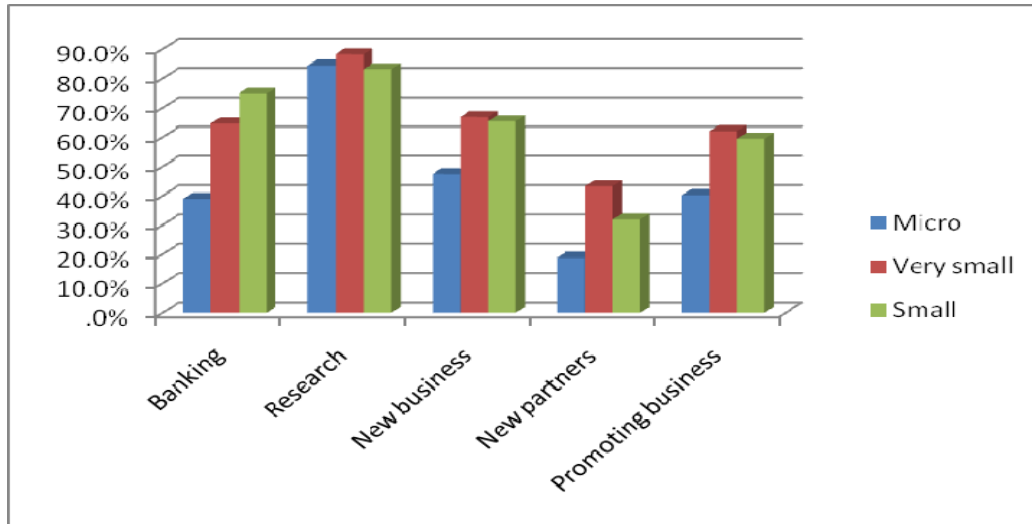
A 2004 United Nations study found that the most common uses of the internet by small businesses were to research new product ideas and to monitor the market in which they operate. An EDLAC (2004:41) study of urban SMEs in Latin America found that the most common uses of the internet were email (98%), searching for information (90%), banking (80%), monitoring the market (54%), communicating with public authorities (53%) and finding job opportunities (27%). Trigrammic Consulting (2004) quotes the 2003 SME survey that found that South African SMEs were using the internet for the following purpose: communications with customers (53.7%), communications with suppliers (44.4%), providing service and support to customers (44.4%), establishing a business presence (40.7%), gathering information on customers (31.4%), selling services (29.6%) and gathering information on competitors (27.7%). In this survey, business research (85%) and finding new business ideas (52.9%) are the most common uses of the internet (Table 3). Less than half of the businesses (47.3%) use the internet for banking.

Table 3: For what do businesses use the internet?

Banking	Business research	Finding new business ideas	Finding new partners	Promoting the business
47.3%	85.0%	52.9%	24.9%	46.3%

Figure 3 shows that all of the businesses, regardless of whether the business is micro, very small or small, used the internet primarily for business research. Substantially more small businesses (compared to micro and very small businesses) use the internet for banking purposes with three-quarters of small businesses using the internet for banking purposes. This is similar to the findings of the EDLAC study referred to above.

Figure 3: What do you use the internet for, by business size?



Frempong (2007:8) found that internet banking was used predominantly to check balances and order cheque books and that little use had been made of EFT payments for business purposes. He speculates that issues of security and customer confidence may be limiting the use of e-banking. The findings in Table 4 raise a question regarding banking usage in small businesses. Seventy-five percent of small businesses used the internet for banking purposes, and 59.5% and 62.5% of small businesses used EFT facilities, both as a means of receiving and making payments. This research did not specify whether the EFT payments made and/or received by the business were via a debit card, the ATM or the internet. However, given the large number of small businesses that regularly make use of EFT facilities, further research could identify the type of EFT payments most frequently used.

Table 4: EFT banking by business size

	EFT payments from customers	EFT payments to suppliers
Micro	32.2%	27.5%
Very small	43.7%	43.7%
Small	59.2%	62.5%

Email and websites

Trigrammic Consulting (2005) quotes the 2003 SME survey, which found that about 80% of the respondents used e-mail. Table 7 below shows that although less than 40% of small businesses that had and used a computer in their business had hosted email facilities, small businesses are more than three times as likely as micro businesses to have email facilities. The lack of email facilities means that these businesses do not have access to an extremely efficient and cheap method of communication. SMMEs that do not have an email address should be encouraged to set up an email facility as, according to the Trigrammic Consulting Report 2005, the use of ICT by small business starts with basic ICT usage such as telephony and email and then progresses to uses that are more sophisticated such as extensive use of the internet. The progression to

more extensive use of the internet will mean that businesses will be able to access large amounts of business information that, without internet access, would not be as easily accessible.

Table 5: Computing environment: email and website

	Hosted email	Website
Micro	10.8%	9.9%
Very small	27.5%	21.7%
Small	37.5%	30.8%

Twenty-eight percent of small businesses with a computer in the business indicated that they had a business website while just over 10% of micro businesses had a business website (Table5). The survey did not ask whether or not the website had interactive capacities or whether the website was purely for informational value, but more small businesses would at least have the potential marketing benefit that a website affords the business.

No computer or internet access

A third of the total sample (33.4%) indicated that they had neither a business computer nor any access to the internet. Duncombe and Molla (2006) classified businesses with respect to their ICT usage as being in either the foundation state, exploratory state, graduation state or expert state. According to Dumcombe and Heeks (2001), businesses in the foundation state made no use of computers and had no online capabilities. They found that businesses in this category lacked core business capabilities, technological know-how and financial and technological resources. These businesses were unaware of the benefits of e-commerce and had, as their primary objective, business survival. A United Nations survey (2004) conducted in Nigeria found that one-third of micro businesses (businesses with less than 10 employees) did not have any ICT at all. The study also showed that the owners of these businesses had a low level of educational qualifications. Smaller businesses in this study were more likely to not have and use a computer with 36% of micro, 27% of very small and 14% of small businesses indicating that they had neither a business computer nor any access to the internet (Table 6).

Table 6: Business size and no computer or internet access

Micro	36.8%
Very small	27.0%
Small	14.4%

Any support offered to these businesses would have to spend a considerable amount of time and resources on improving the core business capacities, both from a business resource and a human capacity point of view. It is unlikely that businesses at this stage would benefit from the introduction of additional ICT. While additional ICT adoption would be unwise at this level, improving the individuals' technological capacity is important as it will both enable and encourage the owners to feel more comfortable with technology such as the internet. The majority of micro businesses use a cell phone for business purposes and for businesses at the foundation state, this level of ICT usage is sufficient while the business owners improve their core business skills.

Conclusion

The educational levels of SMME owners and employees have a significant impact both on the likelihood that a business will have and use a computer in the business as well as the likelihood that the business owner will use the Internet. Educational levels also influence the variety of ICT devices that are used in the business and whether or not the business has Internet access. A number of studies have highlighted the poor quality of the educational standards in South Africa. In order for South Africa to grow its economic competitive advantage and become more effective as an efficiency-driven country, improvements in the quality of education at many schools in South Africa needs to be addressed with some urgency.

Our findings that Internet usage is significantly higher in small businesses, can lead to an increase in the digital divide between businesses in the SMME sector. Internet access in micro businesses is used predominantly for research purposes and lags behind small businesses where it is being used for more sophisticated business activities such as banking. A large percentage of the SMMEs do not use the Internet for business purposes. Such businesses are excluded from a comprehensive source of business information that is becoming more wide spread. The digital divide between businesses with access to more sophisticated ICTs, such as the Internet, is likely to increase. Business centres, such as the ICT access centre launched in 2008 in Johannesburg is an initiative was funded by Vodafone and is specifically targeted at small business owners. Such centres provide low-cost, easy access to technology such as the Internet. Liberalisation of the telecommunications sector to allow for increased competition is vital to assist in bringing down the cost of telecommunication.

Micro businesses are less confident in their perception of their own general business as well as specifically ICT skills. Micro businesses may require basic business training before any specific ICT training should be offered. The ICT training must be integrated into general business training courses so that the way in which ICT complements business practices can be demonstrated. If ICT solutions are to be effective, they need to be integrated into the existing business processes and form part of the longer-term strategy of the business.

Future research

The findings of this paper indicate that there is a significant digital divide even within the lower-end SMME sector in South Africa, with business size and educational levels both identified as key characteristics that determine internet usage. Organisations wishing to encourage the growth and development of the SMME sector need to develop an understanding of what educational interventions could be provided that would advancing the use of ICTs in this sector. Future research should look at the ICT educational needs of business owners as well as the perceived business requirements of SMME owners in South Africa and the potential for ICT to provide solutions.

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