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## Article

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# The use of ict by sme's in Zambia to access business information services and investments: barriers and drivers

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## Abstract

The research aimed at answering key questions regarding the use of ICTs among SMEs in their businesses with an analysis and consideration of the possible factors that enable ICTs to be valued, as drivers and the possible factors that deter them not to be recognised as business development agents to be the barriers. The research was conducted on a sample of 60 SMEs with no formal business registration and 40 SMEs with formal business registration with a response of 76.7% and 87.5% respectively. Results disclosed that ICTs are a major aspect in business operations, formally and informally with the major drivers happening to be the reduction in cost and ease of doing business. The major challenges were the expense at which ICTs come with and the poor ICT infrastructure. There is a relation between the investment in ICTs in businesses with the increase in productivity as 67.04% of the respondents confirming the effect of implementation. The study recommends that Government fully implements the framework for ICTs laid in its Seventh National Development Plan (7NDP) to make ICTs available for socio-economic development through infrastructure development, reduction on taxes laid on ICT related goods and through Public-Private Partnerships (PPPs) that seek to enhance the communication.

**Keywords:** Small and Medium enterprises (SMEs), Drivers, Barriers, Information communication technologies (ICTs)

## Introduction

Zambia and like most African countries, was categorised as a developing nation which was growing to enhance its status and welfare through most sectors that support the development. As such, Governments in most of the development countries, Zambia inclusive, were looking at ways that accelerate the economic growth Katua, 2014a, of the countries by identifying the key areas that prove to be important in the growth. One of the common factors was that, SME's account for 60–70% of the workforce in the developed countries according to the Organisation for Economic Co-operation and Development (OECD, 2001, OECD, 2004, OECD, 2017,) (OECD Development, O. f. E. C.-o. a., n.d.) O. F. E. C.-O. A. D, 2004. This meant that unlike the case for developing countries in which most of the workforce was provided by the Government, employment in more developed economies was provided for by the private sector, through Small Medium Enterprises (SMEs).

Implementing this would mean that the pressure on the Zambian Government to provide employment would be reduced and that the only major role of the Government would be to provide for policies and regulations, conducive enough to support the existence of these enterprises. Furthermore, employment meant a larger tax base for the revenue authorities that could be used to enhance and upgrade the various social and economic amenities. For business to be effective, there needs to be driving forces that make it easy to conduct. Among the main business forces is the application of Information and Communication Technologies (ICTs) Osterle et al, 2007, to conduct business among SME's and their trade.

Most SMEs would not adopt e-commerce if the benefits do not outweigh the costs of developing and maintaining the system. SMEs were generally concerned about the costs of establishing Bouazza et al, 2015, and maintaining e-commerce since they generally suffered from budget constraints and were less sure of the expected returns on the investment (Development, O. f. E. C.-O. a., 2004a).

Also, the tools for ICTs did not seem to be very friendly because of the computer literacy levels of the people, lack of willingness to adopt ICTs because the content was mainly presented in English other than common local languages, privacy issues and usability concerns (Bwalya, 2015). Many SME owners have only basic levels of education, especially in rural areas. About half of SMEs in rural areas had a primary education and about 45% had a secondary education.

### Objectives

1. To study the technological acceptance of ICTs by SMEs in Zambia.
2. To identify the barriers and drivers of ICTs on SMEs.
3. To determine the relationship between the increase in investment of ICTs and the benefit to SMEs in Zambia.

### Research questions

1. What measures have been in place to support the use of ICTs by SMEs in Zambia and the preferred modes of trade among them and how can ICTs enhance them?
2. What are the main constraints or drivers that encourage or discourage the use of ICTs) among SMEs in Zambia?
3. What is the relationship between investing in Information and Communications Technology (ICT) and the growth of the Small and Medium Enterprises (SMEs) in Zambia?

### Hypotheses

1. The use of ICTs was avoided by the business community among SMEs.
2. ICTs were considered as tools used by established firms in conducting their business.
3. SMEs considered ICTs as expensive and therefore opted not to put them into consideration when planning and setting up of businesses.

4. There were barriers that prevented ICTs to be accepted by local SMEs and the drivers of ICTs were not effective in their agenda.

#### **Justification of the study**

The study helped in understanding the importance of ICTs in the running of Ntara, 2015 businesses by SMEs and the various perceptions held by many about them. It also brought forth the possible constraints SMEs had in accessing ICTs and applying them to their businesses as well as find out the possible drivers/barriers to enhance the application of ICTs.

#### **Study limitations**

The study focused on SME's use of ICTs in their business with a view on what encouraged them and the possible reasons for not using them. The sample types of SMEs were limited due to the various categories that were found to meet the schedule. The study did not cover SMEs that were governmental and those that were funded by the government and would only cover SMEs in Lusaka, as the commercial centre for trading in Zambia Nuwagaba, 2015.

#### **Literature review**

Zambia and like most African countries Kumar, n.d, is categorised as a developing nation that is growing to enhance its status and welfare through most sectors that support the development. As such, Governments Communications, M. o. (Lusaka), n.d, Emezie, 2017 in most of the development countries, Zambia inclusive, are looking at ways that accelerate the economic growth Katua, 2014b of the countries by identifying the key areas that prove to be important in the growth. One of the common factors is that, SME's account for 60–70% of the workforce in the developed countries according to the Organisation for Economic Co-operation and Development Finance, M. o, 2011, (OECD) (OECD Development). This means that unlike the case for developing countries in which most of the workforce is provided by the Government, employment in more developed economies is provided for by the private sector, through Small Medium Enterprises (SMEs).

Implementing this would mean that the pressure on the Zambian Government to provide employment would be reduced and that the only major role of the Government would be to provide for policies and regulations, conducive enough to support the existence of these enterprises. Furthermore, employment means a more tax base for the revenue authorities that is used to enhance and upgrade the various social and economic amenities. For business to be effective, there needs to be driving forces that make it easy to conduct. Among the main business forces is the application of Information and Communication Technologies (ICTs) to conduct business among SME's and their trade.

#### **Impact of investing in ICT on SMEs**

According to (DEVELOPMENT, O. F. E. C.-O. A., 2004b), Information and communication technology Kundishora, 2006, (ICT) and e-business applications provide many benefits across a wide range of intra- and inter-firm business processes and transactions. ICT applications improve information and knowledge management inside the

firm and can reduce transaction costs and increase the speed and reliability of transactions for both business-to-business (B2B) which deals with relationships between and among businesses and business-to-consumer (B2C) transactions which involves customers gathering information or purchasing goods over an electronic network. In addition, they are effective tools for improving external communications and quality of services for established and new customers.

Governments in developing countries have made deliberate policies which support the investment in ICTs as they have an important role they play in the growth of economies. Government in Zambia through its Seventh National Development Plan (7NDP) stated that Government will undertake policy, legal and institutional reforms to facilitate universal access to ICT and promote the use of ICT in business (e-Commerce); networking of services and applications across the public sector and online access to government services will be prioritised (Planning, M. o. N. D., 2017). These investments create a conducive environment in which ecommerce can thrive.

### **SMEs and E-commerce**

Ideally more investments in ICTs should result in improved business services and production among SMEs because of the enabling results which ICTs have on businesses. According to (Gupta, 2014a, b) electronic commerce or e-commerce refers to a wide range of online business activities for products and services. It also pertains to any form of business transaction in which the parties interact electronically rather than by physical exchanges or direct physical contact. E-commerce is usually associated with buying and selling over the Internet, or conducting any transaction involving the transfer of ownership or rights to use goods or services through a computer-mediated network.

Small businesses can compare with major market players and compete for the same customers through use of ICTs. Some of the methods that can be used include:

1. Social Media: Social media refers to a wide range of Internet-based and mobile services that allow users to participate in online exchanges, contribute to user-created content or join online based communities. The following are some of the examples (Dewing, 2012).
  1. Blogs: Short for web-log which are online journals hosted on platforms such as WordPress, Tumblr and Blogger.
  2. Wikis: A wiki is a collective website where any participant can modify any page or create any new page using a browser such as Wikipedia.
  3. Social Network Sites: These are web-based networking sites that allow individuals to construct a public profile within a bounded system, review the users with whom they share connections and traverse the list of connections within the system. Some popular examples are Facebook and LinkedIn.
  4. Media Sharing Sites: These sites allow users to post videos or photographs. Examples include YouTube, Instagram and Pinterest.
- Social media platforms like Facebook and WhatsApp groups encourage knowledge sharing and businesses. With the current Information Age, most individuals are connecting using various technological platforms, in this case Social Media. In Facebook groups or posts, businesses can post their products or services freely

among the member and consultation is real-time as answers and questions are readily available. SMEs can maximise the use of these social media platforms to advertise to a wide range of their contacts and even more with a small fee to a larger scale appearing as ads on users' timelines.

2. **Websites:** In the wake of eCommerce, online business has been adopted by most enterprises to provide their products and services. In 2017 according to (Trends D., 2017), Adobe Analytics, which measures sales data from the top 100 U.S. web retailers, found that online sales accounted for \$7.9 billion during Thanksgiving Day and Black Friday. That marked a 17.9% increase from 2016. In a sign that mobile shopping is becoming more prevalent than ever, analysts noted that purchases made on smartphones were up by 29% in 2017. With this appetite for online shopping, small businesses are investing more in websites that are user friendly and paying for advertisements on search engines to get more customer base which in the end levels up the competing field with businesses. In Zambia, fast food restaurants and takeaways are now providing mobile ordering and delivery of food through digitalized websites and mobile applications such as Zoom, enabling them to compete with recognised and established firms in the market (Zoom, 2018). Other notable players in the market include Afridelivery who provide similar services allowing users to track their orders (Afridelivery, 2018a, b) and Deliveries Dlish (Dlish, 2018).
3. **Electronic Billboards:** SMEs can now use the electronic billboards that have different content showing. Using this method, small holder firms can pay for time their goods and services are displayed enabling them to capture potential clients at an affordable rate. In the Zambian setting the leaders in Electronic Billboards vending are Magic Advertising and Promotions Limited (Advertising, M, 2018) and Alliance Media (Media, 2018) who are about to structure packages that suit different SME types to improve their businesses.
4. **eProcurement Procedures:** The e-Procurement System also called the Electronic-Government Procurement (E-GP) System is the use of Information and Communications Technology Nikoloski, 2014, (especially the internet) by governments in conducting their procurement relationships with suppliers for the acquisition of goods, works and consultancy services required by the public sector (Authority, 2015). Using this such systems, SMEs can compete favourably with competitors as the constraints of having to register have been eliminated which also leads to a more transparent public procurement process.
5. **Mobile Money Transfers:** Money transfers around the globe has become cashless in the Information Age. The concept of a cashless society is based on electronic transaction (e-transaction). Generally, these cashless transactions are linked to a bank and the banks have adequate control over the transactions (Jain, 2017). In a society where many individuals do not like to carry currency in their wallet, people are thinking seriously about electronic payment (e-payment) through electronic money (e-money) with the help of electronic cards (e-cards) and electronic banking (e-banking). Individuals are opting to use Banking applications, Bank to mobile number cash like ewallet, Mobile money transactions like MTN or Airtel Money to purchase goods and services.

## **Materials and methods**

### **Research design**

The research was designed for SMEs both in formal and informal businesses in order to obtain results that provides for clear understanding on the use if ICTs in their businesses. It used a qualitative approach through the use of questionnaires distributed to respondents in businesses which built up the quantitative information that was analysed to draw up results and conclusions.

### **Population and sampling**

A sample population of 100 SMEs were targeted, with 60 among the informal SMEs and 40 the registered SMEs within the city of Lusaka. These covered different sectors and categories in order to capture the diverse responses from a wider sample.

### **Research instruments**

Two different questionnaires were designed for the two SME groups, with the one for formal SMEs more detailed than the other due to the nature of the businesses and targeted individuals. The questionnaires were designed ably allowing them to capture more information and provide accuracy for the study.

### **Data analysis**

The qualitative data collected through the use of questionnaires lead to the quantitative information which was analysed using the Statistical Software, Statistical Package for the Social Sciences (SPSS). This enabled the creation of descriptive frequency tables, graphs and comparative means that were used. Content analysis involving the interpretation of views and perceptions was used to analyse qualitative data.

## **Results and research findings**

The response from the registered firms to the questionnaires was higher than that obtained from SMEs without formal registration mostly because of the individuals involved in providing the requested information did not take the questionnaire seriously and some thought of it as a competitor strategy to obtain their business model. The registered firms recorded a positive response of 87.5% of the total questionnaire's issued while the non-registered firms had a response of 76.7%.

### **Registered SMEs**

The study conducted was empirical in nature and was based on sample data which was obtained by means of a survey instrument distributed from 34 registered SMEs with holding and 46 SMEs with no holding or registered companies in Lusaka from a total of 40 and 60 questionnaires sent to firms respectively.

The categories covered in registered firms were Manufacturing, Trading, Services and Mining. The intention was to understand their application of ICTs in their businesses and the challenges Taghizadeh-Hesary, 2016 they face in enhancing their operations using ICTs. From the information collected, the Services category had the highest percentage with 50%, followed by the Trading category with 26.5%. The rest were the Manufacturing Energy, 2016, with 20.6% and Mining with 2.9%.



From the survey, most of the business owners were male representing 55.9% of the sample population, while the female owners had 2.9%. Firms with both male and females had 41.2% representation. All the SMEs covered in the sample population were all Zambians.

Firms that had implemented the use of ICTs in their operations made the highest representation in the research sample population with 38.2% followed by Web application with represented by 17.6% of the firms, same percentage as Electronic Commerce and together as Online Application accounted for 35.2%. Others were Banking with 14.7% and Mobile Banking with 5.9%. Mobile Application and Security were both represented by 2.9% of the sample population. SMEs embraced the use of ICT more in general operations as computerization and automation of processes showing to be key in the effectiveness and efficiency of conducting business.

Web applications were also vital in SMEs conducting businesses because of the ease of reaching to customers instantly and in an affordable way. Advertisements could be done online at cheaper costs, exchange of information through web portals, Social Media advertisements through ads at convenient prices and online payments among other uses. Using Bank portals enabled SMEs to schedule payments, manage and transfer funds. Mobile applications were popular among SMEs through usage of platforms like Unstructured Supplementary Service Data (USSD) that work with Quick Codes to operate and transact without the use of the Internet.

These were preferred especially in areas that had no Internet connections. Point of Sale (PoS) was another platform on which mobile banking was practiced on as a device with cellular network communicates with the respective banks to transact. The table below shows the usage of ICTs by the SMEs:

From the study, 82.4% of the SMEs agreed to the use of Mobile Money in their business transactions. Easy to access was the major reason why SMEs prefer using Mobile Money with 44.1% of the sample population citing the availability of Mobile Money Booths in diverse locations made it easy to transact. The other reason for using Mobile Money was security with a representation of 17.6% of the sample population as SMEs are guaranteed that their transactions were protected for they regarded the service in high esteem. Other reasons included convenience in using it with small amounts representing 14.7%, accessibility with 11.8% and 8.8% representation each for client preference, core business and swift operation.

Customer retention was one of the core objectives of SMEs when conducting business because it was difficult to expand and explore new markets if a business experiences a high customer churn rate. Customer satisfaction therefore was one of the main reasons that made customers continue trading with SMEs and the use of ICT was engaged to enhance the level of customer satisfaction. The table below shows that over half of the businesses in the study had ICTs impact their business moderately with a representation of 70% and strongly with 6.7%. Slight impact was represented by 10% and those with no impact 6.7%.

ICT Proficiency refers to the ability of individuals in the usage and implementation of ICTs. Most users were found to be average accounting for 70.6% and advanced users had 23.5%. Learners were represented by 5.9% of the sample population. The high rate of average users could be linked to the investment in training done by the firms after the introduction of new ICTs in the business.



From the survey, there were 41.2% of firms that had Revenue less than K200 million and those with K200–250 million representing 32.4%. Firms with higher revenue in the Range K250 million to K400 million represented 20.6% of the sample population. Two of the respondents did not provide their Firm Revenue representing 5.9%.

The reasons for investment in ICTs differed among firms. In this study, increase in Production was found as the major cause in investing in ICTs representing 32.4% of the sample population. Automation of operations such as business functions, financial management, printing and other operational activities was one of the major reasons with a representation of 23.5% same with the request from the Market as clients demand modes of conducting business. Other determinants were pressures to grow businesses and connection services representing 11.8% and 5.9% respectively.

The investment in ICTs could be measured to show how it was impacting on the business comparing with the cost of investment. This is called Cost Benefit Analysis. From the survey, 71% of the sample population did Cost Benefit Analysis to determine whether the investment in ICT repaid the firm or not.

Strategic planning for ICT in businesses is the scheduling of resources and time for the implementation of ICTs in a time frame forthcoming. From the study, it was recorded that 46.7% of the firms had in place strategic measures to implement ICTs in their business with 53.3% having no plans to do so. The major reason that was cited on the lack of planning for ICT was the expense that was associated with the implementation and breaking-even was the ultimate objective for most start-up business.

From the information collected, it was found that businesses that implemented ICTs had a steady increase in productivity with the progression of the years. This was alluded to the fact that costs were reduced in the production of goods and provision of services and firms were able to allocate funds from operational costs and invest in increasing the business productivity. Issues like transport costs were eliminated in cases where movements were required, printing and binding of documents were no longer essential as documents could be sent through emails and stationary use of toners and inks did not form part of the budget. The other major cost reduction factor was the automation of processes in conducting businesses which resulted in efficiency of operations.

### **Unregistered SMEs**

Entrepreneurs that have their business running without formal registration were captured by the study with a total of 60 SMEs without formal registration were contacted and 46 SMEs managed to respond to the requested information providing for 76.6% of the total sample.

The Trading category had the largest representation in the study with 48.9% of the respondents. Services category 40% and the manufacturing with 11.1%. The Services accounted highest among the unregistered SMEs because of the way these businesses were built up without formal registration. Services such as brokering of products, crafts work, small scale farming (Farming, 2018) and catering which do not require businesses to be formally set up constituted the most among these types of SMEs.

The age group of 33–40 years had the most frequency in the study representing 40% of the respondents while the age groups of 26–32 and 48–55 each had 17.8%. Others were 18–25 with 15.6% and 48–55 with 8.9%. Zambians accounted for the whole

population sample. It was however noted that due to the nature of their stay in Zambia, foreign nationals conducting businesses avoided answering the questionnaire fearing prosecution and deportation.

Most of the SMEs under study have been operational in the range of 1–3 years representing a major proportion of 41.9% and 32.6% for those that have been operational for 4–6 years. The interpretation of this age distribution was that individuals decided on setting up businesses when they reached their late 20s and early 30s. Others were newly formed under 12 months represented by 14% and 10.9% for those over 6 years in operation.

Almost 90% of the respondents declared that they used mobile money in their operations. This was mainly due to the difficulty in obtaining a formal bank account as the documentation required for the businesses would not readily be provided. From the study, 88.6% of the respondents stated that they use mobile money for their transactions with 11.4% not using it. The type of mobile money used was determined by the reliability, accessibility and ease of the platform. In this case, it was discovered that the Airtel platform was the mostly used by the SMEs with a representation of 52.3% of the respondents followed by Zoono with 27.3% and MTN Money MTN, 2018, with 18.2%. Shoprite Money, a service delivered by the chain supermarket store had a representation of 2.3%.

Mobile money transfer was specified as the most widely used to transfer money for businesses among SMEs. This was because of the documentation that bank operations require such as a company name and a Tax Payer Identification Number (T-PIN), which were not required in opening a mobile money account. The cases which they used cheques and bank transfers, individuals used their personal details and not the business name when making payments and exchanging money.

The major barrier in accessing ICTs for businesses was found to be the high cost at which they come with. The equipment cost was singled out as the major cost together with the poor Internet connection which most SMEs faced.

## Discussion of results

In this study, it was found that the policies and procedures that have been put in place have not been realised as there was little progression in implementing the laid down policies to support ICTs through the reduction of ICT costs. The biggest barrier to access to ICTs was found to be the cost at which ICT equipment comes with during the investment phase of organisation (Organisation, F. a. A, 2017). The cost of ICT hardware and software was found to be high and start-up businesses were discovered to reduce the amount allocated to computer hardware and software because of the high cost.

Unlike sectors such as agriculture which had farming tools and equipment that had tax relief in order to support the sector, the ICT sector remained with relatively high taxes that made the computer and telecommunication equipment expensive. With these stated, new taxes were planned through the use of Over-The-Top (OTT) Services like WhatsApp, which operated as an application on a smartphone enabling the use of the Internet for content exchange and distribution. The taxes on WhatsApp verified the lack of ambition to reduce the taxes on communication and equipment.

In terms of strategic business approaches to enhance the use of ICTs, plans like implementing the SMART Zambia program were developed to have an impact on

Center, P. M, 2017, improving the business operations of SMEs. Implementation would improve the flow of information within and among government institutions, enterprises and citizens to bring about social and economic benefits. This would transform the mode of delivery of public services from traditional face-to-face interaction to online channels to ensure that citizens and business entities could access services anywhere and anytime. (Government, Z., 2017a, b). This steadily was implemented through the use of E-Services using government agencies such as the Patent and Company Registration Agency (PACRA) and the Zambia Revenue Authority (ZRA) that enabled SMEs to perform services through the websites and payments. This reduced the time and efforts spent on queues and travelling to clear obligations. Other agencies like the Zambia National Assembly, N, n.d, Data Centre (ZNDC) that provided cloud services to mostly government agencies opened up the provision of services to private individuals and SMEs. This meant that SMEs were able to setup domains and run websites locally to help in E-Commerce trade at competitive rates.

The study confirmed that the SMEs preferred conducting business on platforms that were readily available and accessible. Affordability was among the reasons, but client preference had a major impact. Complexity in terms of registration and usability are crucial among unregistered SMEs as issues like registering for Tax Payer Identification Number (T-PIN) pushed them to use mobile money transfers which did not require the use of it. For registered SMEs, the choice of platform was mainly to the reliability and security of the platform.

#### ICT drivers

The ICT drivers were all those factors that enhanced and promoted the use among SMEs. From the population sample collected, each firm presented the benefits that encourage them to use ICTs. These were mainly dependent on the line of business they are in. The following are the compiled report of the responses:

1. Ability to conduct business in growing technological environment: Companies were evolving to match up to the trend as they setup computer networks with databases storing information in them for easy Information Exchange which made operations to be seamless. Client and business information was readily available for use regardless of the distance and decisions are easily reached by having the information relating to businesses available. This was a major reason among the firms surveyed on as costs were reduced in the long term, businesses were run effectively, and transparency was encouraged by having more information flow. In this way, business decisions are made accurately with full information regarding the subject. Trends were also easily built to know the opportunities and threats to the businesses thereby having knowledge on areas that required more attention.
2. Advertising: Firms that were involved in selling or trading stated that they required to reach a good number for business to do well. Advertising was stated as the main mode for alerting the public and the target market about their products and services. Platforms like Facebook, Instagram and other social media platforms provide for cheap but effect mode of advertising especially in a country which has 36.7% of the population in the age group of 15–35 totalling to 4.8 million were in

the active stage and were interactive on Social Media platforms (UNFPA, 2016). This made Social Media a good advertising platform for the targeted clients and customers and the costs associated in advertising were minimal compared to the tradition modes. It also had the advantage of reaching markets out the country of operation without complication.

3. Easy financial management, Monitoring and Stock Management: Software packages were available at low costs which could be used for Financial Management, Accounting, Monitoring and Management of Stock. This encouraged business growth and accountability as details and information exchange happened in real-time.
4. Cost saving: SMEs were able to save costs through the use of ICTs. Cloud computing was discovered as one of the key ways in which operational costs were saved. Products such as Office 365 for small business by Microsoft, 2018 which allowed the usage of cloud services hosted for a subscription fee and free online drives improves collaboration without the need to own and maintain infrastructure to run the applications. These services were accessed any time and place with the use of an Internet connection.
5. Security: Businesses that handle excess cash at their premises cited the use of ICTs to aid security of their operations through the use of point of sale machines that provided customers with an option to swipe for their payments using bank credit or debit cards. This was a major driver to the use of ICTs by these type of SMEs as they did not require frequent visits to banks to make deposits and the security needed to escort them. Another use of ICTs for security was the implementation of Closed-Circuit Television (CCTV) which used cameras connected to a network that were placed strategically and were able to provide live pictures of the area under surveillance whilst recording it. In this manner, business premises were able to be monitored all the times to avoid thefts and for accountability purposes.

### ICT barriers

ICT Barriers were all those factors that prevented the utilisation and acceptance of ICTs in this study among SMEs. The population sample covered in this study, a review of the major factors among the SMEs was done from the questionnaire that was used as a research tool. The following were the report findings:

1. Cost: Question aimed to identify what the key challenges that bar enterprises from using ICT was administered to the respondents. A representation of 38.5% indicated that the challenge they encountered was the cost implication of using ICT. They mentioned that acquiring, using and maintaining ICT was too expensive and as such not feasible for them. Zambia mainly does not manufacture many ICT equipment and relied on importation from trading countries and partners. This meant that the equipment was taxed at 25% that is used for customs duty for finished imported goods (ZRA, 2018a, b) and increased the end cost significantly.
2. Poor Internet Services: Network infrastructure was the other major barrier to access to ICT with 28% of the respondents citing the poor state of network and internet services in Zambia as a major challenge for using ICTs in their business.

SMEs had difficulty with connection services out of the urban parts of Lusaka as speeds and coverage of Internet provision deteriorates.

3. Other notable reasons found were security concerns such as data theft, hacking, cybercrime, and fraud among others. Erratic power supply and constant power cuts as a challenge especially that ICTs are mostly dependant on power to function. Power grids were not present in many locations and SMEs had to rely on other forms of energy in order to use certain ICT equipment. Others indicated the difficulty in accessing some equipment locally and that it had to be imported from outside the country.

### **Relation between investing in ICT and growth of SMEs**

Determinants of ICT investment differed from one SME to the other but the main reason respondents gave which determines to invest in ICT or not was business growth Chakraborty, 2015. The major goal for a business run by an SME was continuation and after achievement then expansion. Increase in production was the major determinant in the investment of ICTs in firms as businesses required to increase capacity in the production of good or provision of services. From the sample population, 32% of the respondents stated that this was their main reason for investing in ICTs. Other major purposes for the investment in ICT were improving operations and customer demand represented by 23.5% each of the sample population. As SMEs diversify in products and new markets, the different outlets require communication among them and information sharing of the business. ICTs were able to link the physically separate entities allowing them to exchange information in a timely manner while reducing costs of transport and courier services. Customer demands were found to be key in the decision to invest in ICTs as certain clients preferred trading methods that required the use of ICTs. This made SMEs to invest in ICTs to continue conducting businesses and acquire new customers.

SMEs were requested to provide their firms performance for the past five years starting with 2014 up to 2018. It was observed that businesses that had implemented ICTs in their businesses had increased levels of productivity during the years under study. This was because of the efficiency and effectiveness that the ICTs introduced in the operations allowing them to have surplus funds to invest in diversifying business and products. It is because of the effectiveness that the new product line and businesses encouraged firms to capture new markets for the products and services which meant that the market shares correspondingly increased. New markets and bigger market share led to more revenue's accumulation enabling the SMEs to acquire more human resources to handle the new productions and market. From this flow, a relationship was drawn, as the production increased, new markets opened up which provided for more formal employment leading to the conclusion that the investment in ICT was directly related to the growth of SMEs and growth in the businesses.

### **Conclusion**

The use of Information Communication Technologies (ICTs) were found to be significant to the Small and Medium Enterprises MINISTRY OF COMMERCE, T. A. I, 2007 (SMEs). The research showed how the investment in ICT increased the productivity of businesses and provided for having a competitive advantage in the market.

Mobile transactions were on the rise in Zambia with 82.4% of the SMEs under study stating that they use Mobile Money transfers in one way Gibson, 2008 of the business or the other. This a prominent feature in African SMEs with the usage of Mobile Money in Africa on the rise and Sub-Saharan Africa having the highest number of Mobile Money Agents (Unit, E. I., 2016). The nature of transactions and maintenance make Mobile Money popular among SMEs. They were readily available with the process of withdrawing and depositing money not complicated even to those with minimum educational backgrounds. The use of Unstructured Supplementary Service Data (USSD) which used short codes in the presence of General System for Mobile communication (GSM) made them usable in areas with no Internet connection which had been cited as one of the barriers to the use of ICTs by SMEs. For the unregistered SMEs, Mobile Money was their prime source of financial Jumbe Ngoma, 2015 transaction with a representation of 91.3% of the respondents verifying the use of Mobile Money transactions for their business. From this analysis, it could be concluded that Mobile Money use will continue to increase as more agents opening up as SMEs to provide Mobile Money services and supermarket stores opening up sections providing money transfer among its branches allowing the public to send and receive money using their stores.

Business ownership was dominated by the males compared to the females. With unregistered owners having male ownership represented by 69.6% of the respondents compared to 19.6% of female owned business. The other type of ownership was duo which was represented by 10.8% with both male and female ownership. This compared with the age range of business owners showed that males in the age group 27–30 years of age represented by 40% in the sample groups were more likely to setup businesses than the other age groups and the business to operate longer than those setup by female entrepreneurs. With business firms that were registered, the male ownership was represented by 55.9% of the business under study compared to only 2.9% of the firms owned by female entrepreneurs. Businesses owned by both male and female were represented by 41.2%. Male owned businesses showed that they reserve more amount for ICT budgets than the female or duo owned enterprises. Amounts up to K350,000 were budgeted for investment in ICTs with the view on improving productivity and operations in businesses. These were reserved as strategic plans to stay competitive in the market help in gaining market share in the category they were operating.

ICT investment was determined as beneficial to SMEs with the benefits not immediate but earned through the course of operations over years. The relationship determined that in the long term, the investment in ICT had a major role in the growth of the business and market share. The relationship determined is vital for new and upcoming SMEs because of the inclination they are used to of investing in undertakings that require immediate beneficial payment to the business as ICTs were strategic forcing them to plan.

The cost of equipment was determined as the major barrier to the acceptability and implementation of ICTs by SMEs thereby avoiding investing in them. Start-up businesses were found to be focussed in breaking-even or even creating a profit and investing in ICTs in sections like operations did provide immediate financial returns. This made them to delay the ICT investment to a point where the financial status can allow them.

The investment by Government through the Fibre cables to provide fast and reliable Internet connectivity in the country is mainly used by governmental bodies and



departments which buys bandwidth (ZESCO, 2018). The effect on the ordinary SMEs is not effective as they depend on private network providers which are not satisfying their needs and does not benefit them. Efforts have been put in place by the Local Authority to have public Wireless Internet in the city in order to encourage the use of the Internet and to provide an equal competitive field for those doing business.

The use of ICTs had a positive response whenever it was introduced in a business. This was represented by 94.1% of the respondents who stated that after the introduction of ICTs in their businesses, there was acceptance by the employees as it made their work easier and increased the efficiency. Of the respondents, 70% confirmed that there was moderate increase in customer satisfaction as they quality of products or services increased leading to strong businesses relationships and more customer loyalty.

### **Recommendations**

The study gave an understanding on the use of ICTs by SMEs and this section will provide recommendations that should be taken in to consideration from the study. Furthermore, direction is to be provided on the gaps for the future studies Andreea, 2008 on the subject. The following were the recommendations from the study:

1. Tax on ICT equipment should be reduced Tax on ICT equipment should be reduced to aid the development and accessibility of ICTs. Steps like those made in farming in which the Government through ZRA has imposed a 0% tax on agriculture equipment should be replicated to the ICT sector to reduce costs (ZRA, 2018a, b). This will greatly benefit the SMEs as they will be able to invest in ICT including start-ups that prefer to delay investment due to the cost associated.
2. Business ownership was found to be dominated by male counterparts by large margins. The study recommends that entrepreneurship be introduced in to school curricula at different stages in order in inculcate the knowledge of business operations by owning. This will help equal knowledge opportunities for both male and female individuals.
3. The Government should implement policies that have been laid out to improve accessibility to ICTs and the Internet. Policies have been laid out and documented but what remains is the actualisation. Positive strides made such as providing Wireless Internet in public places are encouraging and the inclusion of ICTs in the strategic plan indicates the willingness of Government to improve their use.
4. In order to encourage ICT infrastructure development, Government should enter into Public Private Partnerships that will assist in distribution of coverage of communications. These will lower the amount of financial pressure on the Government and benefit the SME at the same time.
5. There must be a deliberate agenda to bring about awareness on how ICTs can be valuable to different societies especially those engaged in the business sector and their potential customers.
6. Introduction of taxes on communication media such as WhatsApp should be rescinded as this would increase the costs associated with ICTs (African, 2018). Instead Governments should aim at finding new ways in which communication can be made easier.



The Authors confirms that the work for the following term paper with the title “The use of ICT by SMEs in Zambia To Access Business Information Services and Investments: Barriers and Drivers” was solely undertaken by themselves and all sections of the paper that are developed by other authors have been referenced to show that this material has been adopted to support of the thesis.

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#### Authors' contributions

MM was had Main Author role, while LG had the Supervisory Author role. Both authors read and approved the final manuscript.

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#### References

- Advertising, M. (2018). About Us. Retrieved May 23, 2018, from <http://www.magic-advertising.com/about/>
- African, T. E., 2018. Zambia to Tax Internet Phone Calls. [Online].
- Afridelivery. (2018a). Afridelivery. Retrieved may 23, 2018, from <https://afridelivery.com/restaurants/?task=list>
- Afridelivery. (2018b). Afridelivery Zambia. Retrieved may 21, 2018. In From <https://afridelivery.com/>.
- Andreea, Z. (2008). *Use of ICT in SMES management within the sector of services*. Bucharest: Academy of Economic Studies
- Bucharest <http://www.theeastafrican.co.ke/news/africa/Zambia-to-tax-internet-phone-calls/4552902-4711906-1a1n2pz/index.html>. Accessed 24 Sept 2018.
- Assembly, N. (n.d.). *Strategic Plan 2015–2019*. Lusaka: National Assembly.
- Authority, Z. P. P., (2015). e-Procurement system. [Online] Available at: <https://www.zppa.org.zm/eprocurement-system> [Accessed 25 April 2018].
- Bouazza, A. B., Ardjouman, D., & Abada, O. (2015). Establishing the Factors Affecting the Growth of Small and Medium-sized Enterprises in Algeria. *Am Int J Soc Sci*, 4(2), 103.
- Bwalya, K. J. (2015). *Factors affecting adoption of e-Government in Zambia*. Gaborone: University of Botswana.
- Center, P. M. (2017). *Electricity Tariff reform and the impact on poor households and SMEs*. Lusaka: PMRC.
- Chakraborty, A. (2015). Impact of poor accounting practices on the growth and sustainability of SMEs. *International Journal of Business and Management*, 3(5), 228.
- Communications, M. o. (Lusaka). *Information and communication technologies and electronic Government*. Lusaka: Ministry of Transport and Communications.
- Development, O. f. E. C.-O. a. (2004a). *ICT, E-business and SMEs*. Istanbul: Organisation for Economic Co-Operation and Development.
- DEVELOPMENT, O. F. E. C.-O. A. (2004b). *PROMOTING ENTREPRENEURSHIP AND INNOVATIVE SMEs IN A GLOBAL ECONOMY*. Paris: OECD Publications.
- Dewing, M., (2012). Social Media- An Introduction, Ottawa: Parliamentary Information and Research Service.
- Dlish, D. (2018). Lusaka Restaurants. Retrieved May 23, 2018, from <https://www.deliveriesdlish.com/restaurants>
- Emezic, S. (2017). *PROSPECTS AND CHALLENGES OF SMEs IN 21st CENTURY AFRICA*. CENTRIA UNIVERSITY OF APPLIED SCIENCES.
- Energy, U. D. (2016). Improving Manufacturing through echnology and Innovation. Retrieved May 18, 2018, from <https://www.energy.gov/articles/improving-manufacturing-through-technology-and-innovation>
- Farming, A. (2018). Zambia's smallholder farmers and the complexities of government support. Retrieved May 17, 2018, from <https://www.africanfarming.com/zambias-smallholder-farmers-complexities-government-support/>
- Finance, M. o. (2011). *SIXTH NATIONAL DEVELOPMENT PLAN, SNDP*. Lusaka: Ministry of Finance.
- Gibson, T. (2008). *Defining SMEs: A less imperfect way of defining small and Medium Enterprises in Developing Countries*. New Orleans, Louisiana: Brookings Global.
- Government, Z., 2017a. 7NDP, Lusaka: Ministry of National Development planning.
- Government, Z. (2017b). 7NDP. Lusaka: Ministry of National Development planning.

- Gupta, A. (2014a). E-COMMERCE: ROLE OF E-COMMERCE IN TODAY'S BUSINESS. *International Journal of Business Management Research*, 4(1), 1.
- Gupta, A. (2014b). E-COMMERCE: ROLE OF E-COMMERCE IN TODAY'S BUSINESS. *International Journal of Business Management Research*, 4(1), 1.
- Jain, V. (2017). A journey towards a cashless society. ResearchGate.
- Jumbe Ngoma, K. M. (2015). In ) (Ed.), *Government of Zambia and World Bank Group to Step-Up Support to Zambia's Financial Inclusion Goals*. Lusaka: The World Bank.
- Katua, D. N. T. (2014a). The role of SMEs in employment creation and economic growth in selected countries. *International Journal of Education and Research*, 2(12), 464.
- Katua, D. N. T. (2014b). The role of SMEs in employment creation and economic growth in selected countries. *International Journal of Education and Research*, 2(12), 467.
- Kumar, D. A., n.d. Major Characteristics of Developing Countries. [Online] Available at: <http://web.uvic.ca/~kumara/econ420/characteristics-dev.pdf>. Accessed 17 Sept 2017.
- Kundishora, S. M. (2006). *The Role of Information and Communication Technology (ICT) in Enhancing Local Economic Development and Poverty Reduction*. Zimbabwe: Zimbabwe Academic and Research Network.
- Media, A. (2018). The Way We Do Business. Retrieved May 23, 2018, from [http://www.alliancemediacom/about\\_alliance\\_media/business.html](http://www.alliancemediacom/about_alliance_media/business.html)
- Microsoft, 2018. Microsoft 365. [Online] Available at: <https://www.microsoft.com/en-us/microsoft-365/default.aspx>. Accessed 18 May 2018.
- MINISTRY OF COMMERCE, T. A. I. (2007). *SMALL AND MEDIUM ENTERPRISES SURVEY 2003–2004*. Lusaka: MINISTRY OF COMMERCE, TRADE AND INDUSTRY.
- MTN, 2018. Money Transfer. [Online] Available at: <http://www.mtnzambia.com/en/services/mobile-money/Pages/money-transfer.aspx>. Accessed 19 July 2018.
- Nikoloski, P. K. (2014). The role of information Technology in the Business Sector. *International Journal of Science and Research*, 3(12), 306.
- Ntara, C. (2015). An analysis of M-Pesa use in international transactions. *European Journal of Business and Management*, 7(17), 73.
- Nuwagaba, A. (2015). Enterprises (SMEs) in Zambia. *International journal of economics. Finance and Management*, 4(4), 146.
- OECD. (2001). *Understanding the digital divide*. Paris: ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT.
- OECD. (2004). *PROMOTING ENTREPRENEURSHIP AND INNOVATIVE SMEs IN A GLOBAL ECONOMY*. Istanbul: OECD.
- OECD. (2017). *Enhancing the contributions of SMEs in a Global and digitalised Economy*. Paris: Organisation for Economic Co-operation and Development.
- OECD Development, O. f. E. C.-o. a. (n.d.). *Policy brief: Small and Medium-sized enterprises: Local strength*. Global Reach, Paris: OECD.
- OECD, O. F. E. C.-O. A. D. (2004). *PROMOTING ENTREPRENEURSHIP AND INNOVATIVE SMEs IN A GLOBAL ECONOMY*. Istanbul: OECD.
- Organisation, F. a. A., 2017. ICTs and agricultural extension services. [Online] Available at: <http://www.fao.org/e-agriculture/es/blog/icts-and-agricultural-extension-services>. Accessed 21 May 2018.
- Osterle, H., Joachim, S., & Winter, R. (2007). *ICT AND INNOVATION IN SMALL COMPANIES* (pp. 1226–1229). St. Gallen: Proceeding of the European Conference on Information Systems.
- Planning, M. o. N. D. (2017). *Seventh National Development Plan*. Lusaka: Ministry of National Development Planning.
- Taghizadeh-Hesary, N. Y. a. F. (2016). *Major challenges facing small and Medium-sized Enterprises in Asia and Solutions for mitigating them*. Tokyo: Asian Development Bank Institute.
- Trends, D., (2017). Black Friday digital sales reached record highs this year. [Online] Available at: <https://www.digitaltrends.com/web/black-friday-digital-sales-records/> [Accessed 24 April 2018].
- UNFPA, 2016. Zambia's Young People and the Road to 2030. [Online] Available at: <http://zambia.unfpa.org/en/news/zambia%E2%80%99s-young-people-and-road-2030>. Accessed 07 Sept 2018.
- Unit, E. I., 2016. Mobile money in Africa: Promise and Perils, s.l.: The Economist Intelligence Unit.
- ZESCO, 2018. Fibrecom. [Online] Available at: <http://www.zesco.co.zm/ourBusiness/fibreCom>. Accessed 21 May 2018.
- Zoom, 2018. About Us. [Online]. Available at: <https://www.zoom.co.zm/>. Accessed 23 May 2018.
- ZRA, 2018a. Customs Duty. [Online] Available at: <https://www.zra.org.zm/commonHomePage.htm?viewName=CustomsTaxes>. Accessed 23 Sept 2018.
- ZRA, 2018b. Tax Incentives. [Online] Available at: <https://www.zra.org.zm/commonHomePage.htm?viewName=TaxIncentives>. Accessed 24 Sept 2018.

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