

**THE ADOPTION AND USE OF ICTs BY SMEs IN THE ROAD PASSENGER
TRANSPORT SECTOR IN LUSAKA: A CASE OF BUS OPERATORS AT
INTERCITY BUS TERMINAL**

BY

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**A DISSERTATION SUBMITTED TO THE UNIVERSITY OF ZAMBIA IN
FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF
DEGREE OF MASTER OF LIBRARY AND INFORMATION STUDIES
(MLIS).**

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April, 2012

DECLARATION

I, Munsanje Nchimunya do declare that this dissertation is my own work which has not been submitted for a degree at this, or any other university.

Signature:.....

Date:.....

DEDICATION

Dedicated to Lubi and Lumba.

CERTIFICATE OF APPROVAL

This dissertation by Munsanje Nchimunya is approved as fulfilling the requirements for the award of the degree of Master of Library and Information Studies (MLIS) of the University of Zambia.

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ACKNOWLEDGEMENTS

I owe a deep and sincere debt of gratitude to my supervisors, Dr. Hudwell Mwacalimba and Mr. Benson Njobvu for their continuous and constructive corrections. Their valuable suggestions and generous guidance enriched this study throughout every stage of it. I would also like to express my heartfelt appreciation to all the members of my family for their support. Furthermore, I would like to thank my classmates in the programme for their co-operation and friendship that we showed to one another throughout the duration of the programme.

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LIST OF ACRONYMS

ALSA.....	Automovilles Luarca, S.A
ARPANET.....	Advanced Research Project Agency Network

CSO.....	Central Statistic Office
EC.....	European Commission
EDI.....	Electronic Data Interchange
EU.....	European Union
FAX.....	Telefax
GDP.....	Gross Domestic Product
ICTs.....	Information Communication Technologies
IT.....	Information Technology
LFS.....	Labour Force Survey
MDG.....	Millennium Development Goals
MSEs.....	Micro and Small Enterprises
OECD.....	Organization for Economic Co-Operation and Development
SCP.....	Structure-Conduct –Performance model
SIDA.....	Swedish International Development Agency
SMEs.....	Small and Medium Enterprises
SMMEs.....	Small Medium and Micro Enterprises

TV.....	Television
UNCTAD.....	United Nations Conference on Trade and Development
VAT.....	Value Added Tax
VCR.....	Video Cassette Recorder

Abstract

The study was aimed at investigating the adoption and use of Information Communication Technologies (ICTs) by Small-and-Medium-sized Enterprises (SMEs) in the road passenger transport sector in Lusaka, Zambia. The study was based on the following general objectives: 1. To determine the factors which influence the adoption and use of ICT's by SMEs in road

passenger transport sector in Lusaka, Zambia. 2. To find out the key ICT adoption attributes amongst SMEs in the Road passenger transport sector in Lusaka. 3. To establish the impact of ICT literacy on the adoption and use of ICTs by SMEs in the Road passenger transport sector in Lusaka.

The study used a case study method to collect both qualitative and quantitative data and the diffusion theory of innovation to achieve the objectives. Self administered questionnaires were used in collecting data for this study. Some of the findings revealed that despite the high presence of some ICTs such as radios at 96.3%, usage for business was generally inadequate at about 46%. The prominent barriers to the adoption and further usage of ICTs highlighted in the study were monetary costs at 77% and lack of relevant technology at 76%. It is cardinal that SMEs are encouraged to adopt and use ICTs in carrying out their businesses. The study clearly revealed that performance improvement, increased profitability and increased market share are some of the factors fostering the adoption and use of ICTs by SMEs in the road passenger transport sector in Lusaka.

The study therefore, recommends that awareness be increased on the importance of ICTs amongst SMEs. The acquisition of ICT equipment should be enhanced through encouraging cooperation amongst SMEs. Furthermore, company owners should be encouraged to train their employees in ICTs usage.

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CHAPTER ONE: INTRODUCTION

1.0 Background of study

The rapid development of Information and Communication Technologies (ICTs) continues to have a major influence on the livelihood of people across the world. Social research has shown that adoption of ICTs can be a major factor fuelling economic and community development. Adoption of technologies such as cell phones and Internet services holds particular promise for people in developing countries due to enhanced prospects for education, health care, and general quality of life. Widespread adoption of ICTs has been particularly slow to develop in Zambia especially in the business world and the SMEs in the Road transport sector in particular.

The past decade was characterized by major changes in the Information and Communication Technology (ICT) environment in business worldwide. It has changed from hand held calculators and batch processing of management data at central service centres to adoption of on-business information management facilities, computer embedded process control devices, remote sensing with spatial data utilization, and more, with almost all of them endowed with communication capabilities. It is therefore, important that sectors like the Road passenger transport should adopt and use ICTs.

United Nations Economic and Social Council (UNESCO) (2009) noted that Road transport is the most dominant mode of motorized transport in Africa, accounting for 80 per cent of the goods traffic and 90 per cent of the passenger traffic on the continent. African countries together had about 2.06 million km of Roads in 2001, resulting in a Road density of 6.84 km per 100sq.km. Whereas the average Road-to-population ratio for the whole continent was 26 km per 10,000

inhabitants, there was a large subregional variation. Central Africa and Southern Africa had the highest Road distribution, with 49.5 km and 56.3 km, respectively, for every 10,000 population.

UNESCO (2009) further observed that Africa has the highest transport costs in the world. Transport services are unaffordable to many African citizens as transport costs are high compared to the average incomes of the citizens. Travel costs in African cities have a share of 21.7 per cent of GDP. The already high transport costs have been exacerbated in the last few years by the energy crisis associated with high and volatile oil prices.

The European Commission (2008 B) observed that Transport and logistics are key components of a successful economy, they play a major role in national economies and are significant contributors at both the national and local level. Transport and logistics underpin the economy, enabling the movement of goods, services and people as efficiently as possible. The transport sector in Europe plays a significant role in its economic development. It currently generates 7% of European Union's gross domestic product (GDP) and accounts for around 5 % of employment in the EU. It is therefore important that SMEs in Road transport sector endeavour to adopt and use ICTs in their daily activities.

Adoption of ICTs is far from universal to the detriment of Small and Medium Enterprises (SMEs) and the business sector. Chacko and Harris (2011) noted that in reality the small businesses that constitute the bulk of developing economies have yet to reap these benefits evenly as obtaining such opportunities rest largely upon the ability of its Small Medium and Micro Enterprises (SMMEs) to engage in the regional and global economic business networks which, in turn, demands provision of a pre-requisite level of access to and use of ICTs. This therefore, entails that it is important for these SMEs to adopt and use the ICTs. Chacko and Harris (2011) further noted that SMMEs in many developing countries are unprepared and are struggling to adapt to the

complex demands of the New Economy as they lack the resources to take full advantage of the wave of opportunities to begin their transition into the New Economy. This is slowly setting the SMME sector further apart from their counterparts in big organisations.

Tahir, Mahmood and Shafique (2008) observed that we live in an information era where information has become the most important element of progress in society. Therefore, SMEs need up to date, accurate and relevant information to attract customers and know better sources of raw materials to thrive in their businesses. For this to happen there is need to use ICTs to manage information. Chiware and Dick (2008) observed that SMEs need information on finances, marketing, production, sources of raw materials, regulations, technical information and other types of information.

The importance of SMEs in any country cannot be over emphasized as they contribute to the development of the economy. In India, for instance, the Micro and Small Enterprises (MSEs) sector plays a pivotal role in the overall industrial economy of the country with an estimated proportion of about 39% of the manufacturing output and around 33% of the total export of the country. The European Commission (EC) (2011) states that as per available statistics, this sector employs an estimated 31 million persons spread over 12.8 million enterprises and the labour intensity in the MSE sector is estimated to be almost 4 times higher than the large enterprises. The European Commission (2011) further observed that in recent years the MSE sector has consistently registered higher growth rate compared to the overall industrial sector world over due to the sector's employment potential at low capital cost.

The situation is similar in Zambia, Mwenechanya (2007) notes that the vast majority of Zambia's working population is in the informal sector which accounts for 3.18 million out of an estimated

workforce of 4.13 million. This shows how important the informal sector is in contributing to the development of a country like Zambia where the majority of its work force is in the informal sector. SMEs engage into businesses which is an important aspect of life in today's civilized world. In order to be effective and up to the challenge, there is need for SMEs to adopt and use ICTs.

SMMes need information about sources of their commodities, better markets, effective means of reaching their customers and better management of their transactions. This can effectively be done using ICTs. Wu (2002) observed that essential to any business decision was relevant information which an individual uses to make better business decisions. Lack of adoption and usage of such technologies can make SMEs less competitive and lose out on the potential profit margins. Chacko and Harris (2011) noted that the use of e-business techniques has emerged as an efficient gateway for SMMes to take greater advantage of opportunities in global markets.

The past few decades have witnessed a growth in the informal economy activities as a result of the shrinking formal economy employment. A large section of people in Zambia are engaging in coping strategies in order to make ends meet. This has made the growth of the informal economy gain impetus in order to address some of the economic challenges that are coming with this transition such as the rise in unemployment rate, underemployment and consequently poverty.

These changes have been spread the world over. The European Commission (2011) noted that Micro, small and medium-sized enterprises are socially and economically important, since they represent 99 % of all enterprises in the European Union (EU) Market. The Commission further stated that digital opportunities provided by ICTs are fundamental to the improvement of all aspects of developing economies and their entry into the global marketplace.

Despite the importance of ICTs in facilitating decision-making through rapid data processing, storing, retrieving, transferring over long distances, SMEs in the Road passenger transport sector have not taken full advantage of the technology.

According to Chacko and Harris (2011), most SMMs are still lagging behind large companies in using the internet as an efficient business tool. To stimulate usage of the internet by SMMs, developing countries have used a wide range of policies and instruments and have launched many different actions and initiatives. However, a more collective and more co-ordinated approach is sadly lacking.

Mwenechanya (2007) observed that Zambia powerfully illustrates the need for poverty eradication through empowerment of informal businesses. Statistics from the 2005 Labour Force Survey (LFS) by the Central Statistic Office (CSO) show that as a developing country with 68% of its population in poverty and 53% experiencing extreme poverty, the country's need for new jobs is enormous if it is to meet its Millennium Development Goals (MDG's) on poverty by 2015 (CSO, 2005). The dilemma for Zambia is that its entrepreneurial and productive capacities are being severely under-exploited in the informal sector while the capacity of the formal economy to generate jobs through the expansion of formal enterprises is limited. Mwenechanya (2007) noted that the formal sector jobs have been shrinking in relation to the nation's population growth rate. The need for the adoption and usage of ICTs in the informal sector in Zambia cannot be overemphasised.

Zambia, like most developing countries must endeavour to make SMEs in the Road passenger transport sector more viable by encouraging them to adopt and use ICTs as they have the potential to assist SMEs to instantaneously connect to them across great geographic distances at very little cost. By enhancing the potential effectiveness and reach of the SMEs through harnessing the

benefits of ICTs, SMEs in the Road passenger transport sector can play a key role in national economic development. This is so as ICTs would facilitate the flows of information, capital, ideas, people, and products. A strong Road passenger transport sector that is integrated into the global digital economy can lead to job creation, increased public revenue and a general rise in the standards of living. In addition, the use of ICTs could enable SMEs in Road passenger transport sector to participate in the knowledge economy, thereby offering enormous opportunities to narrow social and economic inequalities and thus help achieve broader development goals.

In the 1970s, Zambia had one of the best highway networks in sub-Saharan Africa. In 1991 it was estimated by the National Road Fund Agency (NRFA) that 80 percent of the road network had deteriorated and out of total Road assets valued at US\$2.3 billion, US\$400 million had been lost due to neglected maintenance. The government introduced a Road fund levy on fuel and that together with international aid has improved the highway network (NRFA, 2012). This shows how important government values the Road transport sector and the deterioration that may impede the efficiency of this sector, hence the need to come up with new innovations such as the use of ICTs to meet the transport need of ever-growing population in Zambia.

The population in Zambia is about 13 million. Most of these people are involved in informal employment. The Central Statistic Office (CSO) (Zambia) (2007) reports that in Lusaka, 54% of the population is in the informal sector with the majority engaged in small scale businesses such as Road passenger transport. With this background, it is important that the adoption and use of ICTs in Lusaka, Zambia by SMEs in the Road passenger transport sector is known.

1.3 Statement of the problem

It is evident that Zambia has high levels of unemployment in the formal sector and the bigger section of its population is engaged in informal employment as Road passenger transport SMEs. These usually are small businesses with few people. SMEs in the Road passenger transport sector in their desire to conduct their businesses successfully need to adequately utilise correct information. The ability to achieve their goals and offer better services and products depend on how they use information to increase their profit margins. In order to maximise profits, these enterprises may embrace the adoption and usage of ICTs. These technologies will enable owners of these small business enterprises to manage their information and business effectively as information is the lifeblood of any institution. This can in turn give them a competitive advantage, thereby earning more profits and satisfying their customers' needs. No research has been done in Zambia and very little in other countries on the adoption and usage of these technologies by SMEs in Road passenger transport sector. If there is no information on this topic, the providers of ICTs and government may not know how to facilitate the adoption and usage of ICTs thereby denying SMEs particularly those in Road passenger transport sector the opportunity to carry out their businesses effectively. The customers of these SMEs are also denied an opportunity to do business with these SMEs in an efficient and effective manner. With the changing trends in the way business is done the world over and the high number of people engaging in SMEs in Zambia, it is very important that SMEs are well equipped with ICTs to improve their businesses. This can better be done when there is information on the adoption and usage of ICTs in Road passenger transport SMEs. This study sought to investigate the adoption and use of ICTs by SMEs in the Road Passenger Transport Sector (RPTS) in Lusaka, Zambia.

1.4 Purpose of the study

The main purpose of this study was to investigate the adoption and use of ICTs by SMEs in the Road Passenger Transport Sector (RPTS) in Lusaka, Zambia.

Specific objectives

The specific objectives of this study were:

1. To find out what ICT exist in SMEs in the Road Passenger Transport Sector in Lusaka, Zambia.
2. To establish the levels of ICT usage in SMEs in the Road Passenger Transport Sector in Lusaka, Zambia.
3. To determine the factors which influence or prevent adoption and use of ICT's by SMEs in the Road Passenger Transport Sector in Lusaka, Zambia
4. To find out the Key ICT adoption attributes amongst SMEs in the Road Passenger Transport Sector in Lusaka, Zambia.
5. To establish the impact of ICT literacy on adoption and use of ICTs by SMEs in the Road Passenger Transport Sector in Lusaka, Zambia.

1.5 Research questions

This study was guided by the following research questions:

- a) What ICT adoption exists in SMEs in the Road Passenger Transport Sector in Lusaka, Zambia?
- b) Are SMEs in the Road Passenger Transport Sector in Lusaka, Zambia making adequate use of ICT?
- c) What factors enable or inhibit the successful adoption and use of ICT by SMEs in the Road Passenger Transport Sector in Lusaka, Zambia?

- d) What are the key ICT adoption attributes in SMEs in the Road Passenger Transport Sector in Lusaka, Zambia?
- e) Does ICT literacy foster or inhibit the adoption and use of ICTs by SMEs in the Road Passenger Transport Sector in Lusaka, Zambia?

1.6 Significance of study

The findings of this study are expected to benefit government policy makers, ICT specialists, business experts and SMEs in the Road Passenger Transport Sector. The policy makers need this information to facilitate the adoption and effective usage of ICTs in business as it can enable them to formulate policies that can promote such. It is also expected that the ICT specialists can be aware of the requirements and the factors that can promote or inhibit the adoption and use of ICTs by SMEs. This would enable specialists to develop proper information systems which are expected to benefit SMEs in Road Passenger Transport Sector immensely in conducting their businesses. Equally important is that results from this research would generate new knowledge and also motivate people to investigate any knowledge gap that still exist.

1.7 Operational definitions of terms used in the study

Information and Communication Technologies (ICTs)

Information and Communication Technologies are technologies used to generate, process, store and disseminate information. Dzidonu (2010) defines Information and Communications Technologies (ICTs) as a term that cuts across a variety of technologies including computer, microelectronics and related technologies such as microchip and microprocessor-based technologies, multimedia and other information processing technologies and systems; telecommunications technologies and infrastructure (fixed line, wireless, satellite based and mobile infrastructure); and communication network technologies and infrastructure including local and

wide area communications and computer networks for voice, data and video. In this study ICTs refers to the equipments and programmes used to manage or handle information.

Small and Medium Enterprises

Small and Medium Enterprises (SMEs) is used interchangeably with the term SMMEs which stands for Small, Medium and Micro Enterprises. Small and medium enterprises are categorized as companies with fewer than 10 employees as "micro", those with fewer than 50 employees as "small", and those with fewer than 250 as "medium" (Chacko and Harris, 2011).

Machacha (2002) defines an SME as an enterprise that has less than five hundred employees. For this study the term SME encompassed all the enterprises with less than 250 employees. This included even those enterprises run by an individual.

Internal Skills, these are skills that are found within the organization. In this study the term refers to the ICT skills or expertise found among the employees of a particular SME.

Teledensity is a term that refers to the amount or number of telephone user per square kilometer.

1.8 Theoretical framework

This study used the diffusion theory of innovation as the theoretical framework.

Diffusion theory

Diffusion is the process by which an innovation is adopted by members of a certain community. The most frequently used work dealing with diffusion is diffusion of innovation (Rodgers, 1995). This theory is not a single theory but a Meta theory with several perspectives that relate to the concept of diffusion. According to this theory, four factors influence the adoption of innovation by

members of an organization. Firstly, the innovation itself, secondly, the communication channel used to spread information about the innovation, thirdly, time and fourthly nature of the group to which it is introduced (Rodgers, 1995). Diffusion of innovation can be dealt with according to the four major theories (Rodgers, 1995). These are the innovation decision process theory, the individual innovativeness theory, the rate of adoption theory and the theory of perceived attributes. This study will use the individual innovativeness theory and the theory of perceived attributes because they help understand the relationship between the innovator characteristics and the adopters' categories.

Individual innovativeness theory

The individual innovativeness theory is based on who adopts the innovation and when. According to Rodgers (1995), there are five categories of adopter.

The first category is called the innovators. These are the risk takers and pioneers who lead the way. They are able to adopt despite a high degree of uncertainty about the innovation at the time of adoption and are willing to accept an occasional setback when a new idea proves unsuccessful. The second category is known as the early adopters. They climb aboard the train early and help spread the word about the innovation to others. The third category is the early majority. They are persuaded to adopt by the early innovators and early adopters, and may deliberate for some time before completely adopting the new idea. Their innovation to decision period is relatively longer than that of the innovators and early adopters. The fourth group is called the late majority. They approach innovations cautiously and wait to make sure that the adoption is in their best interests. As a result, they do not adopt until most others have done so. The fifth group is called the Laggards. These are individuals who are highly sceptical and resist adopting until absolutely

necessary. These groups form a bell-shaped curve when illustrated using percentages when an innovation was adopted as shown in the figure 1 below.

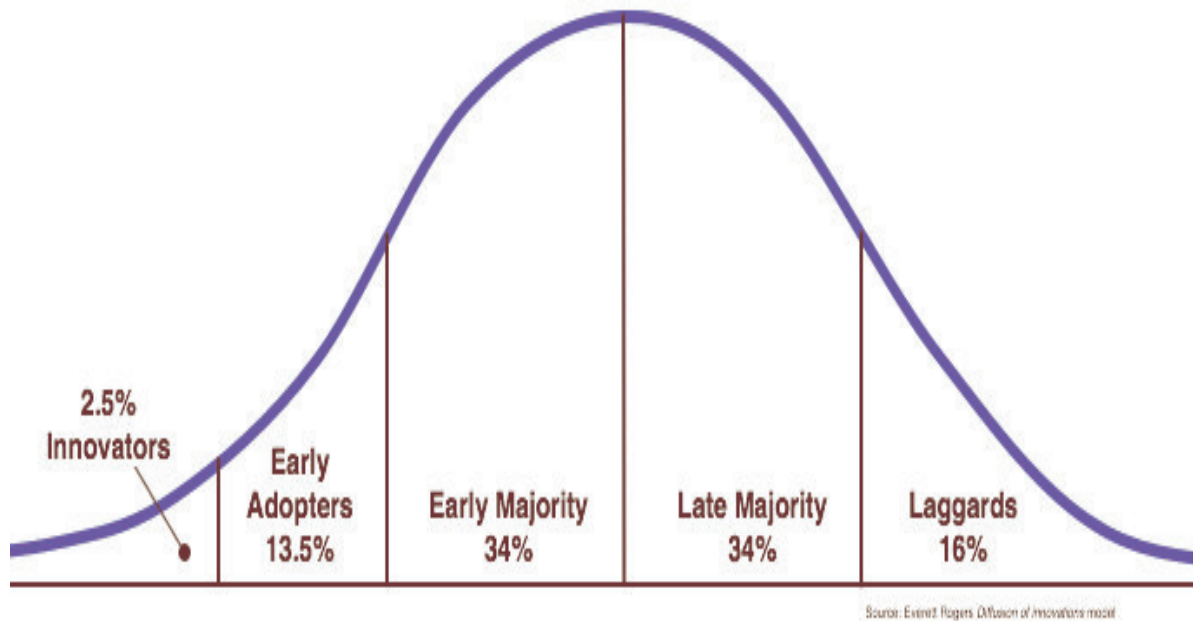


Fig 1: Diffusion of Innovation Model

(Source: E. Rodgers, 1995)

The theory of perceived attributes

This theory is based on the notion that individuals will adopt an innovation if they perceive that it has the following attributes. Firstly, the innovation must have some relative advantage over the existing innovation or the status quo. Secondly, the innovation must be compatible with the existing values, past experiences, and practices of the potential adopter. Thirdly, the innovation should not be too complex or perceived as difficult to understand. Fourth, the innovation must have trialability, it must be tested for a limited time without adoption. Fifthly, the innovation must offer observable results (Rodgers, 1995). According to Rodgers (1995), the adopter's experience with one innovation influences that individual's perception of the next innovation in a technology cluster to diffuse through the individual's system. Therefore, if an adopter has a negative first

experience with one ICT application, he or she may regard all ICT applications through that perspective.

The diffusion theory provides a framework that helps to understand why ICTs are adopted by some SMEs and not by others. Brychan (2003) observed that the diffusion theory can explain, predict, and account for the factors that increase or impede the diffusion of innovations.

CHAPTER TWO: LITERATURE REVIEW

2.1 Overview

Although ICTs adoption studies constitute a significant area of research within the information systems domain, there continues to be a need for better understanding of the adoption and use of ICTs within the specific context of SMEs in Road passenger transport. Little research was found in this area especially in the Zambian context. Most of the literature found was not on the adoption and usage of ICTs in the Road passenger transport sector in Lusaka, Zambia as evidenced in the review below.

2.2 ICT existence in SMEs

Information and Communication Technology (ICT) connectivity is very widespread in businesses of all sizes. As is the case with all technologies, small businesses are slower than large ones to adopt new ICTs.

Skoko and Ceric (2007) observed that SMEs are the main developing and economy's diversifying factor and that adoption and use of ICTs represents the fundamental source of competitiveness and the basis for SMEs survival in the world market. In many countries, small-and-medium-sized enterprises (SMEs) have played a crucial role in creating jobs and providing economic stability. Despite this recognition, there is evidence that SMEs have not been quick to respond to changes in ICTs and that their take-up of such technologies has not been widespread (Pavic, et al., 2007).

Jose, Marcel and Batista (2007) carried out a study on the effects of internet use on the performance of SMEs in Brazil. The study revealed that SMEs could act proactively in relation to ICT use. The study also found that SMEs continue to deploy ICTs in a reactive, cost reducing manner.

In most African countries Small and Medium Enterprises (SMEs) account for a significant share of production and employment and are therefore directly connected to poverty alleviation. Through the rapid spread of information and communication technologies (ICTs) and ever decreasing prices for communication, markets in different parts of the world become more integrated. Despite this state of affairs a number of studies show a slow rate of ICTs adoption and use by SMEs.

Swedish International Development Cooperation Agency (SIDA) (2002) carried out a survey on small and medium enterprises (SMEs) in 14 African countries. The findings revealed that informal SMEs had a higher profitability than formal ones. It further showed that ICTs were productive input factors and that their use increased labour productivity for informal as well as formal SMEs. The study further revealed that there was still demand for fixed-line phones among SMEs but that mobile phones have become the default communications tool because fixed lines were either too expensive or not available. The primary policy recommendation arising out of this was that applications for SMEs needed to be developed using mobile phones. However, this study did not include Zambia.

Kabanda (2011) conducted a study on the impact of Information and Communication Technologies (ICTs) on Millennium Development Goals (MDGs): Context for diffusion and adoption of ICT innovations in East and Southern Africa, the results revealed that notwithstanding the rapid expansion to date of access and adoption of internet, services are highly unequal across and within countries. Emerging countries face considerable challenges in broad-basing internet utilization for their growth and development on account of inadequate fixed-line infrastructure, and lack of supporting infrastructure, including electricity and steep prices of personal computers. An approximate 75% of the world populace, a large segment of which lives in emerging markets, consequentially have limited or no access to the Internet. The study further revealed that the fixed

teledensity by continent show that Africa has the lowest penetration ratio for fixed teledensity and mobile cellular subscriptions, respectively. Europe leads all other continents whilst Africa remains the least, with at most 2%.

2.3 ICTs usage in SMEs

Dzidonu (2010) noted that although not a panacea for all development problems, ICTs serving as powerful tools can, when used appropriately as part of an overall development strategy play a key role in the development process.

Lucchetti and Sterlacchini (2004) carried out a study on factors affecting the adoption of ICTs among SMEs in Italy and their study revealed that general ICTs use and adoption rates are very high and do not depend on size (i.e. number of employees) and industry. The study also revealed that when the rate of effective use was measured by the share of total employees with access to these ICTs, the percentages of educated workers exerted a positive effect and, in the case of the Internet, a negative impact of size emerged. The study further revealed that the use of market-oriented ICTs did not depend on a firm's size or its productive or technological features, but rose when the firm was an exporter and present in foreign markets with commercial branches and employed a relevant share of workers with university education.

Faha and Nana (2011) studied the robust estimation of ICTs effects on Cameroonian firm's productivity, the empirical investigation revealed that ICTs do not have a direct positive impact on firms' productivity in Cameroon. However, the impact of ICTs on firm performance is mainly indirect, depending on how firms decide to use the technologies, and to what extent they take advantage of these technologies to introduce innovation in their business operations.

Abwao (2007) observed that initiatives for the dissemination of agricultural technologies and the relay of weather information to farmers to help them in decision-making are one of the vital uses of ICTs.

Mwenechanya (2007) noted that the dilemma for Zambia is that its entrepreneurial and productive capacities are being severely under-exploited in the informal sector while the capacity of the formal economy to generate jobs through the expansion of formal enterprises is limited. It is therefore important that Zambia takes advantage of ICTs to improve the capacity of the informal sector in contributing to national development.

There is evidence to show that when small and medium sized businesses adopt and use ICTs they have seen positive outcomes related to operational efficiencies, increased revenues, and are able to better position themselves within their market niche. Dholakia and Kshetri (2003) observed that businesses that utilized e-mail to communicate with their customers experienced sales growth 3.4 per cent greater than those which did not and that there is a positive impact of IT use within small businesses. A 4% increase in sales as well as 5% increase in export performance was obtained when e-business techniques were adopted by SMEs in the manufacturing sector in Canada.

European Commission (2008 A), Carried out a study on e-Business Systems of ALSA in Spain which revealed that the use of the technology is more important than the mere adoption to obtain positive impacts on the company. Thanks to the new e-business technologies ALSA has an increased labour productivity, some systems, like the resource planning system have lead to a big resource optimisation and clear positive impacts on work organisation, with spectacular productivity increases, in some cases of 300% (one employee can make the work of three previous employees). This productivity also translates into an increase in competitiveness in cost and

resource management versus other competitors. The reduction in the number of operation errors is also a very positive impact of this system as it improves the production process making it more reliable and effective.

The World Bank (2006) observed that ICTs are adopted and used by most businesses as productive input factors which can increase labour productivity. ICTs can help SMEs to keep up with competitors, increase staff satisfaction, increase operational efficiency, improve communication with suppliers and customers, and enhance joint working in collaborative venture.

Zambia Agricultural Research Institute (ZARI) (2010) noted that the spread of ICT has led several commentators to argue that these technologies are creating a new economy – an information economy – in which information is the critical resource and basis for competition in all sectors – manufacturing and probably even more in services.

ZARI (2010) further observed that from the performance perspective, the competitiveness effect of ICTs derives from the impact that ICTs have upon the productivity of the factor inputs. In this regard, ICTs can improve efficiency and increase productivity by different ways including, improving efficiency in resource allocation, reducing transaction costs, and technical improvement, leading to the outward shifting of the production function. ICTs can improve access to the knowledge generated by agricultural researchers and transmitted to farmers by extension workers. Small scale farmers in Zambia have a low productivity partly due to lack of access to agricultural information. They have to travel long distances to reach researchers. ICTs can bring research information closer to the farmer in a way that is relevant for them through an improved information flow between the research institute to the rural research stations through internet and e-mail.

When firms in developed countries adopt ICT, firms in developing countries will lose out on the competition. This in turn can slow the growth rate of SMEs and hurt the economy as a whole. ICT can thus play a very important role because it can help SMEs both create business opportunities and combat pressures from competition. Appropriate ICT can help SMEs cut costs by improving their internal processes, improving their product through faster communication with their customers, and better promoting and distributing their products through online presence. In fact, ICT has the potential to improve the core business of SMEs in every step of the business process (UNCTAD, 2006).

2.4 The factors which influence or inhibit the adoption and use of ICTs

SMEs are generally seen as being at a disadvantage to larger businesses. They are likely to have a limited availability of resources in terms of time, money and expertise (Wymer and Regan, 2005). Their inferior technology and limited managerial capabilities have often shown to be a constraint on their effective use of new technologies. Furthermore, small businesses are likely to have a heavy reliance on the expertise and motivations of an owner-manager. In particular, their technical expertise and their attitude towards ICTs can affect their company's ability and willingness to engage with ICTs matters.

Principal reasons for non-adoption are lack of applicability and little incentive to change business models when returns are unclear. SMEs also face generic barriers to adoption including trust and transaction security and challenges in areas of management skills, technological capabilities, productivity and competitiveness.

Chacko and Harris (2011) noted that digital opportunities provided by ICTs are fundamental to the improvement of all aspects of developing economies and their entry into the global marketplace. By adopting and using Information Communication technologies, SMEs have the opportunity to

achieve a competitive advantage from advances in ICTs through innovation, marketing, efficiency gains, better quality and customer responsiveness. However, most studies of e-business adoption and use by SMEs point to an inability to make effective strategic use of the technology.

In a study by Virginia, Maria and Ana (2007), on drivers, benefits and challenges of ICT adoption by Small and Medium Sized Enterprises (SMEs), the findings revealed that the perceptions of senior managers as to the strategic value of e-commerce related primarily to improving managerial decision making, thereby leaving out ICTs which are viewed to have no direct impact this score of improving decision making.

In a similar study by Al Nahian, Shahriar and Nayeema (2009) on the Adoption of E-banking in Developing Countries: A Theoretical Model for SMEs, they found out that a major reason for businesses not engaging in e-commerce was their perception that it is not strategically important for their businesses. They further noted that for ICTs to have a significant impact on the overall developmental process, its diffusion within the society and economy must achieve a 'critical mass' level in terms of coverage, institutional adaptation and 'learning by doing' before widespread developmental gains become achievable and observable within the society and economy at large. In poor countries, studies have highlighted the extent to which an 'enabling environment for successful ICTs diffusion' is presently lacking. Areas of deficiency include local IT supply industries, domestic demand/user involvement, and technical and managerial capabilities.

Syed and Noor (2009) carried out a research on ICTs adoption in Small and Medium Enterprises in service sectors in Malaysia and the results of the research revealed that the use of Internet on business will be important for future company's progression. Most of the respondents believed that doing business over the Internet will generate desired returns in terms of profit. Perceived cost was not found to have any direct impact on ICTs adoption. In a similar study by Wolf (2001) on the

determinants and impact of ICT use for African SMEs: Implications for Rural South Africa, Cost was mentioned as a barrier to use in relation to a number of aspects of ICT expansion, though most frequently the cost of new or replacement hardware and broadband subscriptions. Technical literacy was also frequently mentioned, not only within the SMEs themselves but also within their locality. Furthermore, the study revealed that SMEs have problems with most service providers due to problems with online payment, these processes are very difficult to go through and the few locally available online payment companies are very unreliable. However, most respondents in this study firmly believed that ICTs are vital for the continued growth of small companies and that all staff needs to be adept in its applications.

Macharia and Nyakwende (2009) conducted a study on the factors affecting the adoption and diffusion of internet in higher educational institutions in Kenya, whose results show resistance to end-user systems by users such as students is a widespread problem. This phenomenon has created the need to better predict, explain and increase user acceptance of technology in higher education. The study further revealed that since the use of the Internet in higher education is still in its early stages especially in developing countries like Kenya, many issues regarding its adoption, diffusion, infusion and use have not been fully addressed. The research also established that competition pressure, government support, ICT vendors' support and perceived socio economic factors influence the adoption and diffusion of the Internet. This is not any different even in SMEs as the end users are important in the adoption and usage of any innovation.

SMEs do not operate in isolation, they need to meet the needs of their clients. Baldauf and Stair (2009) observed that the focus of marketing in many organizations is shifting from television

and print media to the internet, web, cell phone networks, electronic games and even software. Using these means to advertise will make buyers aware of the products, SMEs carry out market research in order to find what customers need and enable them to access product information through business websites. Baldauf and Stair (2009) further observed that, improved efficiency and closer customer relationship is also another factor that fosters the adoption of ICTs by SMEs. Customers expect to have a good relationship with the business they get goods and services from, it is therefore important that people engaging in different businesses utilize all the possible techniques to improve their relationship with customers and efficiency of the organization.

The realization of the benefits of ICTs is an important factor that may foster the adoption and use of ICTs by SMEs. When SMEs know the value that applying ICTs will bring to their business, they will definitely apply them. ICTs bring a lot of benefits to a business. Syed and Noor (2008) argue that the use of ICTs can improve business competitiveness with the internet providing numerous opportunities for SMEs to compete equally with the large corporations. As the world economy continues to move towards increased integration as a result of the advances in the Information Communication Technologies, and the increasing reduction in trade barriers, some of the greatest opportunities for small businesses will be derived from their ability to participate in the regional and international markets.

Syed and Noor (2008) further observed that lack of awareness among owners/managers of what ICTs can do to SMEs has been a barrier together with lack of training on how to use ICTs in running SMEs. A workforce skilled in deployment and use of ICTs by SMEs is crucial to the establishment and maintenance of viable e-commerce. Some culture has also inhibited the adoption and use of ICTs by SMEs due to different perceptions towards ICTs. Some look at ICTs as tools

for the elite and rich while others look at them as instruments of moral degradation especially the internet.

Alessandro, Sara and Riccardo, (2011), carried out a study on "ICT for logistics and freight transportation: a literature review and research agenda", which revealed that there is a relationship between company features and ICT adoption, they point out company size as a crucial variable to assess ICT adoption (i.e. the bigger the company, the higher the implementation of ICTs). The study revealed that the larger logistics companies are progressively experiencing a higher level of ICT adoption, whereas many of the smaller haulage operators (i.e. smaller operators that run fewer than 11 vehicles) stick to more traditional communication and process systems.

The study also revealed that main driver seems to be related to the type of service offered. Indeed, small fleets as well as buses, household movers, small less than truck load carriers, and companies with long average loaded movements seem to be less likely to use satellite or radio-based communication.

Mpofu, Watkins-Mathys and Milne (2012) carried out a research on ICT Adoption and Development of E-business among SMEs in South Africa and the results suggested that owner/manager attributes such as background, knowledge, skills, attitude and experience played a significant role in ICT adoption. The results also suggested the importance of owner /manager in further ICT skills training and development support for employees in view of the adopted new technologies and uptake plans for the future. Mpofu, Watkins-Mathys and Milne (2012), further observed that there is a significant influence of personal friendships in ICT adoption among SMEs in South Africa. They state that the adoption of ICT and growth strategy appeared to be mainly inhibited by financial constraints, lack of time to implement ICTs and the frequently experienced power outages across South Africa.

Wole and Busola (2011) studied the factors influencing electronic business technologies adoption and use by Small and Medium Scale Enterprises (SMES) in a Nigerian Municipality and identified Awareness of ICTs, Perceived benefit of the technology, Business driver, Age of organization, Size of enterprise, Nature of organization's activities and Pressure from suppliers as the main factor promoting the adoption of ICTs in SMEs. The study further revealed that Owner/Manager characteristics, Organization's characteristics Cost and return on investment, technological infrastructure and socio-economic cultural are some of the main barriers to the adoption and use of electronic businesses by SMEs.

SMEs are often the main driver for a country's economic growth. However, as the number of SMEs increases, competition increases, which then results in a decrease in prices, customer base, or both. This in turn will erode existing profits, creating less incentive for people to start SMEs. This dynamic is captured by balancing feedback loops where the greater the number of SMEs, the greater the competition, resulting in a slower rate of growth for SMEs. To counter the increasing competition, firms can lower prices, increase promotion of their product, improve their product, add new distribution channels, and/or improve their internal processes. The challenge is to counter competition when the firm still has the financial resources to do so. Otherwise, once the pressure of competition sufficiently erodes the SME's profits, it will no longer have resources to counter the competition and will have to exit the market (UNCTAD, 2006).

In countries where SMEs are only starting to adopt basic ICT, obtaining a fixed or mobile phone line can help their business. It can replace the time and costs necessary for face-to-face communication. In countries where SMEs already have basic ICT, adopting more advanced ICT still brings enormous benefits. Advanced communication technologies such as email can help

firms communicate faster and cheaper with both its suppliers and clients. Many developing countries still have poor communications infrastructure. Outdated equipment and state-owned monopolies often result in expensive charges and limited coverage, especially in rural areas. This discourages SMEs from adopting even the basic ICT of fixed lines or mobile phones (UNCTAD, 2006).

Zhelyazkov (2012) carried out a study on the impact of ICT systems on road transport SMEs in Australia which revealed that while large companies can either develop or buy off the- shelf such an ICT system, most SMEs do not have the resources to buy and maintain such a system. The study further indicates that the level of risks, constraints and expertise faced by Road transport SMEs could be quite different than large transport companies. In addition to this, when the use of an ICT is not properly aligned to the required business processes, it could create disillusion on the benefits of facilitating business processes.

A research by Hidalgo and Albors (2010) on the drivers of ICT adoption in transport and logistics services: an approach from the SCP model revealed that there are three points that are worth mentioning. First, increasing market competition is one of the driving forces behind ICT usage. In other words, more intense competition make companies use innovative technologies in order to cut costs and look for more innovative ways of conducting business. Second, the relationships of companies interacting with each other play an important role in the diffusion of ICT applications supporting inter-firm collaboration. Close relationships facilitate investments in specific technologies. Third, the success of the ICT-driven innovative process depends on the availability and quality of complementary assets such as employee skills and IT know-how. Hidalgo and Albors (2010) further observed that the use of applications and practices supporting the electronic

exchange of information between companies (e-Collaboration tools) positively affect the likelihood of conducting ICT-enabled innovations.

According to the Ministry of Commerce and Trade, Zambia (2007), the factors affecting SMEs in Zambia include lack of infrastructure, lack of funds, lack of awareness amongst owners/managers, lack of skills and training, cultural factors, lack of government policies that support ICTs in SMEs, electricity constraints, network problems, unreliable connectivity infrastructure and the attitude of decision makers towards computers.

The Ministry of Commerce and Trade, Zambia (2007) further observed that the tendency by ICT firms to target large enterprises because they have a larger budget and are willing to pay for more complex ICT services makes the situation worse. Their products are often too expensive and too complex for SME users. However, competition in this market is making firms – both large and small – turn their attention towards the untapped SME market. Rosetta, for example, is pushing to capture SME customers by lowering prices by 50 percent and increasing awareness.

The UNCTAD (2006) identified a number of barriers to the adoption and use of ICTs by SMEs such as, lack of financing options limits SME ability to purchase ICT. Lack of financing and appropriate technology is clearly a major handicap to developing country producers and exporters, and it inhibits developing countries from deriving full benefits from their trade rights. SMEs usually have limited ability to make larger investments in their firm due to the lack of financing options. Given the financial squeeze, IT budgets are usually small or nonexistent. In addition, adopting ICT is not a one-time cost because there are ongoing costs of maintenance, upgrading, and human capacity building.

Alessandro, Sara and Riccardo (2011), noted that the most common drivers to ICT adoption seem to be cost savings and service level improvement retaining company market share, and gaining competitive advantage against other logistics companies. Small companies seem to be hampered by economic or financial reasons. For instance, this is the case of the emerged difficulty in taking on investment risk.

UNCTAD (2006) observed that lack of financial and legal infrastructure for ICTs may make SMEs hesitant to engage in e-commerce due to undeveloped legal policy for electronic payment and security issues. Many banks, a key link in the e-commerce chain, have not even adopted online banking in their own systems. In the end, the definite costs of identifying the right goods and/or service, finding staff to manage it, taking the company up the learning curve, and obtaining financial resources are not perceived to justify benefits. Furthermore, many governments have not explicitly focused on ICT adoption by SMEs in the non-ICT sector. They have either focused on growing the ICT sector or supporting the growth of SMEs, but they have not focused on integrating the two areas to implement bRoad-based policies. Since most SMEs who can benefit from the use of ICT are not in the ICT sector, they have not been able to receive the benefits (UNCTAD, 2006).

Alessandro, Sara and Riccardo, (2011) further identified Lack of knowledge on pay-back times or unclear return on investment as barriers to the adoption and use of ICTs compounded by long implementation periods often connected to the perception of risk of rapid obsolescence of technologies. The integration of new ICT solutions with those previously adopted by the company taking into account all the issues and costs of installing, interfacing and integrating new technology

with the legacy systems already in place is regarded as one of the key hurdles in ICT implementation .

Companies seem to perceive some operational criticalities. They are mostly due to personnel training as well as personnel reluctance to change and to learn new technology procedures (e.g. mostly due to lack of familiarity with software applications). Additionally, in some other cases, one of the main barriers seems to consist in a sort of disinclination to change on the part of company decision makers or, more generally, a lack of management support.

Finally, Alessandro, Sara and Riccardo, (2011) noted that companies seem to have an overall limited (though slowly increasing) awareness of the current market of available ICT solutions. Besides, there is great difficulty in selecting and quantifying the “intangible” benefits that the adoption of ICT could bring .The combination of the lack of knowledge of available ICTs and the difficulty in assessing the related benefits often leads to a lack of adoption or an adoption which does not bring the benefits hoped for.

Cruz, Barata and Ferreira (2012), carried out a study on performance in urban public transport systems: a critical analysis of the Portuguese case, the results revealed that other barriers have been seen to be the unavailability of ICT competencies within the firm, and unavailability and cost of appropriate interoperable small-firm systems, network infrastructure and Internet-related support services. Lack of reliable trust and redress systems and cross-country legal and regulatory differences also impede cross-border transactions.

In another study by Southwood (2004) on ICTs and small enterprises: a motor of economic development in Africa results showed that ICT investments by SMEs in South Africa resulted in profitability gains from cost savings rather than from increase in sales. However, in order to achieve such outcomes, small businesses and in particular micro-enterprises and their owners need

to overcome a multitude of challenges. As mentioned earlier, micro-enterprises face obstacles such as limited finances, reduced technical skills, lack of systematic business infrastructure, and limited access to information and markets to name a few (Wolcott, Kamal and Qureshi, 2008). These obstacles prevent micro-enterprises from adopting and using IT and reaping the benefits stated above. An innovative approach which involves a mix of technology, training, and trust building has been proposed and documented as being a solution to assisting micro-enterprises in adopting and using IT in their businesses. One of the major reasons for stunting the growth of micro-enterprises is their inability to adopt and use IT as a result of the myriad of challenges that these tiny businesses encounter.

Banda, Mutula and Grand (2004) carried out a research on the information needs assessment for small scale business community in Zambia, a case study of Chisokone market, Kitwe whose findings revealed that SMEs at Chisokone Market faced several barriers in their search for information. These results seem to be common not only in Zambia but also in other developing countries. Levy, Powell and Yetton (2002) observed that despite the large proportion of employment provided by SMEs in South Africa, they face several barriers such as lack of access to information, lack of financing, technical support and expertise, low levels of education and business skills amongst entrepreneurs, limited research on SME sector, poor regulatory framework, lack of a comprehensive entrepreneurial strategy, lack of visibility of small businesses, lack of access to technology, vulnerability to cash flow disruptions, unfavourable tax regime(e.g. Value Added Tax (VAT), skills levy), inability of government to communicate what incentives are available for emerging entrepreneurs and where to go for assistance.

2.5 ICTs adoption attributes amongst SMEs

Adopting ICTs is an adaptive challenge, not a technical challenge. Adopting ICT is a difficult task for companies of all sizes, whether they are in developed or developing countries. In fact, a lot of management literature focuses on the organizational changes that firms must go through in order to effectively adopt ICT because they change the way firms do business. While the changes may be beneficial in the long run, they often hurt one department and strengthen another, (UNCTAD, 2006).

Harindranath, Barnes and Dyerson (2005) conducted a study on factors affecting the adoption and use of ICTs in southeast England SMES, the main result of this study indicated a generally favourable attitude to ICT amongst the SMEs surveyed, it also suggests a failure to recognize ICT's strategic potential. A surprising result was the overwhelming ignorance of regional, national and European Union wide policy initiatives to support SMEs. This strikes at the very heart of regional, national and European policy that has identified SMEs as requiring specific support mechanisms.

Esselaar et al (2008) carried out a study on ICT Usage and its impact on profitability of SMEs in 13 African countries, the results revealed that of those SMEs that do not own a computer, there is a nearly even split between those that believe there is no need and those that believe that computers are too expensive. The split remains nearly the same when computers with Internet connections are included. Forty-five percent of SMEs stated that the reason they do not have a computer with an Internet connection is because it is too expensive; 45% state that there is no need to own a computer. This would seem to emphasize the importance of educating SMEs on the benefits of computers, for example, inventory control as well as the importance of bringing down costs.

Alessandro, Sara and Riccardo, (2011) noted that a low adoption level of relatively sophisticated technologies among all types and that the most used applications consist in telephone, fax, mobile phones, internet and e-mail to a great extent, followed by other tools such as EDI and local area network. The degree of integration in the supply chain seems to be quite low overall. Although the penetration of ICT is still low, logistics operators seem to understand the importance of mobile services and have clear plans about which one(s) to offer to their customers. Order tracking and tracing seems to have widespread adoption, with vehicle position monitoring being the most common functionality.

European Commission (2008 B) conducted a study on the adoption and implications of information and communication technology (ICT) and e-business activity in the transport and logistics services industry (TLS) and the results revealed that only 8% of all enterprises actually employ ICT practitioners (most of the small companies cannot do so). The percentage is higher among medium (33%) and large companies (66%). 45% of companies said in the survey that they had outsourced ICT services to external service providers in the past 12 months prior to the interview. Nevertheless, survey results also indicate a certain lack of awareness regarding the importance of ICT skills and resources which are needed to exploit technological innovation and to support the reorganisation of work processes. It appears that the availability of qualified personnel with specialised skills is quite limited in the transport and logistics sector. This could be a critical issue for the sector in the future, as it might be a barrier for innovation.

It is a truism to say that SMEs have scarce resources. In practical terms, this means that there is a strong focus on those tools that have an immediate benefit, compared to those with longer-term benefits. The advantage of the mobile phone, for example, is twofold: first, it can be used with

little training. Second, increasing numbers of people have mobile phones (the network externality effect). Other forms of ICTs, such as the fax machine and post box, have a rapidly declining network effect as fewer people continue to use them.

Faha and Nana (2011) carried out a study on robust estimation of ICTs effects on Cameroonian firm's productivity revealed that for internet being used efficiently to improve orders processing or delivering of services to customers, the company must adopt new online shop software that, usually, changes the routine. Skilled staff will be necessary to harness ICTs in a way that is most appropriate to the needs of the company. Therefore, depending on what firms do with ICT, the same ICT tool can have varying impacts on two different firms.

The study further revealed that 56% of the firms had invested in at least one basic ICT equipment. However, ICT investments represent in average, less than 7% of their total investments. Several factors can explain this slow adoption of ICT: high costs, unawareness of the potential of ICT to meet enterprises needs, poor telecommunication infrastructures. The attitude also amplified the slow pace as more than 40% of SME stated that they have no need of ICT in their activities. There is thus a crucial need for sensitization about the potential of ICT for SME needs. Similarly, Kabanda (2011) observed that the East and Southern African countries showed tremendous development potential, even though they are among the late majority and laggards with respect to technological innovations.

Beyene (2002) conducted a research on Enhancing the Competitiveness and Productivity of Small and Medium Scale Enterprises (SMEs) in Africa: An analysis of differential roles of national governments through improved support services, the study show that small and Medium Scale Enterprises (SMEs) are universally acknowledged as effective instruments for employment

generation and economic growth. Even in countries with large corporations such as the United States, SMEs contribute a very substantial percentage to the employment generated. The study further revealed that in Africa, where the private sector is not well developed, SMEs could play a critical role in stimulating development and alleviating poverty by adopting and using ICTs which are presently non-existent or in low levels in these businesses.

Organization for Economic Co-Operation and Development (OECD) (2004) surveyed ICTs, E-Business and SMEs and found that the adoption and use of Internet and e-business strategies depended on sector characteristics. Services like tourism, which are intangible in nature and have high information content, are well-suited for purchase over the Internet. In addition, in sectors such as tourism and parts of retail and finance, where firms perceive a higher level of market opportunities, they tend to commit more resources to e-commerce. The survey also revealed that barriers to Internet commerce also vary among sectors. In tourism, incompatibility of systems and the dominance of relatively small agents with less capability impede efficient Internet transactions along the supply chain. In the retail sector, the problem of confidence building seems more crucial.

Russell (2010) conducted a survey on companies' take-up of ICTs in Morocco. The agri-business sector had the highest take-up but only 24% of companies had implemented ICTs systems followed by 19% in industrial metallurgy. Neither of these sectors are the home of plentiful SMEs and this gives some idea of the long Road the continent still has to travel.

A similar study was conducted by Mutula and Brakel (2006) on the e-readiness status of small and medium-sized enterprises (SMEs) in the information and communication technologies (ICTs) sector in Botswana, the study revealed that SMEs in Botswana, like their counterparts in most

developing countries, had not achieved a reasonable measure of e-readiness status compared to the developed world.

A study by Dholakia and Kshetri (2003) on Internet diffusion revealed that North America, where the Internet originated, has over 182 million users accounting for 30% of the world's users but only 5.6% of the world's population. Europe, with its early connection to the ARPANET, currently has the highest number of Internet users (over 190 million). Asia Pacific, with over 60% of the world's population, is experiencing some of the most rapid growth in recent years and is expected to double its number of Internet users by 2005. North America, the original locus of the Internet, accounts for disproportionately higher numbers of Internet hosts and Internet users compared to the rest of the world. By 1999, the U.S. had over 98 million Internet users and 40 million hosts. Canada, similarly, had over 11 million Internet users and 1.4 million Internet hosts by 1999. These numbers have been growing rapidly, and reaching saturation levels.

Hidalgo and Albors (2010) noted that ICT intensity increases the propensity to outsource business activities. The more advanced a company is in terms of ICT use, the more likely it is to have outsourced some business activities in the last 12 months. This provides support to the hypothesis that ICT enables companies to redefine their make-or-buy decisions and to outsource business activities that were previously done in-house.

2.6 Impact of ICT literacy on adoption and use of ICTs by SMEs.

Lucchetti and Sterlacchini (2004) carried out a study on factors affecting the adoption of ICTs among SMEs in Italy which revealed that educational qualifications may have an impact on the level of ICTs adoption and usage in an SME.

Lucchetti and Sterlacchini (2004) further noted that limited ICT literacy of SME owners hinders their ability to choose the appropriate technology and understand the concrete benefits it can bring to their business. Many SME owners are unfamiliar with operating a computer, are sceptical of the concrete benefits to its core business, and have the stereotype that ICT is only for larger companies. Even if they have the will and financial resources to integrate ICT into their core business, SME owners are often at a loss when needing to choose the most appropriate and cost-efficient product.

Syed and Noor (2009) noted that ICT literacy is an important factor that can foster or inhibit the adoption and use of ICTs by SMEs. Small businesses tend to avoid ICTs in their business if they are seen as complex to use, this is not surprising because SMEs usually lack skills amongst the work force to use ICTs.

According to UNCTAD (2006), limited ICT literacy of employees in SMEs hinders ICT adoption. Even if SME owners have a strategic understanding of why they should adopt ICT, their staffs are often untrained. Training costs both time and money – resources that SMEs usually lack.

UNCTAD (2006) further observed that workshops and training seminars, the most common way for governments to encourage ICT adoption by SMEs, often did not tailor the content to the type of audience and did not focus enough on the concrete benefits. To encourage SMEs to adopt ICT, efforts first need to concentrate on convincing top management that implementing ICT can improve their business, whether through cost savings or enabling expansion to new markets. This is because these managers determine the overall strategy of the firm, and they make the decision whether or not to adopt ICT. Middle management are usually the ones to implement the ICT project and thus need to have a deeper knowledge of how to implement it, so their training should

include a mix of strategy and implementation skills. Frontline employees are the ones who will use ICT on a daily basis. It is therefore more important to concentrate their training on the actual skills required than on the strategic benefits of ICT.

Bwalya (2010) observed that the combined number of mobile phone users from all the three mobile service providers in Zambia today stands at 4 million out of 11 million people. This is a big number of potential customers that SMEs in Zambia can make part of their business by using ICTs. Bwalya further observed that one of the factors contributing to low usage of the Internet in Zambia is illiteracy. The majority of Zambians cannot read or write. Even if they have access to the Internet, they will not be able to read the web contents. Computer illiteracy is another factor contributing to low usage of the Internet in Zambia. Many people in Zambia do not know how to use a computer (Bwalya, 2010). There is also the issue of technological phobia. Some people have the fear of technology. They do not want to learn about the Internet. Related to this is a lack of awareness of what the Internet can do for people. A lot of people do not even know what the Internet is. This study identified the factors that affects or hinders the usage of the internet, it however, does not highlight the factors fostering the adoption and use of ICTs by SMEs the Road transport sector.

The study by Hidalgo and Albors (2010) on the drivers of ICT adoption in transport and logistics services: an approach from the SCP model, revealed that changes in share of employees with a higher university degree positively affect the likelihood of conducting ICT-enabled innovations. Similarly, employing IT practitioners significantly increases firm's propensity to use ICT to develop new products and services. This finding provides further evidence that the success of the ICT-driven innovative process depends on the availability and quality of complementary assets.

The Ministry of Commerce and Trade, Zambia (2005) notes that a well developed Information Communication Technology industry is essential to the growth of any country.

This brief review of the literature illustrates the mixed picture that emerges in relation to ICTs adoption and use by SMEs. Many of the studies on ICTs adoption and use are on SMEs in general and not specifically those in the Road passenger transport. Furthermore, most of them are now outdated owing to changes in both markets and technologies. A few related studies in Zambia have focused on other areas of SMEs such as information needs and seeking behaviour. Others have focussed on internet usage in Zambia and not specifically SMEs in Road passenger transport sector. This leaves a knowledge gap on the information relating to factors fostering or inhibiting the adoption and use of ICTs by SMEs in Road Passenger Transport Sector.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Overview

This chapter describes the research methods that were employed in the collection and analysis of data for this study. In this component, the researcher explains the general plan of how the research questions were answered. In addition, this chapter discusses the credibility of the data collected and the limitations of the study.

3.2 Research design

The research design is the outline or plan that is used to generate answers to the research questions. It is the blue print for the collection, measurement and analysis of data. The method to be used in this research is a case study. This method helps in identifying who is responsible for these factors, what factors, where they are prominent and how can they be handled. Saunders, Lewis, and Thornhill (2007), state that case studies are used to answer the questions who, what, where and how. The method helps to establish the traits of entrepreneurs which may inhibit or foster the adoption and usage of ICTs. The research used both quantitative and qualitative approaches. Qualitative approach helps bring out the feelings of the respondents while quantitative research involves the measurement of quantifiable values. It helps in generating statistics. Both approaches were important in this study as they complement each other to allow the researcher have a comprehensive study. This design also makes it easy to come up with generalization of findings from a representative sample.

3.3 Population and Sampling

SMEs operating at Intercity Bus Terminus in the Road passenger transport business were considered. This place was used due to convenience. The enterprises were stratified according to

size and then random sampling was done in these strata. The strata used were employees from companies with below 10 employees, those with employees between 11 and 49 and those from companies with more than 50 employees. A sample of 70 respondents was drawn for this research out of a population of 80 respondents in charge of SMEs operating at the Intercity Bus Terminus. This population comprised of owners, managers, drivers, bus inspectors, ticket sellers and formally employed conductors.

3.4 Research instruments

Self administered questionnaires were used to collect qualitative and quantitative data. This method was used as most respondents are able to write and read in English with less or no difficulties. This was done as it was deduced from the pilot research done to test the reliability of the research instruments that the respondents were able to read and with less difficulty.

3.5 Data analysis

Data was analysed so as to enable the researcher detect consistent patterns with the data collected. Quantitative data was analysed using descriptive and inferential methods. The Statistical Package for Social Sciences (SPSS) was used to create tables, graphs and charts. Content analysis involving the interpretation of views and perceptions was used to analyse qualitative data.

3.6 Ethical consideration

The researcher observed all ethical issues in the study. Most importantly confidentiality was maintained at all times, informed consent was enforced and a full explanation was given in advance to the respondents so that they could understand the purpose and use of the research.

3.7 Limitation of study

This study had the following limitations, firstly the study was confined to Lusaka city. This could make the generalisations inappropriate as the other SMEs in Road transport in other parts of

Zambia may be affected by other factors. Secondly, the study only focused on SMEs which were formalised and found at Intercity Bus Terminus thereby leaving out SMEs engaged in the transport sector but operating from other areas within Lusaka. The study also leaves out SMEs involved in other business but operating at the Intercity Bus Terminal.

CHAPTER FOUR: PRESENTATION OF RESEARCH FINDINGS

4.1 Overview

Chapter three has outlined the methodology used in the collection of data that constitutes this chapter. In this chapter, the results of the study were presented in terms of ICT existence in SMEs in the road passenger transport sector, the factors which influence and prohibit the adoption and use of ICT's, the levels of ICTs usage, the key ICTs adoption attributes amongst SMEs and the impact of ICTs literacy on adoption and use of ICTs by SMEs in the Road passenger transport in Zambia.

Headings were used to present the findings. Each heading covered a certain aspect of the study. In this study, headings were thought to be ideal for the purpose of keeping the presentation of the findings relevant to the objectives of the study. Furthermore, graphs were used in presenting some data that was collected. Data in graphs was also presented in percentages.

Questionnaires were used to collect data in this research, out of 70 questionnaires distributed, 54 completed questionnaires were retrieved, representing a 77 % response rate.

4.2 Demographic characteristics of the respondents

The respondents came from twenty (20) SMEs in the public passenger transport business with Shalom Buses contributing the highest number 10 (18.5%). Tiyeseke, Ronsil, Our Family, Marks Motors, LSK2100, Jitowe, Euro buses and Barotse with the lowest contribution at 1 (1.85%) each as shown in Fig 2 below.

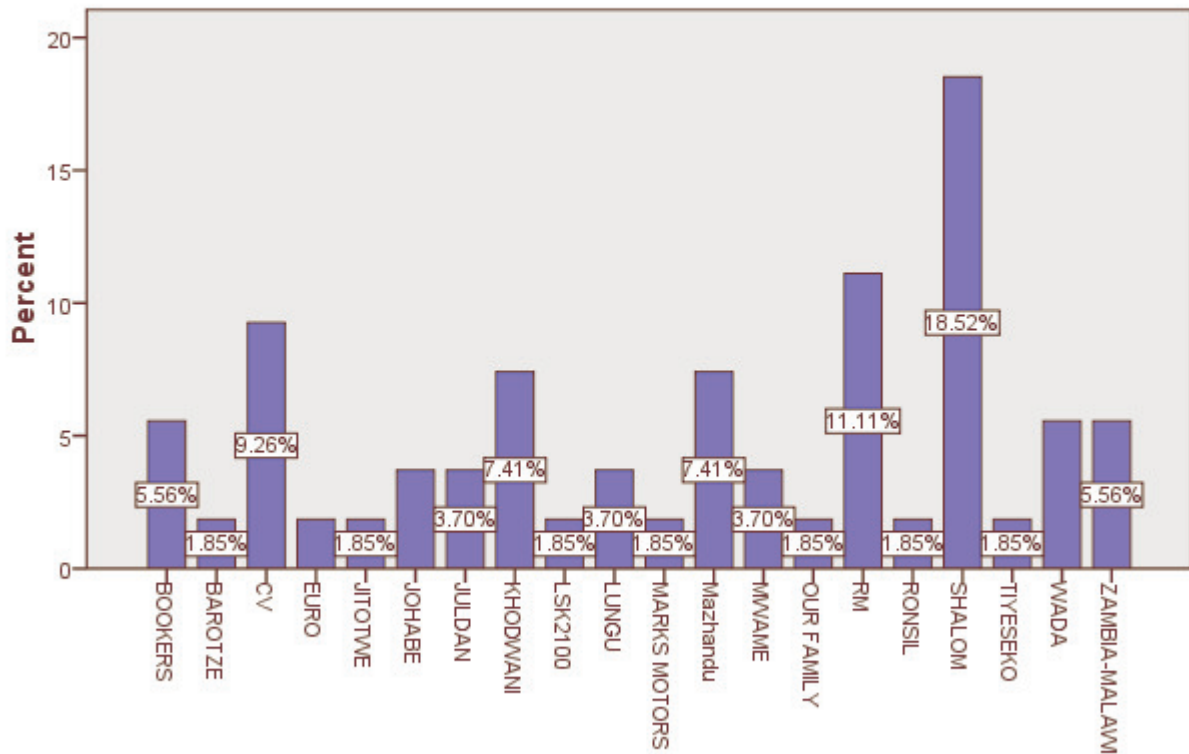


Fig 2: Participating SMEs

Most of the respondents 46 (85.2 %) were from companies with more than 10 employees while 8 (14.8 %) were from companies with ten or less employees.

Respondents were asked to indicate their sex, age, academic qualification and job titles. It was found that 48 (89.9 %) of the respondents were male while 6 (11.1 %) were female. In terms of age, about 30 (55.6%) were between 20 and 30 years old, 24 (44.6 %) were 31 and above years old and none was 19 and below years old.

As for academic qualifications, there were more employees who had grade 12 certificates 39 (72.2 %) than those who were grade 9 and below 12 (22.2%), and Tertiary 3 (5.6 %). Among the

respondents, 28 (51.9 %) were in supervisory or management positions and 26 (48.1 %) in non supervisory or non managerial positions.

4.3 Existence of ICTs in companies

The respondents were asked using a multiple response question to indicate whether some ICTs such as radios, television, telephone, fax, computers and internet were present in their companies. Table 1 shows that the order of positive responses was phone 52 (96.3 %), television 52 (96.3 %), radio 47 (87 %), computers 35 (64.8 %), Internet 21 (38.9 %) and fax 9 (16.7 %).

Table 1: Availability of ICTs in SMEs

ICT	Frequency	Percentage
Phone	52	96.3%
Television	52	96.3%
Radios	47	87.0%
Computers	35	64.8%
Internet	21	38.9%
Fax	9	16.7%

In terms of ICTs being present in their individual offices, 45 (83.33 %) of the respondents reported that ICTs were there in their office while 9 (16.67 %) of the respondent said they did not have any. The respondents were asked to indicate whether their companies had a website, only 23 (42.6 %) were aware while the majority of respondents 31 (57.4 %) reported that they did not have any.

In order to further investigate the validity of this assumption in the Zambian context, the presence of ICTs in offices was compared in terms of the different sizes of SMEs using cross tabulation and

the results indicated that bigger SMEs had ICTs in bigger proportions as compared to smaller SMEs, about 21 (38.8%) of those who were aware of the ICTs in their offices were from companies with more than 50 employees and only 8 (14.81%) were from small SMEs with less than ten employees. This shows that even amongst SMEs, bigger SMEs had a higher presence of ICTs compared to smaller ones (See fig 3 below).

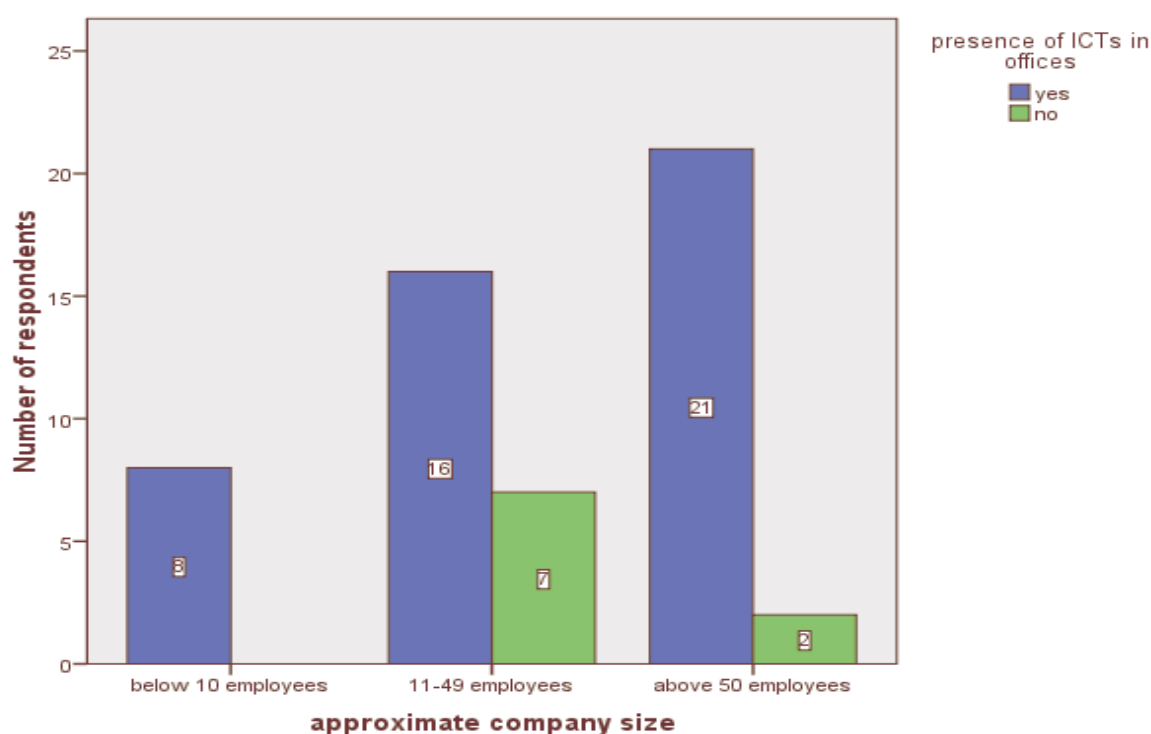


Fig 3: Size of SME and presence of ICTs in offices

4.4 SMEs making adequate use of ICTs

In order to find out if SMEs were making adequate use of ICTs, respondents were asked to indicate ICTs they used for business, the responses were ranked: phone 49 (90.7 %), TV 47 (87 %), radio 42 (77.8%), computers 37 (68.5 %), internet 25 (46.3 %) and fax with the lowest usage at 7 (13 %) as shown in Table 2 below.

Table 2: ICTs usage for business

ICT usage for business	Frequency	Percentage
Phone	49	90.7%
TV	47	87.0%
Radio	42	77.8%
Computers	37	68.5%
Internet	25	46.3%
Fax	7	13.0%

NB: *This is a multiple response question*

The study revealed that reasons for using ICTs in most cases were varied and the majority was personal communication at 44 (81.5 %), 40 (74.1 %) selected business, 39 (72.2%) for entertainment, 24 (44.4 %) selected advertising while 2 (3.7%) indicated data storage. Table 3 shows the options of the respondents in towards the various reasons of using ICTs.

Table 3: Reasons for using ICTs by SMEs

Reasons for using ICTs mostly	Frequency	Percentage
Personal Communication	44	81.5%
Business	40	74.1%
Entertainment	39	72.2%
Advertising	24	44.4%
Data storage	2	3.7%

NB: *This is a multiple response question*

In this study revealed that fliers were the most used means of advertisement at 36 (66.7 %), followed by radio at 28 (51.9 %), newspapers 27 (50 %), internet 12 (22.2 %) and face to face 12 (22.2 %) as shown in Fig 4 below.

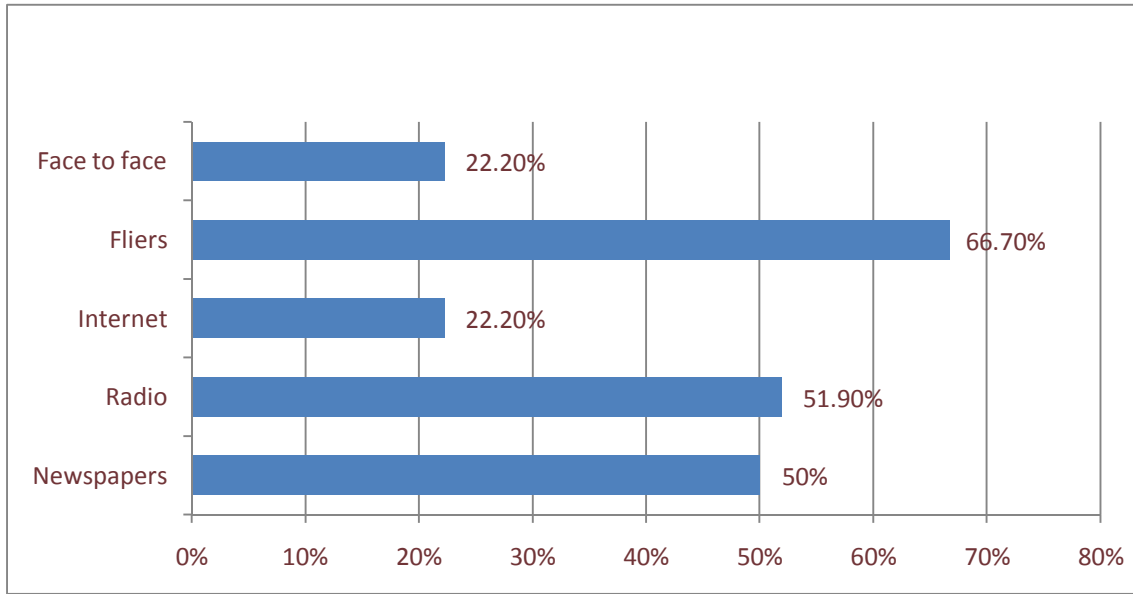


Fig 4: Means of advertisement

Of the total number of respondents, 7 (13 %) agreed that customers use ICTs in their interaction while 47 (87 %) said they did not. On whether respondent felt ICTs are adequately used in these companies, 28 (53.85 %) indicated that they were not adequately used while only 24 (46.15%) indicated that they were adequately used (see Fig 5 below).

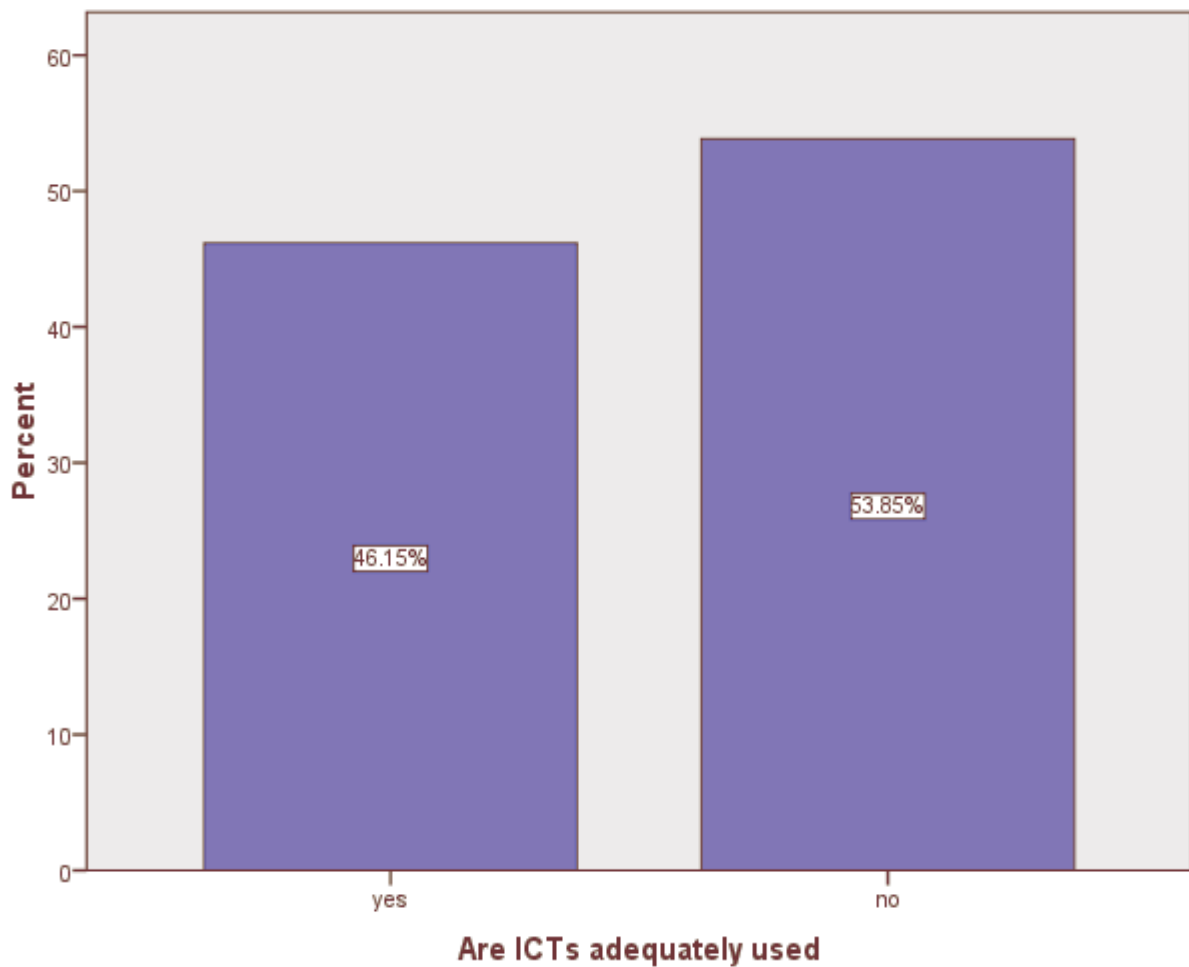


Fig 5: Adequate Usage of ICTs

The prominent reasons they felt ICTs were not effectively used by customers in their companies were as follows; 19 (35.19 %) indicated ICT illiteracy, 15 (27.78 %) indicated lack of awareness, 19 (35.19 %) indicated lack of ICTs while 1 (1.85 %) indicated other reasons such as personal attitudes and lack of contacts from the SMEs as shown in Fig 6 below.

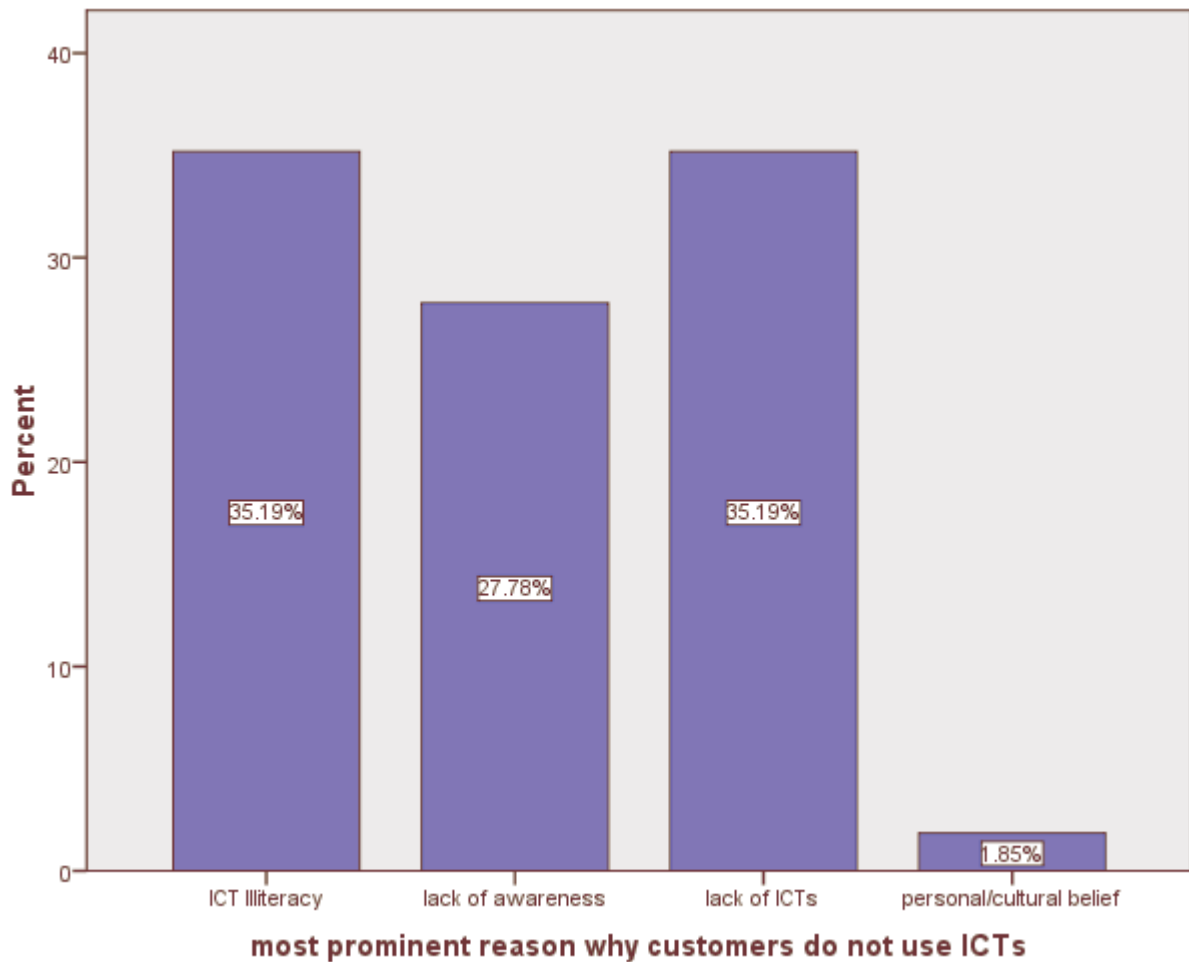


Fig 6: Reasons respondents felt hinder customers from using ICTs

4.5 Enablers or inhibitors of the successful adoption and use of ICTs by SMEs

In order to assess the value attached to the use of ICT, respondents were asked using a multiple response question to indicate their willingness to pay for the use of different ICTs for business purpose. Table 4 shows the following order of positive responses: TV, radio computers, Internet, Video Cassette Recorders (VCRs) and printers with 48 (88.9 %), 36 (66.7 %), 32 (59.3 %), 25 (46 .3 %), 20 (37 %) and 16 (29.6 %) respectively.

Table 4: Attitudes towards paying for ICTs

Willingness to pay for	Frequency	Percentage
TV	48	88.9%
Radio	36	66.7%
Computers	32	59.3%
Internet	25	46.3%
VCR	20	37.0%
Printers	16	29.6%

When respondents were asked using a multiple response question to indicate why ICTs were adopted and used in their companies, 48 (88.9 %) of the respondents indicated faster and better service delivery, 27 (50 %) indicated staying ahead in competition, 6 (11.1 %) indicated entertainment while only 4 (7.4 %) stated that they did so because others did as shown in Fig 7 below.

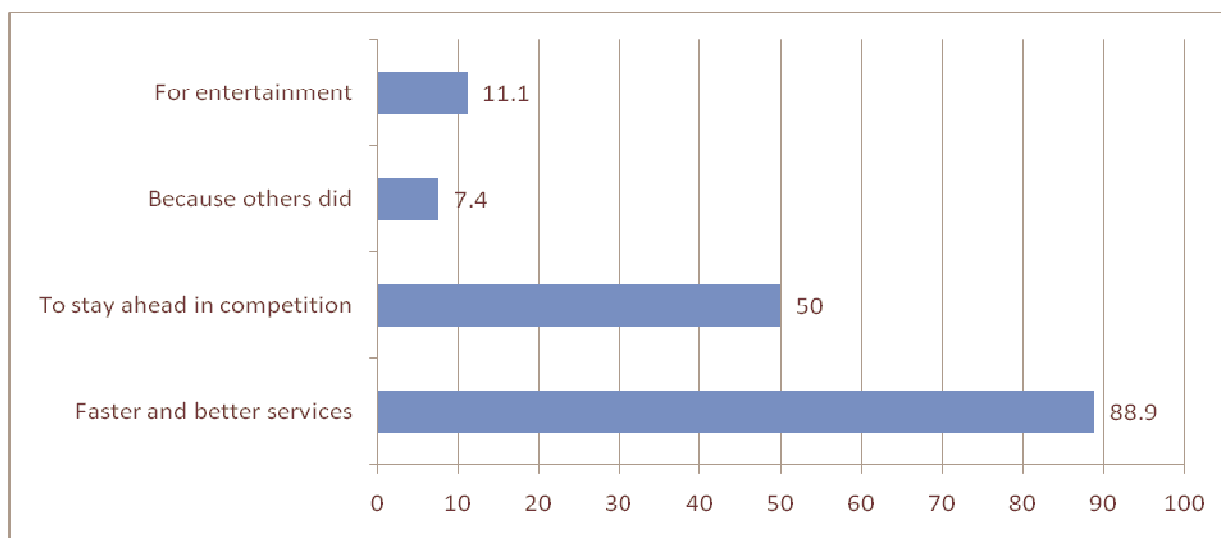


Fig 7: Drivers for the adoption and use of ICTs

On the barriers that respondents felt affected adoption and use, 42 (77.8 %) of the respondents indicated monetary costs involved in implementation, 41 (75.9 %) indicated lack of relevant technology, 38 (70.4 %) indicated lack of management support, 35 (64.8 %) indicated uncertainty on returns, 34 (63 %) indicated lack of internal skills while only 27 (50 %) indicated lack of time to implement as shown in Table 5.

Table 5: Barriers to the adoption and use of ICTs

Barriers to adoption and use of ICTs	Frequency	Percentage
Monetary costs	42	77.8%
Lack of relevant technology	41	75.9%
Lack of management support	38	70.4%
Uncertainty of returns	35	64.8%
Lack of internal skills	34	63.0%
Time to implement	27	50.0%

NB: *This is a multiple response question*

4.6 Key ICTs adoption attributes by SMEs

There was generally universal agreement on the assertion that ICTs are an important tool in the effective and efficient running of any organization in this modern era, 45 (83.3 %) strongly agreed, 4 (7.4 %) agreed, 4 (7.4 %) were not sure and only 1 (1.85 %) disagreed.

In terms of adoption traits, 30 (55.6 %) indicated that they did so after seeing other companies while 24 (44.4 %) indicated that they did not. Furthermore, only about 15 (27.8 %) of the respondents were aware of any innovations by their companies in terms of ICTs while 39 (72.2 %) were not aware of such. On knowledge of long term plans, the majority 35 (64.8 %) were not

aware of any while only 19 (35.2 %) expressed awareness of such plans. In trying to further investigate the adoption attributes of SMEs, respondents were asked if they were aware of any occasion when their company outsourced due to lack of internal skills, only a minority 24 (44.4%) indicated that they were aware while the majority 30 (55.6 %) indicated that they were not aware.

4.7 Impact of ICT literacy on the adoption and use of ICTs

The study revealed that employees' competency levels with regards to the usage of ICTs were different depending on the particular ICT. Most respondents in this study were competent in the use of phone 52 (96.3 %), 51 (94.4 %) were competent on the use of television, radio 48 (88.9 %), computer 28 (51.9 %), internet 20 (37 %) and the Fax 9 (16.7 %) as the least as shown in Table 6 below.

Table 6: Ability to use ICTs

Ability to use	Frequency	Percentage
Phone	52	96.3%
TV	51	94.4%
Radio	48	88.9%
Computers	28	51.9%
Internet	20	37.0%
Fax	9	16.7%

NB: *This is a multiple response question*

On ability to surf or browse the internet, the majority 28 (51.9 %) indicated that they knew while a minority 26 (48.1 %) indicated they did not know. ICTs training is aimed at enhancing the capabilities of employees to effectively use ICTs, however, only 12 (22.2 %) stated that they had some training in the past while 42 (77.8 %) stated that they had no training in ICTs. It was noted

that the majority of respondents felt that their competency levels were sufficient as 34 (63%) indicated that they had adequate skills to handle ICTs while 20 (37 %) indicated that they did not. However, 49 (90.7%) stated that they would support the adoption of ICTs by their companies while only 5 (9.3 %) revealed that they would not support such ideas.

This study revealed that the majority 35 (64.8 %) indicated that supervisors had no impact on the adoption and usage of ICTs while only 19 (35.2 %) thought supervisors had some impact.

Respondents were asked to indicate as many options as possible on what they would recommend in order to improve the operations of SMEs in the adoption and usage of ICTs, 43 (79.6 %) recommended that Government should subsidize the purchase of ICTs, 43 (79.6 %) indicated continuous ICT training, another 43 (79.6%) indicated ICTs user sensitization while 41 (75.5 %) recommended a reduction in the cost of accessing ICTs services (see table 7 below).

Table 7: Recommendations to improve the operations of SMEs

Recommendations to enhance adoption and usage	Frequency	Percentage
Reduction in cost of accessing ICTs services	41	75.9%
Government to cushion the purchase of ICTs	43	79.6%
Continuous ICT training	43	79.6%
ICTs user sensitization	43	79.6%

The research findings have revealed a number of issues that the researcher set out to investigate. Firstly, it is clear from the research findings that ICTs exist in road passenger transport SMEs

those in varying proportions with the common ones such as phones and TVs in the majority while those requiring training were in the minority.

Secondly, a variety of drivers to the adoption such as, to have a competitive advantage, to serve the customers better and to do as others, were revealed. The barriers included financial constraints, lack of time, lack of ICT infrastructure and expertise.

The third major issue revealed is that there is generally inadequate usage of ICTs by SMEs in the Road passenger transport sector. These SMEs exhibited different adoption traits among them, the size, the manager's capacity to use ICTs and their reasons for adoption and use. The traits were further looked at in terms of the Diffusion theory by Rodgers (1995) as reflected in the discussion.

Finally, the findings also revealed that ICT literacy has an impact on the adoption and use of ICTs. SMEs with more ICTs literate employees were more eager and better placed to adopt and use ICTs.

CHAPTER FIVE: DISCUSSION

5.1 Overview

Chapter four has presented the research findings. This chapter discusses the findings of the study. All the research questions have been addressed in this chapter. The results of the study collected were interpreted by referring to the relevant literature and principal data sources such as questionnaires.

5.2 Existence of ICTs in SMEs

The presence of ICTs in the road passenger transport sector (SMEs) was investigated by identifying the common ICTs important in the conduct of any business. The results were indicate that common ICTs such as phone, television and radio were found to be in the majority above 87% and the internet was low at 38.9% despite being the driving force of many organisations in this modern era. The fax was the least in terms of presence in all the companies at 16.7%. Chacko and Harris (2011) observed that most SMEs are still lagging behind in the adoption of the internet as an efficient business tool. In order to further investigate the validity of this assumption in the Zambian context, the presence of ICTs in offices was compared in terms of the different sizes of SMEs using cross tabulation and the results indicated that bigger SMEs had ICTs in bigger proportions as compared to smaller SMEs, about 38.8% of those who were aware of the ICTs in their offices were from companies with more than 50 employees and only 14.81% were from small SMEs with less than ten employees. This shows that even amongst SMEs, bigger SMEs had a higher presence of ICTs compared to smaller ones. These findings are in line with the ones by Zhelyazkov (2012) on the impact of ICT systems on Road transport SMEs in Australia which revealed that while large companies can either develop or buy off the- shelf such an ICT system, most SMEs do not have

the resources to buy and maintain such a system. This therefore, clearly shows that bigger bus companies have an advantage in terms of ICT adoption and had them in higher quantities as compared to small companies.

A website is an important tool for an enterprise to market its products and services and also to interact with its customers and other stakeholders. However in this study it was revealed that the majority of SMEs in the Road passenger transport sector in Lusaka Zambia did not have their own websites. The results show that 57.4% of the SMEs investigated did not own a website and only 42.6% did. These results show that these Road passenger transport SMEs are missing out on advertising opportunities. European Commission(2008 A) noted that the implemented new ICT and e-business systems brought ALSA a lot of benefits and positive impacts, including the opening of new sales channels (mobile and internet sales) which increase the customer satisfaction, intelligent bus seat management, cost advantages and increase in the global competitiveness of the company thanks to the different e-business tools. Lack of such important ICTs in these SMEs as revealed in the study is a sign that most of the SMEs in Road passenger transport in Lusaka are not innovators but late comers or laggards according to the diffusion theory (Rodgers, 1995).

5.3 SMEs making adequate use of ICTs

The presence of ICTs in Bus Companies does not always translate into proper usage to achieve the intended goals of an organisation. In order to find out if Bus Operators were making adequate use of ICTs, respondents were asked to indicate ICTs they used for business, the responses were ranked: phone (90.7 %), TV (87 %), radio (68.5 %), internet (46.3 %) and fax with the lowest usage (13 %). The results revealed the respondents felt that some ICTs like phones, TVs and radios were adequately used while the internet and the telefax was not fully utilised. This could be in line with what was revealed in a study by Jose, Marcel and Batista (2007) on the effects of internet use

on the performance of SMEs that SMEs can act proactively in relation to ICT use. As the study by the European Commission (2008 A), on e-Business Systems of ALSA in Spain revealed, the use of the technology is more important than the mere adoption to obtain positive impacts on the company. This implies that ICTs must be used adequately by SMEs in all sectors.

The study also found that SMEs continue to deploy ICTs in a reactive, cost reducing manner. For ICTs like phones, TVs and radios, it was revealed that the use was proactive while for ICTs like internet and fax, it was in a reactive and cost reducing manner. These results are in the same lines with Esselaar et al's study on ICT usage and its impact on profitability of SMEs in 13 African Countries, whose results revealed that high adoption and usage of phones was because the mobile phone can be used with little training and increasing numbers of people have mobile phones (the network externality effect) while other forms of ICTs, such as the fax machine and post services, have a rapidly declining network effect as fewer people continue to use them.

In trying to find out the ways in which ICTs were used, the study revealed that personal communication, entertainment and business were the most prominent ways in which ICTs were utilised.

ICTs play an important role in advertising of business products and services. However, this study revealed that fliers were the most frequently used method of advertising at 66.7% and internet and face to face were at 22.2%. This shows that SMEs in the Road passenger transport in Zambia are not adequately using the important ICTs like the internet to grow their business through advertising. In line with this, the study also revealed that the usage of ICTs by customers when interacting with these SMEs was low at 13%.

In most SMEs employees felt that ICTs were inadequately used. It was clear from the results of this study that respondents felt that even customers did not use these ICTs adequately, some of the reasons attributed to this include ICT illiteracy by customers, lack of awareness and lack of ICTs. These results are similar to those of a study by Al Nahian, Shahriar and Nayeema (2009) on the adoption of e-banking in developing countries in poor countries, which highlighted areas of deficiency to include local IT supply industries, domestic demand/user involvement, and technical and managerial capabilities. The lack of awareness can be attributed to lack of user involvement as was the case with Al Nahian, Shahriar and Nayeema's findings. The failure by management to embrace initiatives that can incorporate ICTs makes them lose out on the benefits that could be harnessed from ICTs. Harindranath, Barnes and Dyerson (2005) conducted a study on factors affecting the adoption and use of ICT in southeast England SMEs, the main result of this study indicated a generally favourable attitude to ICT amongst the SMEs surveyed, it also suggests a failure to recognize ICT's strategic potential. This failure can also be seen in the Zambian context where there is inadequate use of ICTs by SMEs in the Road passenger transport sector. Syed and Noor (2009) carried out a research on ICTs Adoption in Small and Medium Enterprises in Service Sectors in Malaysia and the results of the research revealed that the use of Internet on business will be important for future company's progression. It is clear therefore that Zambian SMEs in Road passenger transport need to embrace ICTs and adequately use them for their further progression.

5.4 Enablers or inhibitors of the successful adoption and use of ICTs by SMEs

This study also highlighted a number of enablers or facilitators of the adoption and use of ICTs by SMEs in Zambia. The majority of SMEs adopted ICTs in order to provide faster and better services at 88.9%. The study also revealed that the manager's perceptions are factors that can either foster or inhibit the adoption of ICTs by SMEs. This is in line with what was revealed in a

similar study by Virginia, Maria and Anna (2007), on drivers, benefits and challenges of ICT adoption by Small and Medium Sized Enterprises (SMEs), that the perceptions of senior managers as to the strategic value of e-commerce related primarily to improving managerial decision making.

The study revealed a number of enablers and inhibitors to the successful adoption and use of ICTs. Prominent among the inhibitors was the attitude towards payments for ICTs. Most SMEs were not showing positive response vis-a-vis their willingness to pay for specific ICTs. The majority were below 50% except for computers, radios and TVs which were at 59.3%, 66.7% and 88.9% respectively. The results from this study show that SMEs in Lusaka are not willing to pay for critical ICTs like internet and printers.

On the barriers that respondents felt affected adoption and use, 77.8 % of the respondents indicated monetary costs involved in implementation, 75.9 % indicated lack of relevant technology, 70.4 % indicated lack of management support, 64.8 % indicated uncertainty on returns, 63 % indicated lack of internal skills while only 50 % indicated lack of time to implement.

The results from this study have shown that the inferior technology and managerial capabilities to use ICTs have often been shown to be a constraint on the effective use of ICTs. Similarly Lucchetti and Sterlacchini (2004) revealed that small businesses are likely to have a heavy reliance on the expertise and motivations of an owner-manager. In particular, their technical expertise and their attitude towards ICTs can affect their company's ability and willingness to engage with ICTs matters. This is the case with SMEs in Lusaka as revealed in the study. Most SMEs projected the same barriers as those highlighted by Lucchetti and Sterlacchini (2004).

5.5 Key ICTs adoption attributes

The study revealed that the majority (91.1%) of the respondents acknowledged the importance of the adoption and use of ICTs in their businesses. It is therefore important to highlight their adoption and use attributes. The diffusion theory (Rodgers, 1995), highlights five categories of adopters. The study revealed most of the companies were not innovators or risk takers as the majority (55.6%) of them adopted ICTs after seeing others and only 44.6% were early adopters, early majority or late majority. The study further revealed that about 72.2% of the SMEs had no ICT innovations and about 64.8% were not aware of any long term plans to embrace ICTs in their operations. This was due to the fact that most SMEs the Road passenger transport sector in Zambia approach innovations cautiously and wait to make sure that the adoption is in their best interests. As a result, they do not adopt until most others have done so. Such traits are prominent in Zambia. This is in line with what Al Nahian et al (2009) found out in a study on the Adoption of E-banking in developing countries that for ICTs to have a significant impact on the overall developmental process, its diffusion within the society and economy must achieve a ‘critical mass’ level in terms of coverage, institutional adaptation and ‘learning by doing’ before widespread developmental gains become achievable and observable within the society and economy at large. As the study revealed, the spread of ICTs in Zambian SMEs in the Road passenger transport sector is not that significant to influence the overall development process in Zambia.

SMEs in Zambia are usually limited by the internal skills, outsourcing is one important solution to bridge this gap. However, the study revealed that most SMEs did not outsource (55.6%) and only 44.4 did that. These finding are similar to those by European Commission (2008 B) study on the adoption and implications of information and communication technology (ICT) and e-business activity in the transport and logistics services industry (TLS) which revealed that only 8% of all

enterprises actually employ ICT practitioners (most of the small companies cannot do so). The percentage is higher among medium (33%) and large companies (66%). 45% of companies said in the survey that they had outsourced ICT services to external service providers in the past 12 months prior to the interview. Furthermore, the study by Zhelyazkov (2012) on the impact of ICT systems on Road transport SMEs in Australia revealed that while large companies can either develop or buy off the- shelf such an ICT system, most SMEs do not have the resources to buy and maintain such a system. This shows that despite SMEs being reluctant in outsourcing and building ICT capacity in their companies to enhance their operations bigger ones are more advantaged.

The study also revealed that the size of the company has an impact on the adoption and use of ICTs. This is in line with what was highlighted by Alessandro, Sara and Riccardo, (2011), in their study on "ICT for logistics and freight transportation: a literature review and research agenda", which revealed that there is a relationship between company features and ICT adoption, they point out company size as a crucial variable to assess ICT adoption (i.e. the bigger the company, the higher the implementation of ICTs). The study revealed that the larger logistics companies are progressively experiencing a higher level of ICT adoption, whereas many of the smaller haulage operators (i.e. smaller operators that run fewer than 11 vehicles) stick to more traditional communication and process systems. This shows that it is not only in Zambia where SMEs are not as proactive in adopting and using ICTs as the big companies.

5.6 Impact of ICTs literacy on the adoption and use of ICTs

The literature has revealed that ICTs literacy is very important in determining the adoption and use of ICTs. Lucchetti and Sterlacchini (2004) carried out a study on factors affecting the adoption of ICTs among SMEs in Italy and their study revealed that educational qualifications may have an impact on the level of ICTs adoption and usage in an SME. This study revealed that ICTs literacy

level were high on common ICTs like phones, TVs and at above 88.9% and that ICTs that require formal training like computers, internet and fax were low at about 51%, 37% and 16.7% respectively. These results affirm the fact that most employees in these SMEs were not adequately ICTs literate to appreciate their importance in their businesses.

As Dzidonu (2010) noted that although not a panacea for all development problems, ICTs serving as powerful tools can, when used appropriately as part of an overall development strategy play a key role in the development process. The internet is an important tool in any organisation in this modern era. Bwalya (2010) observed that one of the factors contributing to low usage of the Internet in Zambia is illiteracy. The majority of Zambians cannot read or write. Even if they have access to the Internet, they will not be able to read the web contents. Computer illiteracy is another factor contributing to low usage of the Internet in Zambia. Many people in Zambia do not know how to use a computer (Bwalya, 2010). There is also the issue of technological phobia. In a similar manner the study revealed that the number of people who could surf the internet was slightly above average at 51.9 %. This could be attributed to lack of ICT training in most SMEs in Lusaka as only 22.2% had received training in the past. This therefore brought about inefficiencies in service delivery by the SMEs. This is despite the study revealing that the majority of people in these SMEs at least agreed that ICTs are important in any business. The situation is not different in Zambia as observed by Wolf (2001) that despite the large proportion of employment opportunities provided by SMEs in South Africa, they face several barriers such as lack of access to information, lack of financing, technical support and expertise, low levels of education and business skills amongst entrepreneurs, limited research on SMEs sector, poor regulatory framework, lack of a comprehensive entrepreneurial strategy, lack of visibility of small businesses, lack of access to technology, vulnerability to cash flow disruptions, unfavourable tax regime(e.g. VAT, skills levy),

inability of government to communicate what incentives are available for emerging entrepreneurs and where to go for assistance.

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

6.1 Overview

This research set out to investigate the adoption and use of ICTs in SMEs in the Road passenger transport sector in Lusaka, Zambia, a case of Bus Operators at Lusaka Intercity Bus Terminal. This chapter concludes the study and also makes recommendations based on the major findings of the study.

6.2 Conclusion

The study established that ICT adoption and use in SMEs in the Road passenger transport sector was at low levels with common ICTs being in the majority. ICTs like phones and TVs which require less training were prominent while highly interactive ICTs like Websites which require some training was lowest.

It is clear from the study that there are a number of factors that foster the adoption and use of ICTs in SMEs in the Road passenger transport sector in Lusaka, Zambia. The inhibitors revealed include lack of infrastructure, lack of money to purchase ICTs, high ICT illiteracy levels among the employees etc. The study revealed that most Bus operators adopt ICTs in order to offer faster and better services. The customers need efficient services and Bus operators are compelled to adopt ICTs so that they stay ahead in competition. Another important factor revealed in this study as fostering the adoption and use of ICTs by Bus operators is personal communication. Most Bus operators identified communication as the main reason they used ICTs.

The study noted that lack of awareness among Bus operators and customers about the importance of ICTs in promoting business and meeting the needs of the customers was one outstanding barrier. This lack of awareness has led to low adoption rates and inadequate use of ICTs. The usage of ICTs is dependent on the fact that the customers on the other end also have the ICTs. Another, prominent barrier revealed in this study was lack of infrastructure to support the use of ICTs. The hardware and software needed to facilitate the adoption and use of these ICTs by Bus operators is costly and funds are unavailable for such investments. The need for computers, printers and network connectivity were lacking in most SMEs to facilitate the adoption and use of ICTs. Monetary costs involved in implementation were also highlighted as barriers. ICTs installation and continuation use of ICTs require the services of trained personnel. This in turn becomes a cost to SMEs.

Management support was also revealed as a barrier to the successful usage and adoption of ICTs by Bus operators. Most respondents in the study felt that management support was lacking in this area. Most of the owners of these companies were not eager to adopt and use ICTs. This could be due to the fact that they were uncertainty on returns. Most Bus operators are in the late majority category as they only adopted and started using innovation after ascertaining the profitability and persuasion from others. They are not risk taker, they wait for others to lead the way and only adopt when they are sure. Lack of internal skills was also identified as a barrier in the adoption and use of ICTs. The majority of the people found in these SMEs were not competent enough to handle ICTs to the benefit of the SMEs and the users at large. It is however unfortunate, that most Bus operators as revealed in this study did not out sourcing even when they did not have the required expertise. There is need to spend substantial amount of time to implement these projects and most Bus operators stated that they lacked time to implement such projects.

The study also revealed that despite some ICTs being present in these SMEs (Bus operators) at different levels, their usage was inadequate. It can be deduced from this study that Bus operators focused much on common ICTs such as phones, radios and TV as compared to other highly interactive ICTs such as computers and internet. Bus operators have similar traits in terms of how they adopt and use these ICTs. Their bias towards some ICTs over others was prominent in all companies.

The study further revealed that Bus Operators had difficulties in adopting and using ICTs because of their lack of ICT literacy. It was revealed that ICT illiteracy negatively affected the adoption and use of ICTs by Bus Operators despite them having a positive attitude towards ICTs. In light of these findings, recommendations were made as below.

6.3 Recommendations

This study has, undoubtedly given insights on the adoption and use of ICTs by SMEs in the Road passenger transport sector in Lusaka, Zambia. The recommendations arising from this study are on five areas including ICTs existence among SMEs, ICTs levels of usage as well as what should be done to reduce the barriers of adoption and usage of ICTs by SMEs. Finally, recommendations for further research was be made.

1. Since ICTs play an important role in the development process of any community and offer employment to the majority of the population, government must endeavour to make ICTs more accessible by having meaningful tax exemption on all ICTs equipment not just a few like Computers.

2. Awareness must be made amongst Bus operators on the benefits of using ICTs in their businesses as the study revealed that they mostly used it for personal communication and not business. This can be done by coming up with activities that show the importance of ICTs in business and having the right content for particular groups.
3. Policy makers in government and the informal sector must engage the owners of Bus companies in coming up with strategies to embrace ICTs.
4. ICTs specialists should in view of the research results design systems that will make it easy for people to adopt and use ICTs specifically for low income earners like Bus operators. This can be done by coming up with more user friendly computer interfaces and integration of local languages. This will make it easy for people with low ICT literacy to effectively use ICTs.
5. Bus company owners should be encouraged to give importance to the adoption and use of ICTs by investing in ICTs infrastructure to facilitate the provision of ICTs services to their customers.
6. Bus operators should intensify the training of their employees as the study revealed that most of the employees were unable to use ICTs due to lack of training.
7. There must be a deliberate programme to bring about awareness on how ICTs can be beneficial to different societies especially those engaged in the business sector and their potential customers.

Implications for further Research

Because of the vast nature of the topic studied one cannot hope to deal exhaustively with it in a single study such as this. In view of this, the following should be considered for future studies: The study was limited to SMEs in the Road passenger transport operators at

Intercity in Lusaka, Zambia. Hence, there is need to study other SMEs in other sectors in Zambia. The study only focussed on Bus operators at Intercity Bus Terminal and did not consider other areas outside Lusaka, future research can be done in other areas to compare the findings.

REFERENCES

- Abwao, K. (2007). *Zambian ICT policy 'fails to address key issues*. Retrieved from www.scidev.net/en/news/zambian-ict-po... Accessed on 30th March, 2011.
- Alessandro. P, Sara. P, Riccardo. M, (2011). "ICT for logistics and freight transportation: a literature review and research agenda". *International Journal of Physical Distribution & Logistics Management*, Vol. 41 Iss: 5 pp. 457 – 483. Retrieved from <http://dx.doi.org/10.1108/09600031111138826>, accessed on: 29th November, 2012.
- Al Nahian, M., Shahriar, A and Nayeema. I (2009). "The Adoption of E-banking in Developing Countries: A Theoretical Model for SMEs." *International Review of Business Research Papers*, Vol. 5 No. 6 November 2009, Pp.212-230.
- Hidalgo.A and Albors. J (2010). **The drivers of ICT adoption in transport and logistics services: an approach from the SCP model**, "4th International Conference on Industrial Engineering and Industrial Management", XIV Congreso de Ingeniería de Organización Donostia- San Sebastián , September 8th -10th 2010
- Baldauf, K. and Stair, R. (2009). **Succeeding with technology: Computer systems and concepts for real life**. UK: CTCL
- Banda, C., Mutula, S. M., and Grand, B. (2004). "Information needs assessments for small scale business community in Zambia" *Malaysian Journal of Library and Information Science*, 9(2), pp95-108
- Beyene, A. (2002). "Enhancing the Competitiveness and Productivity of Small and Medium Scale Enterprises (SMEs) in Africa: An Analysis of Differential Roles of National Governments through Improved Support Services". *African Development Journal* Vol. xxxii, No. 3 &4, pp 130-156
- Brychan, T. (2003). *A model of diffusion of technology in SMEs*. Retrieved from <http://www.sbaer.uca.edu/research/1999/ICSB/99ics224.htm>. Accessed on 24th April, 2011.
- Bwalya, T. (2010). "Zambia to Become an Information Society by 2015: A Reality Check". *Chinese Librarianship: an International Electronic Journal*, 29. URL: <http://www.iclc.us/cliej/cl29bwalya.htm>. Accessed on 23rd march, 2011.
- Central Statistics Office (CSO) (2005) **Labour Force Survey (LFS)**. Lusaka: CSO

- Central Statistics Office (CSO) (2007) **Living Conditions Monitoring Survey Report 2004**. Lusaka: CSO
- Chacko. J. G. and Harris. G. (2011). *ICT and Small, Medium and Micro Enterprises in Asia Pacific - Size Does Matter*. Retrieved from <http://cyber.law.harvard.edu/wsis/Article2.html> , Accessed on 3rd April, 2011.
- Chiware, E.T., and Dick, A. L. (2008). “Information needs and seeking patterns of SMMEs in Namibia”. *Information Development*, 24 (1) 24-36
- Cruz. L, Barata. E, Ferreira. J (2012). "Performance in urban public transport systems: a critical analysis of the Portuguese case", *International Journal of Productivity and Performance Management*, Vol. 61 Iss: 7 pp. 730 - 751
Retrieved from <http://dx.doi.org/10.1108/17410401211263836>, accessed on: 29-11-2012
- Dholakia, N. and Kshetri, N. (2003). “Internet diffusion”. *The Internet Encyclopaedia*. New York: Wiley
- Dzidonu, C. (2010). *An analysis of the role of ICTs to achieving the MDGs*. From <http://www.ait.edu.gh>, Accessed on 25th march, 2011.
- Esselaar, Stork, Ndiwalana, Deen-Swararray. (2008). “ICT Usage and Its Impact on Profitability of SMEs in 13 African Countries”. *Information Technologies and international development*, Vol.4, No. 1.
- European Commission. (2008 A). **e-business systems and activities of ALSA, Spain**. From <http://ec.europa.eu/enterprise/archive/e-business-watch/studies/case-studies/documents/case%20studies%202008/CSO8 Transport ALSA.pdf>, Accessed on 3rd December, 2012.
- European Commission. (2008 B). **The adoption and implications of information and communication technology (ICT) and e-business activity in the transport and logistics services industry (TLS)**. Retrieved from http://ec.europa.eu/enterprise/archive/e-business-watch/studies/sectors/transport_services/transport_services.htm, Accessed on 3rd December, 2012.

- European Commission. (2011). *Small and medium-sized enterprises (SMEs)*. From http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/sme-definition/index_en.htm, Accessed on 21st march, 2011.
- Faha, C., and Nana, K. (2011). *Robust estimation of ICTs effects on Cameroonian firm's productivity*. Retrieved from www.uneca.org/rcid/documents/Macro_24nov08/robust_, Accessed on 23rd February, 2011.
- Harindranath, G. Dyerson, R and Barnes, D. (2005). **ICTs in small firms: Factors affecting the adoption and use of ICTs in Southeast England SMES**. London: Egham, Surrey TW20 0EX.
- Jose, E. A. Marcel, P and Joan, M. B. (2007). "Does Internet technology improve performance in Small and Medium Enterprises? Evidence from selected Mexican firms." *Academia. Revista, Latinoamericana de administracion*, junio, numero 039. Pp71-91. Retrieved from <http://revistaacademia.cladea.org>_Accessed on 12th March, 2011
- Jose, E., Marcel, P and Batista, J. (2007). *The effects of the Internet use on the performance of SMEs*. From <http://redalyc.uaemex.mx>. Accessed on 15th April, 2011.
- Kabanda, G. (2011). "The impact of Information and Communication Technologies (ICTs) on Millennium Development Goals (MDGs): Context for diffusion and adoption of ICT innovations in East and Southern Africa". *Journal of African Studies and Development Vol. 3(8), pp. 154-170*.
- Levy, M., Powell, P. and Yetton, P. (2002), "The Dynamics of SMEs Information Systems", *Small Business Economics*, Vol. 19, pp 1341-354
- Lucchetti, R., and Sterlacchini, A. (2004). "The adoption of ICTs among SMEs: Evidence from an Italian Survey", *Small Business Economics*, 23, pp151-168
- Machacha, L. (2002). "Impact of Information technology on small and medium enterprises (SMEs) in Botswana". *Proceedings of International Conference*, Port Elizabeth, South Africa, April 3-5, 2002, pp277-282.

- Macharia, J. and Nyakwende, E. (2009) “the factors affecting the adoption and diffusion of Internet in higher educational institutions in Kenya”. *Journal of language, technology and entrepreneurship in Africa*, Vol.1, No.2.
- Ministry of Commerce and Trade (2005). **Zambia Review: Visit Zambia in 2005**. Lusaka, Publishers of Zambia
- Ministry of Commerce and Trade. (2007). **ICTs to accelerate job and wealth creation**. Lusaka: Ministry of Commerce and Trade
- Mpofu K.C, Milne. D and Watkins-Mathys. L (2012). **ICT Adoption and Development of E-business among SMEs in South Africa**, Buckinghamshire; Buckinghamshire New University
- Mutula, S. M. and Brakel, V. (2006) "E-readiness of SMEs in the ICT sector in Botswana with respect to information access", *Electronic Library, the*, Vol. 24 Iss: 3, pp.402 – 417
- Mwenechanya, S.K. (2007). **Legal empowerment of the poor: Empowering informal businesses in Zambia**. *UNDP – Commission on Legal Empowerment of the poor*: An issue paper. Lusaka: UNDP.
- NRFA (Zambia) (2012). **Road maintenance**
- Retrieved from <http://www.nrfa.org.zm>. Accessed on 2nd December, 2012.
- OECD (2004). **ICTs, E-business and SMEs: BRoadband driving growth**. Paris Cedex: OECD, 2 rue André Pascal,
- Pavic, S., Koh, S.C.L., Simpson, M. and Padmore, J. (2007). “Could E-business create a competitive advantage in UK SMEs? Benchmarking”, *An International Journal* 14 (3), 320-351
- Rodgers, E. M. (1995). **Diffusion of Innovations**, (4th Ed.) New York: Free Press
- Russell, S. (2010). *The impact of ICTs on SMEs - A motor for future economic growth in hard-pressed times*. *Issue no 192* . Retrieved from <http://www.balancingact-africa.com/news/en/issue-no-192/top-story/the-impact-of-ict-on/en>, Accessed on 17th April, 2011.

- Saunders, M., Lewis, P., and Thornhill, A. (2007). **Research methods for business students**. 4th ed. Harlow: Prentice-Hall Financial Times
- Skoko, H and Ceric, A. (2007). *Study on Information and Communication Technology (ICT) Models of Adoption and Use in the Kingdom of Saudi Arabian SMEs*. <http://www.webpages.uidaho.edu>, Accessed on 25th march, 2011.
- Southwood, R. (2004). "ICTs and small enterprises: A motor of economic development in Africa", *IICD Research Briefs*, 9, The Hague.
- Swedish International Development Cooperation Agency (SIDA) (2002) *ICT survey in Zambia*, from <http://www.sida.se/>, accessed on 27th February, 2010.
- Syed S. A. and Noor, M. K.M. (2009). "ICTs Adoption in Small and Medium Enterprises: an Empirical Evidence of Service Sectors in Malaysia", *International Journal of Business and Management*. Vol. 4, No. 2. From www.ccsenet.org/journal.html , Accessed on 25th march, 2011.
- Tahir, M., Mahmood, K. and Shafique, F. (2008). *Information needs and information-seeking behaviour of arts and humanities teachers: A survey of the University of Punjab, lashore, Pakistan*. Retrieved from <http://www.webpages.uidaho.edu>, accessed on, 27th march, 2011.
- United Nations Conference on Trade and Development (UNCTAD). (2006). *ICTs in Africa: Challenges and opportunities*. Available : www.unctad.org, accessed on 12th April, 2011.
- United Nations Economic and Social Council (UNESCO) (2009). **Africa Review Report on Transport** .Addis Ababa, UNECA
- Virginia, B., Maria, M. and Ana, I. J. (2007). "Drivers, Benefits and Challenges of ICTs Adoption by Small and Medium Sized Enterprises (SMEs): A Literature Review", *Problems and Perspectives in Management / Volume 5, Issue 1*.
- Wolcott, P., Kamal, M. and Qureshi, S. (2008). "Meeting the challenges of ICT adoption by micro-enterprise". *Journal of Development*, Vol. 8, No. 1 Available: <http://www.academicjournals.org/JASD>, Accessed on 23rd April, 2012.
- Wole, O and Busola, B (2011). " Factors Influencing Electronic Business Technologies Adoption

and Use by Small and Medium Scale Enterprises (SMES) in a Nigerian Municipality”. *Journal of Internet Banking and Commerce*, December 2011, vol. 16, no.3. Retrieved from (<http://www.arraydev.com/commerce/jibc/>). Accessed on 3rd December, 2012.

Wolf, S. (2001). “Determinants and impact of ICT use for African SMEs: Implications for Rural South Africa”. *Centre for Development Research (ZEF, Bonn)*, Bonn University, TIPS (Trade and Industrial Policy Strategies), Annual Forum.

World Bank. (2006). *The role of ICTs in doing business: ICTs usage and its impact on profitability of SMEs in 14 African countries*. Washington, DC: World Bank.

Wu, J. (2002). *Business intelligence: analytical applications: relevant information for decision making purposes*. Retrieved from http://www.dmreview.com/article-_sub.cfm?ArticleId=5053, on 25th March, 2011.

Wymer, S. A. and Regan, E. A. (2005). **Factors influencing e-commerce adoption and use by Small and Medium business**. New York: McGraw hill.

ZARI (2010). **Development of an effective Information flow system –Zambia**. Lusaka: ZARI

Zhelyazkov . G. I. (2012). **The impact of ICT systems on Road transport SMEs in Australia**, Glasgow: Strathclyde University Glasgow

My name is Munsanje Nchimunya, I am a master of Library and Information Science student at the University of Zambia carrying out a research on the adoption and usage of ICTs by road passenger transport SMEs in Lusaka. You have been randomly selected to participate in this research. The findings of this research are purely for academic purposes. Be assured that your responses will be treated with utmost confidentiality. Nothing that can reveal your identity will be published. Respond as sincere as possible. Write or tick appropriate responses in the spaces provided.

1. Gender.....
2. Job title.....
3. Academic Qualification.....
4. Age.....
5. Approximate size of company?
 - A. Below 10
 - B. 11-49
 - C. 50 and above

10

10

6. Name of the organization/company.....

7. Do you have any of the following ICTs in your business? (Tick as apply)

A. Computer

B. Internet

C. Phone

D. TV

E. Radio

F. Fax

8. Do you have ICTs in your offices?

10

9. Does the company have its own website?

2

10

FACTORS THAT ENABLE OR INHIBIT THE SUCCESSFUL ADOPTION AND USE OF ICTs BY BUS OPERATORS IN LUSAKA.

10. Are you willing as a company to pay for the following ICTs? (Tick as apply)

A. Internet	<input type="checkbox"/>	<input type="checkbox"/>
B. Printers	<input type="checkbox"/>	<input type="checkbox"/>
C. Computers	<input type="checkbox"/>	<input type="checkbox"/>
D. VCR	<input type="checkbox"/>	<input type="checkbox"/>
E. TV	<input type="checkbox"/>	<input type="checkbox"/>
F. Radio cassette recorder	<input type="checkbox"/>	<input type="checkbox"/>
G. Radio	<input type="checkbox"/>	<input type="checkbox"/>

11. Which ones of the following reasons can you attribute to the adoption and usage of ICTs in your company? (Tick as apply)

A. To provide faster and better services.	<input type="checkbox"/>	<input type="checkbox"/>
B. To stay ahead in competition.	<input type="checkbox"/>	<input type="checkbox"/>
C. Because others did	<input type="checkbox"/>	<input type="checkbox"/>
D. Others	<input type="checkbox"/>	<input type="checkbox"/>
specify.....		<input type="checkbox"/>

12. Which ones of the following do you consider as the main barriers to the adoption and usage of ICTs in your company? (Tick as apply)

A. Monetary costs of implementation.	<input type="checkbox"/>	<input type="checkbox"/>
B. Time to implement ICTs project.	<input type="checkbox"/>	<input type="checkbox"/>
C. Lack of necessary internal skills	<input type="checkbox"/>	<input type="checkbox"/>
D. Uncertainty about retains on investments	<input type="checkbox"/>	<input type="checkbox"/>
E. Lack of relevant technology.	<input type="checkbox"/>	<input type="checkbox"/>
F. Lack of Top management support/direction/ planning.	<input type="checkbox"/>	<input type="checkbox"/>

INFORMATION ON BUS OPERATORS IN LUSAKA MAKING ADEQUATE USE OF ICTs

13. Do you use any of the following in your company for business? (Tick as apply)

A. Computer	<input type="checkbox"/>	<input type="checkbox"/>
B. Internet	<input type="checkbox"/>	<input type="checkbox"/>

C. Phone	<input type="checkbox"/>	<input type="checkbox"/>
D. TV	<input type="checkbox"/>	<input type="checkbox"/>
E. Radio	<input type="checkbox"/>	<input type="checkbox"/>
F. Fax	<input type="checkbox"/>	<input type="checkbox"/>
14. What do you usually use ICTs for? (Tick as apply)		
A. Entertainment	<input type="checkbox"/>	<input type="checkbox"/>
B. Business	<input type="checkbox"/>	<input type="checkbox"/>
C. Advertising	<input type="checkbox"/>	<input type="checkbox"/>
D. Personal Communication	<input type="checkbox"/>	<input type="checkbox"/>
E. Others specify.....		<input type="checkbox"/>
15. Which ones of the following are your preferred methods of advertising your products and services as a company? (Tick as apply)		
A. Through newspapers	<input type="checkbox"/>	<input type="checkbox"/>
B. Through Radios	<input type="checkbox"/>	<input type="checkbox"/>
C. Through the internet	<input type="checkbox"/>	<input type="checkbox"/>
D. Fliers	<input type="checkbox"/>	<input type="checkbox"/>
E. Others specify.....		<input type="checkbox"/>
16. Do consumers use those ICTs to interact with you for business purposes?		
A. Yes	<input type="checkbox"/>	<input type="checkbox"/>
B. No	<input type="checkbox"/>	<input type="checkbox"/>
17. Do you think ICTs are adequately used in your company?		
A. Yes	<input type="checkbox"/>	<input type="checkbox"/>
B. No	<input type="checkbox"/>	<input type="checkbox"/>
18. What do you think is the most prominent reason for customers not fully using the ICT services in your company offer?		
A. Illiteracy	<input type="checkbox"/>	<input type="checkbox"/>
B. Lack of knowledge	<input type="checkbox"/>	<input type="checkbox"/>
C. Lack of ICTs	<input type="checkbox"/>	<input type="checkbox"/>
D. Others specify.....		<input type="checkbox"/>

INFORMATION ON THE KEY ICTs ADOPTION ATTRIBUTES IN SMEs (BUS OPERATORS) IN ZAMBIA

19. ICTs are an important tool in the proper running of any organization in this modern era.	<input type="checkbox"/>	<input type="checkbox"/>
A. Strongly Agree	<input type="checkbox"/>	<input type="checkbox"/>
B. Agree	<input type="checkbox"/>	<input type="checkbox"/>
C. Not sure	<input type="checkbox"/>	<input type="checkbox"/>
D. Disagree	<input type="checkbox"/>	<input type="checkbox"/>

20. Did you adopt ICTs after seeing other bus companies within your area of operation?

A. Yes

B. No

☐
☐

21. Do you know of any innovation done by your company in terms of ICT usage?

A. Yes

B. No

☐
☐

22. Are you aware of any long term plans for ICT adoption and usage in your company?

A. Yes

B. No

☐
☐

23. In cases where some ICT skills are required but not available internally, have you ever outsourced?

A. Yes

B. No

☐
☐

THE IMPACT OF ICT LITERACY ON THE ADOPTION AND USE OF ICTs BY BUS OPERATORS IN LUSAKA.

24. Which of the following ICTs can you competently use? (Tick as apply)

A. Computer

B. Internet

C. Phone

D. TV

E. Radio

F. Fax

☐
☐
☐
☐
☐
☐

25. Do you know how to surf or browse the internet?

A. Yes

B. No

☐
☐

26. Have you ever received any ICT training in the past?		
A. Yes	<input type="checkbox"/>	<input type="text"/>
B. No	<input type="checkbox"/>	
27. Do you feel your ICT competence is adequate to effectively carry out your ICTs related tasks?		
A. Yes	<input type="checkbox"/>	<input type="text"/>
B. No	<input type="checkbox"/>	
28. In view of your competence levels in handling ICTs, do you support the adoption and use of ICTs in your company?		
A. Yes	<input type="checkbox"/>	<input type="text"/>
B. No	<input type="checkbox"/>	
29. Do you think your supervisor's capability to use ICTs is the reason for the adoption of ICTs or lack it?		
A. Yes	<input type="checkbox"/>	<input type="text"/>
B. No	<input type="checkbox"/>	
30. Which ones of the following would you recommend to improve the operations of your business(Tick as apply)		
A. Government should cushion the purchase of ICTs	<input type="checkbox"/>	<input type="text"/>
B. ICT training to be an ongoing activity to improve competence levels	<input type="checkbox"/>	<input type="text"/>
C. Users sensitization on the usage of ICTs should be increased	<input type="checkbox"/>	<input type="text"/>
D. The cost of accessing ICT services should be reduced and SMEs should engage in cost sharing ventures	<input type="checkbox"/>	<input type="text"/>

THE END

THANK YOU FOR YOUR SUPPORT

