THE IMPLICATIONS OF INTEGRATING SMART MOBILE PHONE APPLICATIONS ON SMALL AND MEDIUM ENTERPRISES (SMES) IN KENYA - A CASE OF MOBILE USAGE IN NAIROBI REGION

BY

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DECLARATION

I hereby declare that this research project is my original work and has not been presented to any other examination body.

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Signature.....

Date.....20/11/2012

This Thesis has been submitted for examination with my approval on behalf of School of Journalism, University of Nairobi.

Ms. Martina Mulwa

Signature.....

Date.....23/11/12.

DEDICATION

To the Almighty God,

To Mum and Dad,

ACKNOWLEDGEMENT

My sincere gratitude goes to my supervisor, Ms. Martina Mulwa, who provided thoughtful insights, guidance, and support through the life of this thesis. God bless her.

I wish to sincerely express my gratitude and appreciation to the University of Nairobi, School of journalism lecturers, and support staff (especially Chris and Isaac) for their support and resources that made this project a reality.

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Abstract

The high costs of running businesses in Kenya emanating from high rates of marketing, communications and advertising hinders business growth and scares away SMEs potential investors. Traditional methods of increasing visibility through the various media have proved to be expensive hence the need to adopt a cost-friendly, efficient and effective way of communications and running businesses. This gap experienced by SMEs can be easily bridged by the adoption of modern Information communication technologies (ICTS). Modern ICTs open up the market information services to improve information delivery through smart applications on mobile devices. The array of mobile applications now available have been designed to help reduce costs, keep employees connected, as well as improving quality of service to customers.

This increasing array of mobile applications can help to turn the mobile phone from a mere communication device into a vital tool for any business because of its ubiquitous nature, making the cost of doing business go down hence increasing efficiency and effectiveness. The study aims to explore how the synergy between smart mobile applications and the traditional methods of communication can work in transforming an Enterprise.

TABLE OF CONTENTS

DECLARATION ii
DEDICATION iii
ACKNOWLEDGEMENT iv
Abstract v
1.1. Introduction 1
1.2 Background of the study. 2
1.3 Problem Statement 3
1.4 Purpose statement 3
1.5 Specific Objectives of the study 3
1.6 Significance and Justification of the study 3
1.7 Scope, Limitations and Assumptions of the study 4
1.8 Dissemination strategy 4
1.9 Operational definition of Key terms 5
CHAPTER TWO 6
LITERATURE REVIEW 6
2.1 Introduction 6
2.3 Tracing down the Mobile Services Evolution 7
2.4 Features, Functionalities and Benefits of Smartphones 8
2.5 The Proliferation of Smartphones and the Growth of Internet Connectivity 13
2.6 Use of smart applications by SMEs in the US 20
2.7 Boosting SMEs with Mobile Enterprise Applications Solution in Nigeria 21
2.8 Useful applications available for Smartphones in Kenya 22
2.9 Theoretical Framework 23
2.9.1 Factors impacting the adoption of Smart mobile applications 23
2.9.2 Diffusion of innovations Model 24
2.9.3 The characteristics of user of Smartphones 27
2.9.4 Conclusion 28
CHAPTER THREE 29
RESEARCH DESIGN AND METHODOLOGY 29
3.1 Introduction 29

3.2 Research design 29
3.3 Population of the study 29
3.4 Sample Size and Sampling Procedure. 30
3.5 Data collection procedures 31
3.5.1 Direct interviews 31
3.5.2 Secondary Data Analysis 32
3.5.3 Experience Interview Analysis 32
3.6 Data analysis and presentation 32
CHAPTER FOUR 34
DATA ANALYSIS, PRESENTATION AND INTERPRETATION 34
4.1 DATA ANALYSIS 34
4.1.1 Key Functionalities of Smartphones 35
4.1.2 Key Functionalities of Smartphone 39
4.1.3 Comparison of Smartphones with Traditional Methods of Communications and Marketing ..40
4.1.3 Actual Usage of Smartphones by SMES in Nairobi Region 42
4. 2 DATA INTEPRETATION 46
4.3.1 Smartphone usage 48
4.3.3 Business applications 49
CHAPTER 5 51
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS 51
5.0 INTRODUCTION 51
5.1 SUMMARY OF FINDINGS 51
5.1.1 KEY FEATURES AND FUNCTIONALITY OF SMARTPHONES 51
5.1.2 COMPARISON OF TRADITIONAL METHODS OF COMMUNICATION WITH SMARTPHONE POWERED APPLICATIONS 53
5.1.3 ACTUAL USAGE OF SMART APPLICATIONS IN THE OPERATIONS OF SMES IN NAIROBI REGION 55
5.1.4 SMART WAYS OF USE OF THE SMARTPHONE APPLICATIONS TO SMES IN KENYA 58
5.2 CONCLUSIONS 59
5.3 RECOMMENDATIONS 65
5.3.1 Enhancing the use of Smart Applications by Kenyan SMEs 66
REFERENCES 69

APPENDICES 77
APPENDIX 1: SAMPLING FRAME 77
APPENDIX 2: INTRODUCTION LETTER 79
APPENDIX 3: INTERVIEW PROTOCOL FOR EXPERTS 80
APPENDIX 4: INTERVIEW SCHEDULE 82

CHAPTER ONE: INTRODUCTION

1.1. Introduction

ICT applications have made some countries in the west make improvements in both productivity and quality in Agriculture, manufacturing, infrastructure, communication, health, education and other sectors of a countries' economy. The upgrading of the ICT sector in Kenya has played a significant role and still has a large untapped potential to generate additional jobs and employment opportunities to a growing youthful population. The national ICT policy and strategy for 2006 lays emphasis on the development, deployment and exploitation of ICTS to aid the development of other sectors of the economy. This will provide a basis for facilitating growth on other areas of the economy like SMEs and a social-economic development of the country in a globalization era dominated by information and knowledge based economies. Other sectors have a high reliance on ICTs.

The increased cost of running businesses in Kenya and the increased need for efficiency and competition has forced SMEs to adopt better, cheaper and adept means of running their businesses. With the high cost of communication and advertising in the mainstream media, and the complexity and cost of both internal and external communication in the process of business, these SMEs have encountered a need for an efficient, effective and cost friendly way of increasing the consumer information and brand visibility. An - ever increasing array of smart mobile applications can help to turn the mobile phone from a simple communication device into a vital tool for any business on the move, helping to meet customer demands reducing operating costs simultaneously. If well harnessed the increased presence of Smartphone can make the cost of doing business go down. Therefore, the mobile phone is no longer just a way for business people to communicate with one another but has become a business tool in itself.

Despite the long associations with businesses, Smart phones have only recently started to take advantage of their potential as handy business tools hence the reason for the study to sensitize SMEs on the untapped potential. Cheap and multi-tasking mobile phones, with fast, more cost-efficient data connections has made the mobile a mainstream business tool and altered the

way many businesses operate. To be adopted as a business tool standard, a mobile phone needs to offer a range of efficient on-the-move applications.

The changing environment in business calls for putting Smartphones in the hands of on-the-go workers to provide access to the tools and information needed to conduct business anywhere and anytime. Through the power of mobility, SMEs across industries are improving the speed of business and customer satisfaction levels while reducing the cost of doing business.

1.2 Background of the study.

The internet connectivity and the penetration of wireless Communications in Kenya is expected to grow in the years to come. With the acceptance that internet is a powerful tool for e-commerce, most luxury brands have come to accept that social media and other applications provide an opportunity for a new kind of brand engagement, along comes another technological wave that will feed the ongoing digital revolution. This is the adoption of Mobile Phone Applications. This brings together the two fast growing technologies the Mobile Phone and the Internet.

According to Internet analyst Mary Meeker of Morgan Stanley, more users will likely connect to the Internet via mobile devices than desktop PCs in the near future. This is a sign for growing business brands and as consumers continue to migrate to Smart mobile devices, the question is 'how does this change the dynamics for operating business and communication in the mobile space? '

Mobile commerce is expected to grow beyond the previous e-commerce and Smartphone adoption to overtake that of the laptop and desktop computer 'Dinesh Moorjani, Senior Vice President of Mobile at IAC, USA.'

In short, access to a mobile phone is no longer a luxury today but a necessity and a driver of growth for developing businesses.

1.3 Problem Statement

The increased competition for the market share has called for an increased brand visibility for SMEs products. Traditional methods of advertising, communications and business operations in Kenya have been a challenge to SMEs because of the associated costs, in-efficiency and lack of effectiveness hence hindering growth. This led to a need to search for a suitable, cost effective and efficient alternative marketing and communication channel to reach their internal and external customers.

1.4 Purpose statement

The purpose of this study was to examine the effect of Mobile Applications in SMEs by seeking an in-depth understanding of usage with the aim of ascertaining the suitability of adopting Smartphones by SMEs for business growth in Kenya.

1.5 Specific Objectives of the study

- To determine the key features and functionalities of Smartphones
- To compare the traditional methods of communication with Smartphone - powered communication Applications
- To establish actual usage of Smart Applications in the operations of SMEs in Nairobi.
- Recommend to SMEs, effective ways to use Smartphones in Kenya in - order to enhance their Growth.

1.6 Significance and Justification of the study

a) The study helps in demystifying the traditional methods of advertising and co-operate communication as the only source of brand visibility and customer communication for SMEs in Kenya. It gives SMEs struggling with their operations budget a relief as mobile handhelds communication offers a unique, cost friendly and an effective way of running their business.

b) This study gives insights to Struggling SMEs on effective ways to position their enterprises. This will see increased growth of SMEs from decreased communication budget and increased visibility of their brand, therefore bridging the digital divide. The growth of SMEs as a result of adopting the state-of the art Mobile applications will boost the country's economy through the increase in GDP.

c) Manufactures of Smartphones and Mobile Application/Cellular Network providers will experience increased revenue owing to increased use of Smartphones and consumption of Mobile Applications and data through the increased use of Smartphones.

d) This study helps to lay a basis for subsequent researches owing to the lack of existing literature in the Field of Smart Mobile apps for business in the countries. This is a foundation for scholars who want to advance studies on smart mobile phone applications usage for business growth.

1.7 Scope, Limitations and Assumptions of the study

This research aimed at sensitizing SMEs on the benefits of integrating Smartphone applications to the day-to-day running of their businesses. This study focused on SMEs in Nairobi and the results generalized to other parts of the country. At the time of this study, there lacked any literature in Kenya on adoption of mobile applications to aid in SMEs growth. At the time of writing, no academic research into the usage and adoption of Mobile Content Services within Kenya was available hence the justification of this exploratory study.

Smartphone applications are fairly new in Kenya and majority of usage is based in towns particularly in Nairobi. This limited the sampling as SMEs in Nairobi had to be picked purposively.

1.8 Dissemination strategy

The findings/results of this study were analyzed and used to recommend the suitability of Smart - Mobile Applications to SMEs struggling to grow their businesses. The results were published in a Thesis and availed at the University of Nairobi's main library to help in

subsequent studies. Results were also to be used for sensitization of potential users in campaigns through;

- Seminars;
- Academic journals;
- Newspaper articles and
- Mobile technology magazines.

1.9 Operational definition of Key terms

A mobile application is software written for mobile devices that performs a specific task, such as a game, calendar, music player, etc.

Mobility refers to the time a user spends away from the office and out of immediate access to the regular corporate information and communication infrastructure. One may assume that employees who never leave their desks during working hours have much less need for mobile system access than managers who travel two weeks out of every month or engineers.

A Smartphone is a mobile phone that has a multiple feature endowment and can perform different functions, such as surfing the internet, taking photos playing music and running other user specific applications. They differ from feature phones as they have much more powerful processors and run a state-of- the art complete operating system. Feature phones on the other side can access the internet and perform Similar multimedia tasks but on a small scale.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

According to the 2006 Kenya ICT strategy, the Kenyan Society is looking at itself in new ways to find answers to the challenges it faces. The Kenya ICT strategy (2006) describes the need for growth of the ICT sector as necessitated by the dramatic role ICT applications have played to enable growth in other parts of the world. It informs that, ICT applications have enabled these countries make gigantic improvements in productivity of other sectors of the economy. Similar observations have also been noted in; The Economic Recovery Strategy for Wealth Creation and Employment, 2003-2007; Poverty Reduction and Strategy Paper; 2001; Sessional Paper no. 2 of 2005 on Development of Micro and Small Enterprises for Wealth and Employment Creation for Poverty Reduction.

The development of mobile telecommunication technologies and services has radically changed the traditional telecommunications industry over the last years. It is not only the rate of penetration of these new technologies that's surprising but also the range of services being adopted. 'The mobile phone in Kenya has undergone evolution beyond its originally intended purpose of making phone calls and text messages. It has become a versatile device and now serves as a bank, a computer, a radio, a television set, a tool to fight crime among other things. 'Simply we can claim that mobile phone has penetrated and changed every aspect of our lives,' noted Kenya's Information and Communication Permanent Secretary, Bitange Ndemo.

With more than 500 million subscribers in Africa (ITU, 2011), there is no question of the potential of mobile phone and mobile phone based technologies as mobile phone use has become a way of life. With new players, greater connectivity and the enabling technology are creating the innovative ways for consumers to buy and for merchants to sell hence enhancing trade. Mobile phone was a major technological step in

communication and all the major Steps have had industries grow around them. Its evolution and the revolution is causing ripples and making it easier and cheaper to communicate.

This study was mainly depended on the proliferation of Smartphones and the increase and spread of internet connectivity and usage among Kenyans living in Nairobi. It has been noted that the number of internet and mobile users has increased massively within the last few years. The rise in the number of mobile phone and internet subscribers in the country has similarly seen a demand for multifunctional handsets increase rapidly. Most of the mobile phones currently sold in Kenya have Cameras and 3G internet features, which people use to access social media (Daily nation, Wednesday May 23, 2012). The country has seen an increased usage in Smartphone owing to the various functions the device can perform, making life easier and entertaining for the user.

Smart Mobile Applications present Small and Medium Business Enterprises (SMEs) with a lot of opportunities especially in communication and coordination of business activities hence increasing the efficiency and effectiveness of processes and consequently reduce running costs and increase customer satisfaction.

2.3 Tracing down the Mobile Services Evolution

Voice on Mobile phone merely made it more convenient to receive calls. However, in its inception, networks were bad and one could experience downtime when out of reach. Nowadays, that's a thing of the past as a there is voice mails boxes on mobile phones and roaming services in case you are travelling out of reach of the particular service providers. Call forwarding services and diverts has also helped in ensuring that we do not experience any moment of being unavailable.

SMS (Short Message Service) has Evolved to allow for storage. It has gained Increased popularity with lower income users as it is comparatively cheaper to voice and data.

Data services are the new frontier and the future of mobile phone communication. Individuals and businesses have taken advantage of the increased speeds, availability and reduction in costs of data services for their development. Providers have introduced very competitive rates for data. Anything nowadays including voice and SMS is going data. Examples of SME enabling applications offered on Smartphones are, Facebook, Google Maps, Yellow Pages, Tweeter, YouTube and linked-in. Today, Smartphones with operating systems like the Google Android, iphone, Blackberry and Windows Mobile are going to be the most demanding communication equipments in the world. Smartphones are fast- growing and popular because they contain some features with many wonderful opportunities i.e Smartphone applications for business and personal growth.

2.4 Features, Functionalities and Benefits of Smartphones

Many business owners have not fully realized the potential benefit of using Mobile Apps in Smartphones to increase productivity, add competitive edge and cut costs. Successful adoption and use of modern technologies is central to the future of businesses in the developing world. Many companies can take advantage of existing Mobile Apps to equip their employee base with tools to be more productive. The real benefit of mobile solutions is the possibility to completely integrate mobile work places into intra- and inter-organizational processes. Mobile work places comprise many heterogeneous activities that cannot be adequately supported by stationary use of IT. In an intra- and inter-organizational scope, there is a wide range of the uses of mobile technology I.e. the Apps and the Devices.

Traditionally, the investment in cost effective applications and effective business solutions has been an exclusive preserve of the big companies but recent researches have noted that the costs of applications is coming down and also seen the emergence of divergent and state-of the art SME solutions. ICTs present all business enterprises with a lot of opportunities, especially in communication and coordination of business activities. This reduces transaction costs (thereby increasing efficiency) and increases

market access for entrepreneurs' goods and services. This helps to expand their geographical reach, customer base, increase visibility through online marketing and gives the opportunity to provide customers valuable information about their businesses. Smart applications on the mobile phone play a significant role in the reduction of costs and time required to generate, process, store and transmit information from remote locations in developing economies hence increase efficiency. The presence of Softwares and Mobile Applications relevant to SMEs has heavily capitalised on the proliferation of mobile phones and the increased penetration of internet connectivity. This has lead into the increased use of Smartphones.

The first Mobile Application that revolutionized the world of business through Mobile phone was email. Many SMEs adopted Smartphones, with the email feature, like Blackberry in order to be able to communicate with each other when they are outside the office premises. When the Blackberry was first launched in 2002 by RIM (Research in Motion – the company that owns Blackberry) its easy-to-use and reliable mobile email service (push email) made it the business person's new best friend. Several large organizations have since attributed big returns and growth to what they are on just having adopted mobile email. However, mobile phones needed to do more than just facilitate on the move email and voice communication in order to be adopted as a business tool standard. To be taken up by businesses, they had to effectively turn mobile phones into mini-computers. The only way to do this was to adopt mobile phones empowered with Smart Applications to help in the day to day running of businesses.

Good Smartphone apps offer an intuitive User Interface with useful features that address the mobile - use depending on the case in question. They should not just replicate what a website might do in a stationary computing environment, and should be fun to use whether they're a utility or a game. The array of Mobile Applications now available in Smartphones have been designed to help reduce costs, keep employees connected, as well as improving quality of service to customers. Not only can mobile

employees maintain basic access to email and office functionality, but field operators can use more specialized applications to keep them linked up to home base(the office link).

Mobile Phones that support Microsoft Office can be used to view and edit documents, spreadsheets and presentations. They can also offer advanced Internet browsing and be used to view Portable Document Format (PDF) documents.

Mobile Phone Applications offer an exciting new avenue for SME owners to reach consumers. Businesses in different industries are developing innovative applications. If a business doesn't have a mobile presence, competitors will, hence increased competition and eventually loss of business. SMEs are finding innovative ways to harness the Smartphone for consumer marketing, relationship building, and mobile services. For those SMEs doing business locally, you can update your clients on new products, you can send them coupons and you can manage appointments. If the operations are not restricted geographically, Smartphone application will help you reach thousands of potential new clients through Social Media Applications. The applications that are seen as the key drivers for enterprise mobility include field sales and field service automation and customer relationship management systems. For instance, if you work on the move, as sales or advertising representative, or field engineer for instance, then you can now record your data into a mobile linked up to the home office system, thereby saving you the time and effort of having to constantly return back to office.

Business brands today are seeking solace in mobile phone applications from a branding, sales and marketing perspective. Increased usage of Smartphones has made it easier for business organizations to reach their target customers making them an effective means of business brand promotion. SMEs are turning to Smartphone applications to rev-up their revenue and visibility prospects. Smart phone applications are emerging as one radical way of promoting a product, a product line or a business brand. This has seen business brands carve a special niche for themselves in the minimum time possible.

If you want to know about weather and travel related information for your business trip, you will have weather and travel related mobile application in your iPhone, Blackberry, Android or other Smartphones. The application provides all information about travel and weather services as well as health and other services that may be required by a business traveler.

If you are using a Smartphone with a calendar and planner you can set reminders and notes in the same way as a paper organizer. This will help in scheduling appointments and keeping record on tasks that require attention. With a calendar enabled Smartphone, you will eliminate the need of a Personal Assistant/Secretary hence reducing costs in the business enterprise. This money can be divested to other uses like expanding the business through plough-backs. Smartphones have been enabled with Smart Mobile Application services for booking of travel tickets and accommodation check weather updates and explore the tradition of their destinations by just a touch of a button. Using a Smartphone has several advantages in the process of making and keeping bookings and appointments. Firstly, the ability to allow instant checking of appointments, you can communicate with an employee, or with the person you intend to meet at any time to confirm, clarify, or alter meeting details (e.g. location, time). This means that if a meeting need to be changed at the last minute, all parties involved can be informed quickly, to alter their schedule even if on their way to the meeting. Smartphones are said to bring the user coupled benefits in that, it allows them to multitask between multiple applications at once without having to close any of them enhancing productivity. Secondly, it allows users to add features through downloading applications hence not limiting the user to the already installed applications. In addition it aids in bridging the cost of ownership barrier that has been long identified as a drawback to internet penetration in developing countries.

There has been an explosion of data traffic over wireless networks in Africa. The Cisco VNI Mobile 2010 report indicates that mobile data traffic was expected to grow by 39 times between 2009 and 2014. These trends clearly indicate end users comfort in using

Smartphone Applications to perform day to day activities. This shift in consumer behavior is putting significant pressure on SMEs to anchor business applications, both old and new, on mobile platforms. If a user need to perform a wide range of tasks such as checking inventory, placing orders, checking news, and downloading e-mail, this is probably the best option for mobile e-mail and internet access.

The Smartphone offers convenience enhanced by its nature to access someone as there is no chance of expected downtime on mobile phone unlike other devices like computers. Full time mobility is enhanced by its many features like the roaming services when travelling out of reach, voice mails and interactive social media applications like Facebook, You Tube, Tweeter and Skype. Anywhere communication and transaction of business saves time and brings immediacy to sorting out emerging issues like servicing customers orders even when on the move. One can find out real-time information about potential customers; including when they visit, how often, whether they commented positively/negatively about an establishment to their friends on social media Platforms, thus you can reach out and incentivize them to be a repeat customer. Users commonly consider mobile devices as personal, have become accustomed to keeping the devices always at hand and always on, and actually dislike turning off their devices (Jarvenpaa and Lang, 2005). The personal nature and the continuous network connection of Smartphones make them particularly suited for making business transactions and storing related personal data (Begonha et al., 2002). This attributes make the Smartphone suitable for SMEs.

Multi - Luxury brand retailers seem to be providing a compelling M-commerce experience across device types by offering seamless, in - application purchases and simple, intuitive user interface. The rapid proliferation of Mobile Phones and internet connectivity has created a new channel for marketing. Internet can extend market reach and operational efficiency of Small and Medium enterprises (SMEs) and enhance their contributions to the economy. Recent surveys show a positive attitude towards online shopping in Kenya. A survey carried out by MasterCard between December 2011 and

January 2012 shows that 71 per cent of those who had shopped online had a satisfactory shopping experience. Shoppers believed that their shopping online was convenient and easy. This trend encourages brands to advertise their product online and to facilitate the possibility of online shopping (Standard Digital Wednesday, May 23 2012).

Extensive research has been carried out to check on the suitability of the mobile device for marketing. 'East Africa.com' is a well established association in the region which brings over 600 representatives from mobile, fixed lines operators, Internet service providers, regulators, investors and other stakeholders in the ICT sector. In their conference held on the 17th and 18th April 2012 in Nairobi, the emphasis was on what approaches to embrace to guarantee increased profitability in a changing digital ecosystem. Emphasis was also laid on embracing technology and innovation of mobile advertising for increased business growth (Communications Afrique issue 2, 2012). The communications event held annually helps to share in-depth knowledge with stakeholders discussing bench marks which can support new innovations facilitating business growth. It is supposed to deliver market insights and come up with practical solutions demonstrating solutions and technologies to support business operations and growth of SMES in the region. Smartphone applications were noted to be a step in the right direction owing to the growth of the Mobile Phone sector and the increased ease of data access in developing World.

The rapid proliferation of mobile phones and other mobile devices has created a new channel for marketing. The desire by businesses to reach potential and existing customers through their mobile phones is gaining popularity, making the mobile phone the ultimate medium for one-to-one marketing. The rising popularity of mobile phones has created a new channel for advertising, called mobile advertising thereby opening a new area for research.

2.5 The Proliferation of Smartphones and the Growth of Internet Connectivity

Smartphone technology is a product of a synergy by two of the most current and fast growing technologies. According to the Communications Commission of Kenya (CCK) ICT statistics for 2011/2012, there was an increase in the mobile phone subscriber base in the country to 29.2 million. Internet access also reported an increase translating to almost a million users increase between September 1 and December 2011. However, there was a reported decline in Voice traffic and the SMS per subscriber per month compared to a similar period in the previous year. CCK reported an increased mobile penetration. (Tech Mtaa April 18th, 2012).This clearly informs that everything is going the data way and people in Kenya have realized the potential internet can play in day-to-day running of businesses and everyday life. The decline in voice and SMS service consumption by subscriber informs how communication on mobile phone has shifted from Voice and Text to Data which is driving business growth. People choose to socialize online as it is cheap and also fashionable. The influx in the number of social Media available on Smartphones keeps one glued to their phone.

Any phone user would always admit nowadays that given the opportunity, they would always go for a device that can keep them connected when they are on the move and a device that is entertaining, user friendly and one that will avail them the ease to access the internet and more-so the easy access to social networking sites (Twitter, you Tube and Facebook) and a device with Smart Applications. Some of these functionalities can only be found in a mobile phone enabled with smart applications. These multifunctional mobile phones are known as Smartphones and allow users to perform several duties concurrently and download and upload data in real time.

The year 2010's shipment report for Smartphones also tells a similar story of a disruptive nature of the mobile phone coupled by a corresponding reduction in the PC business. Smartphone sales exceeded even the most optimistic forecasts of experts, around a battle between Apple and Google Android for supremacy at the expense of traditional leaders Nokia and RIM BlackBerry. (Gartner 'The Digital Natives are Restless). The global Smartphone market was predicted to grow by 55 percent in 2011 over the

previous year, thanks to an expanding user base. This is expected to increase target market for SMEs. The International Data Corp. (IDC) research firm predicted that vendors will ship a total of 472 million Smartphones in 2011, as compared to about 305 million units shipped in 2010. This increase is deemed to be a result of increased demand of Smartphones and the increased need to turn their 'talk- and –text' for smart phones which allow users to perform daily tasks like shopping and banking from anywhere.(Smartbiz Africa May 23, 2012). Fast sales of Smartphone, are being fueled by falling average selling prices, increased phone functionality and lower-cost data plans among other factors, which make the devices more accessible to a wider range of users, as noted by IDC data analyst. However research show that the growth trend is particularly pronounced in emerging markets where adoption is still in its early days and growth in developing regions such as Asia-Pacific and Latin America and Africa is expected to be dramatic. (Smartbiz Africa May 23, 2012)

It is because of these many functionalities in Smartphones that Kenyans have adopted smart applications technology hence registering a significant rise in the number of Smartphones users. It has noted the increased usage of Smartphones because of relatively cheap ones introduced into the market by Huawei Technology and Samsung electronics. These are the major manufactures who are releasing Smartphones which are competitively cheap and enhanced with the latest applications and operating systems. Recently Samsung electronics unveiled their Samsung Galaxy Pocket handset with the aim of upgrading eight million Kenya subscribers currently using basic handsets functionalities to Smartphone capabilities. This was part of their strategic development effort. This would enable the subscribers enjoy superior Smartphone experience at an affordable cost. (Pesatalk.com by Nick Walubengo May 23, 2012,). A day after, Huawei's Gaga priced at Kshs 8799 was launched. Both phones are targeting the same category of users (middle income earners, students and young professionals). This shows how we might be getting very interesting competitive offers in the future on the prices and functionalities of the Smartphones. Previously, the prices for handsets were beyond the reach of most Africans including Kenyans.

The future will see an increased need for adoption of Mobile Apps by SMES in the country. In the not too distant future, more and more SMEs are going to not only embrace but require the use of the Mobile Technologies. This will be supported by the expanding Mobile Technology infrastructure and increased knowledge levels on the various uses of Smartphones and therefore increased adoption. Everyone must accept, understand and buy into the Mobile Technology project.

The fast uptake of mobile data services, driven by Smartphones, has accelerated data traffic to the point of making SMEs have the capability of advertising on Applications supported by Smartphones. This has made Mobile Technology one of the most enablers of growth in SMEs, removing service barriers and transforming the lives of consumers in developing countries. With the fast grown mobile infrastructure we expect massive growth in the commercial market place. With the preparation for the transition from voice to data – driven mobile telecommunications, there is a heightened demand for adopting the next generation mobile technologies which include the adoption of smart application for mobile phones. This puts mobile phone data consumers in greater control of their own content.

Below is a chart showing the market share in Mobile-ad-Impressions by different Smartphones

Quarter 1, 2012

KENYA MARKET OVERVIEW

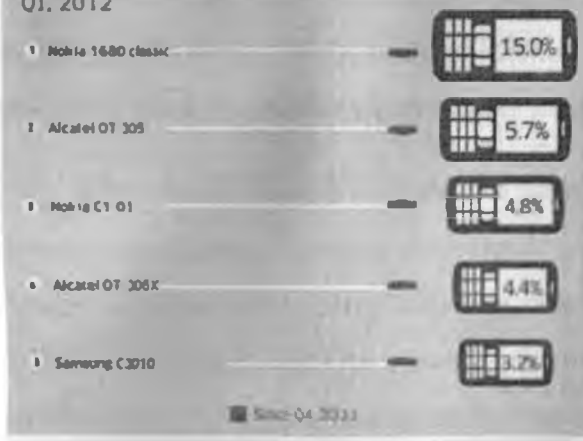
2,629,507,164 Quarterly Mobile Advertising Impressions on the InMobi Network

12% Growth in mobile impressions over the past 3 months

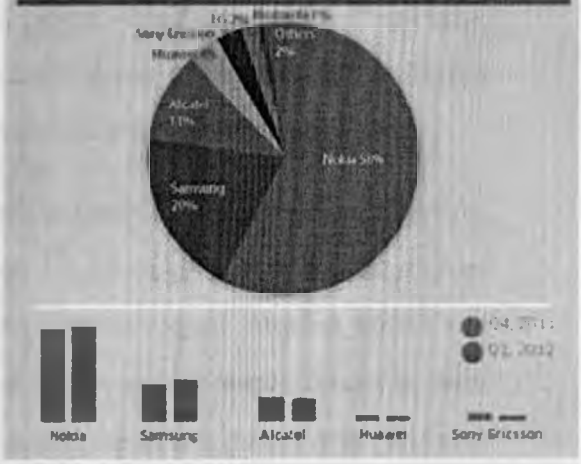
17% Growth in smartphone impressions in the Kenya mobile market

Handset Share Of Impressions

Q1, 2012



Manufacturer's Share Of Impressions



OS Share Of Impressions

Q1, 2012

Since Q4, 2011

Nokia OS	Symbian OS	Android
+0.3	+0.3	+0.3
51.1%	7.4%	2.8%

Nokia OS continues to be the top OS in Q1, 2012

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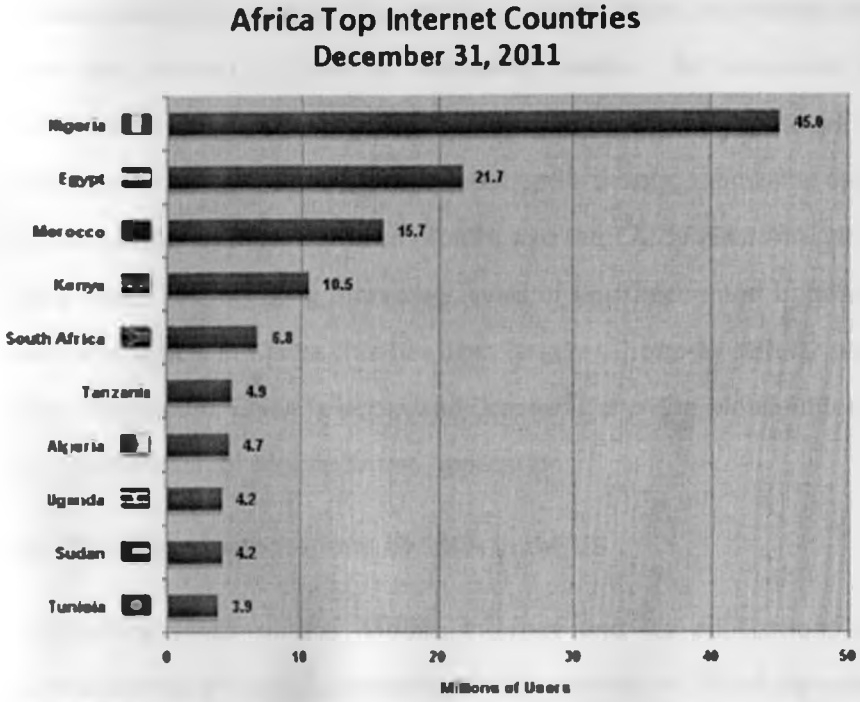
As earlier noted, the proliferation of Smart Mobile Apps is dependent on Mobile Internet (MI), which includes applications based on cellular (e.g. GSM, GPRS) and wireless (Wi-Fi, WiMAX, etc.) networks, and represents the convergence between two of the most relevant technological trends of the last few years: the Internet and Mobile Technologies. Continuous advances in the capacity, speed, geographic reach and reliability of mobile internet connectivity are fundamentally changing how businesses operate and how individuals go about their daily lives in Africa. Connectivity levels have continued to evolve and improve, making businesses operating in Africa grow. Online businesses and Personal Applications such as online banking, social networks (including Facebook, Twitter and You Tube) business networking, information security and many more are making the SMEs adopt Mobile Internet. Previously, slow, high-cost, geographically limited and unreliable internet access served to alienate Africans from the information, functionality and data services available with high connectivity.

The report below published on www.internetworldstats.com explains how the growth in internet uptake grown in Kenya to be the 4th country in Africa in terms of penetration of internet connectivity. Kenyan SMEs should tap into the increased internet access and penetration in the country for growth. Advertising on the mobile phone should be easy as more and more people have access to Internet and more-so internet on their phones.



Source: Miniwatts Marketing group.

Smartphone Applications can significantly benefit SMEs processes without requiring significant modifications to these processes or major investments (Gebauer and Shaw, 2004; McIntosh and Baron, 2005). For these reasons, these applications seem to be particularly suitable for small and medium enterprises (SMEs), which generally have shown little awareness of information and communication technology (ICT) applications (Chuang et al., 2007). Mobile Internet Apps can provide an impetus to development of strategic applications for business (Barnes, 2003) in many different industries and sectors of the economy as transportation and logistics, financial services, health services, and others (Shim et al., 2006).

Increasing numbers of SMEs from Kenya and other developing countries are adopting Smartphone applications as a means of communication and distribution under competitive pressure from suppliers and customers from developed countries. Use of the Internet for providing product and price information to customers, to sell products

to customers, to respond to customer inquiries about availability and shipping implies that the Internet is used as marketing media - for purposes of communication, distribution, and customer support. The communications landscape has changed largely with significant investment in high-capacity fibre-optic submarine cable and the increase in the number of ISPs. Eighteen months ago the EASSy (East African Submarine System) cable went live, bringing increased levels of unprecedented bandwidth in eastern and southern Africa. In Kenya this has been largely tapped by cellular phone companies like Airtel, Safaricom, Essar Telecom and Orange to provide Mobile Internet and to enhance the proliferation of Mobile Smart Applications.

2.6 Use of smart applications by SMEs in the US

Introducing SMES to the Mobile Internet and its applications has helped play a significant role in the U.S. economy. SMEs comprise 99.7% of the enterprises in the U.S., accounting for 48% of the Gross National Product (GDP) and 53.7% of the total employment (OECD, 1997,). Similarly, about 96% of the U.S. firms that export are small businesses (Dickerson 1999). The Internet can be a critical factor in enhancing a firm's market reach and operational efficiency (Porter, 2001). Internet based technologies provide small firms the opportunity to overcome the limitations of size and compete more effectively and/or in larger markets with bigger sized establishments. Mobile Internet has been instrumental in the increased international opportunities for SMEs in the U.S (Hamill and Gregory, 1997; Lituchy and Rail, 2000). According to Williams (1999), Internet technologies: Increase ability of small firms to compete with other companies both locally and in the international markets, offer convenient and easy way of doing business transactions (not restricted to certain hours of operation), Offer an inexpensive way (compared to postage, fax, and fixed lines) for small business to compete with larger companies and for companies to sell in distant markets. The gap between SMEs and large enterprises in the U.S has decreased mainly because of two related factors - costs and specialized applications on the Smartphone. Most of these applications depend on the internet. Mobile Internet (MI) is even better and can extend market

reach and operational efficiency of small and medium enterprises (SMEs) and enhance their contributions to a countries economy.

2.7 Boosting SMEs with Mobile Enterprise Applications Solution in Nigeria

With the advent in technology, businesses that embrace new technologies have found new ways of expansion and profitability in carrying out real time online transactions in Nigeria. 'In solidarity with the dreams of SMEs and increase flexibility, MTN Nigeria recently launched its latest Mobile Enterprise Applications for Small and Medium Enterprises (SMEs) as well as for corporate bodies, aimed at enhancing work experience', wrote Emma Okonji. Its applications run on Smartphones, tablets and other handheld devices designed specifically to provide mobile workers access to their organization's Enterprise Resource Planning (ERP) systems and applications on the go, thus making them more productive. MTN Enterprise Apps transform an organization's workers into an empowered mobile workforce that can effectively get work done in or out of the office, anywhere and anytime. Some of these Apps are; MTN Transport and Logistics App that enables organizations with large fleets of Vehicles like cabs, Cargo Tracks monitor, track and manage their vehicles, drivers and deliveries remotely from the comfort of their Smartphone. The MTN Field Force Automation App, which allows field sales teams take customer orders remotely and initiate deliveries without having to return to the office.

The Field Force Automation App helps organization that have lots of field workers like field personnel, distribution staff and field support engineers, to take sales order from locations outside the head office or branch office, using the enterprise application, while carrying out the field job, without necessarily going to the office to do so. The whole processes of waiting till the field personnel completes his field tasks and returns to the office to enter his order, processes it and waits for approval, will be completely eliminated, using the enterprise application, which allows a field worker to enter his sales order from the field before returning to the office. The convenience with the application is that as the field worker enters his sales order, he can quickly send the

information instantly over his device to the office, where the backend server is located and the automation and processes are done even before the field worker gets back to the office. These solutions among others aim at aiding SME and enterprise customers to operate more efficiently and become more productive. It will reduce cost and increase profitability.

Again, the application can help staff enable their customers via their mobile devices to integrate back to the customer relation management system where they can lodge all sorts of complaints. For instance, somebody working in the field, which is located far away from the office, does not need to return to the office to get information on a fault before going to the location to address the issue. Since the enterprise system has backend systems that are automatically integrated with their full support staff, all the staff need do is to use his mobile device to send the message to the backend systems in the office and the information is made available to him instantly on his mobile device. Again it captures a lot of field data in real time and gives the business operator the opportunity to respond to market demand in real time. The enterprise application help to further drive SME businesses, make their businesses real time online transactions in such a way that it will save cost and increase efficiency. This helps to unlock key business potentials for SMEs. Again in the area of sales automation, it is very effective. It takes time for sales representatives to conclude on customer information on the field, but with the MTN enterprise application, the sales representatives are able to capture the customer information at the backend from the field at such a speed that will facilitate fast payment.

The bottom line is that the applications facilitate SMEs in Nigeria in such a manner that would expand business in very a short period.

2.8 Useful applications available for Smartphones in Kenya

Mobile phone communication used to be all about voice and SMS Communication but has evolved into data with a good portion of the population using GPRS-enabled phones. This technology has a big impact on business growth. Look at the case of MPESA

Mobile Payment System offered by the Safaricom mobile network in Kenya. Mpesa's prevalence in the country, achieving 5 million users in a span of two years from inception shows that the service is needed for the ease of doing business it gives to SMEs. For merchants providing pay-per-view or small value content on the Internet, mobile payments may offer a feasible alternative, since the transaction costs of credit card payments are not economically viable for handling micropayments.

Mocality is another application in Kenya which has both mobile and PC interface search platform that enables connections and easy communication between consumers, businesses and their suppliers via a set of innovative products and services. The platform offers enriched and location-based business listings to consumers, a range of free business promotional tools with premium commercial services to be added. It connects businesses and consumers through a simple, mobile and PC interface. Businesses use the platform to attract and communicate with customers and other businesses.

Mocality helps in Creating Connections, Business toolkit, Business card, Maps & Directions, Business Reports, Social sharing, Consumer Interaction, Business Interaction., Search for businesses / landmarks, View maps & get directions, Self-list business, Create mini-mobile site, Update info anywhere / anytime, Use business toolkit, Get business contact info, Receive business updates, Interact with businesses, Engage with actual / new customers, Offer coupons and promotions, Network with other businesses, Bookmark favorites, Share with other users, View consumer and traffic reports and to Be found!

2.9 Theoretical Framework

2.9.1 Factors impacting the adoption of Smart mobile applications

With the mobile telecommunications evolution as a result of proliferation of Smartphones and increased data capacity and speed, Mobile commerce and all these promises of technology goodies cannot be achieved unless there is a widespread

acceptance from the targeted adopters. Currently the rate of adoption of M-Commerce has not kept pace with the rate of adoption of the mobile phone. However Pale *et al* displays future mobile technology usage to be a dominant and to be a common culture among Kenyans.

A lot of focus recently has been on the market uptake of mobile services (Kim et al., 2007, Hung et al., 2003) while others focus on development of new technological progress and seek to understand its impact on the existing mobile services (e.g. Pagani, 2004).

Past studies have examined technologies in general and have found a number of factors impacting the adoption decision of information and communications technologies (ICTs) in organizations. These factors can be classified into two types: internal factors and external factors (Lefebvre and Lefebvre, 1996). Internal factors include firm's characteristics, firm's past experiences and attitudes towards technology. Firm Characteristics include size, type of business, and length of time in a community. Past studies have identified that size is an important determinant of a firm's involvement and decision process in acquiring ICT (Dholakia et al., 1993). Larger organizations tend to have the resources and the competitive imperative to initiate deployment of new information technologies (Clemons and McFarlan, 1986).

2.9.2 Diffusion of innovations Model

This study is based on a model called the Diffusion of Innovation Theory (DIT) propounded by Everett M. Rodgers, an influential author in the area of adoption. The diffusion of innovations paradigm provides explanations for when, and how, a new idea, practice, or technique is accepted or rejected over time in a given society (Rogers, 1995).

It has been argued that innovators of a product are drawn from the users within the product category with high level of experience in similar product categories. We, thus, hypothesize that; Firms with a already using some form of information technology to

boost their visibility in the media through telemarketing, catalogs, television are more likely to adopt and use the Mobile applications for marketing purposes. Previous researches have laid emphasis on mobile advertising through short message services (SMS) which has been very successful owing to the proliferation of mobile phones in the country. It is this success that has inspired advertising, communication and marketing via internet and other applications on the mobile phone. Consumers are said to have a better perception towards Mobile Internet communication and advertising because of its interactive, educative and entertaining nature. This model attempts to introduce a comprehensive framework to explain the differences in adoption rates across countries. Such a framework helps to explain why some innovations tend to diffuse from first introduction to widespread use, or critical mass, within a short time span while others require a longer time period. Early adopters are said to use technologies or services for five different reasons, or some combination thereof:

• Adoption occurs when the new product or service satisfies consumers' existing and unmet need.

• Adoption occurs when a new product or service has a competitive advantage in relation to an existing one.

• Adoption occurs because of a painful experience or extreme dissatisfaction. A painful experience with an existing service can be incentive for adoption of a new one. In this case the customer adopts the new technology to nurse the earlier nasty experiences.

• Adoption can occur because early adopters may have 'insatiable appetites' for new technologies so much so that they will be willing to pay high prices for the latest gadget, software and applications.

• Adoption can occur because suppliers' have sufficient control over a market to allow them to provide significant incentives, or to limit alternatives, or to create penalties to encourage adoption. Later adopters then, either observe and imitate early adopters or

they communicate with them and are persuaded or induced to adopt these innovative products or services, thus critical mass is eventually achieved.

Rogers (1995) brings out five characteristics of innovations that significantly influence the adoption of a new innovation namely: Relative advantage, Compatibility, Complexity, Observability and Trialability. These are factors that impact on the intent to use Mobile Applications by SMEs.

Relative advantage is the 'degree to which an innovation is perceived as better than the idea it supersedes' (Rogers, 1995). Therefore the greater the perceived relative advantage of an innovation, the more rapid its rate of adoption. This is the perceived usefulness. This compares the Smartphone with the traditional ways of communication and running businesses. When users realized adopting the Mobile Technology was more advantageous than use of the traditional fixed lines, the rate of Mobile Phone adoption saw an increase which is now experiencing a drift towards mobile phones with Special Applications and features i.e Smartphones.

Compatibility is defined as 'the degree to which an innovation is perceived as being consistent with existing values, past experiences, and needs of potential adopters' i.e the degree to which the innovation is perceived as being better than the practice it supersedes (Rogers, 1993 &1995). Ideas compatible with existing values and norms are adopted more rapidly than ideas that are not. The adoption of Smartphones into the communication systems of a company has been consistent with the previous Modes of communication and advertising. It uses a similar technology as the Fax and fixed lines only that it enhances Mobility. Smartphones can still be integrated to the traditional methods without having to do away with them.

Rogers defines complexity as 'the degree to which an innovation is difficult to understand and use' (1995). New ideas that are simpler to understand are adopted more rapidly than ones that require the development of new skills. This is the perceived ease of use. Owing to the widespread use of the native mobile phones, the stage is already set for the Smartphone as those expected to adopt this technology are already

knowledgeable and equipped with the skills acquired from using the native mobile phone. The only difference between the two is just the additional smart features in the Smartphone.

Observability of an innovation 'is the degree to which the results of the innovation are visible to others' (Rogers, 1995). Visibility increases the relative exposure of the innovation, thereby stimulating discussion by other members in the social system. This increased information exchange results in a quicker diffusion of the innovation. The impact of the mobile phone has been experienced by a large portion of the population through mobile payments like Mpesa, Airtel Money, Orange Money and Yu cash. At least everyone in the country has felt the influence of these mobile services in some way.

Lastly, Trialibility of an innovation 'is the degree to which an innovation can be experimented on a limited basis' (Rogers, 1995). Trialability reduces the risk of adoption, thereby spurring its diffusion. Mobile phone usage in Kenya is past the Triability stage and there is no doubt on its capability. According to Rogers (1995), innovations that are perceived by individuals to have greater relative advantage, compatibility, observability, trialibility, and less complexity, will be adopted more rapidly than other innovations. Hence the structure of consumer perceptions about an innovation impacts its acceptance (behavior) and thereby the overall rate of adoption. (NTT DoCoMo, October 2000)

2.9.3 The characteristics of user of Smartphones

Rogers's Diffusion Model categorizes and groups users according to the speed in which they adopt new technology. These categories have been described by Kiljander (2004) as:

- The innovators are the 'techies', the experimenters who have technology as a central interest in their lives and pursue new technology as soon as it appears, no matter what its function is.

• The early adopters are the 'visionaries' who blend an interest in technology with a concern for significant professional problems and tasks.

• The early majority are the 'pragmatists'. Although fairly comfortable with technology in general, their focus is on concrete professional problems rather than on the tools (technological or otherwise) that might be used to address them.

• The late majority are the conservatives or 'sceptics'. They share the attitude of the early majority, though being less comfortable with technology.

• The laggards are the most likely never to adopt at all.

In the Kenyan scenario, only the innovators and early adopter are currently using Smartphones in their daily running of the businesses hence the reason for this study to sensitize SMEs on the benefits they are missing out.

2.9.4 Conclusion

It can be revealed that neither mobile technology nor mobile apps has the answer to SMES growth, but can be a powerful tool to enhance the process when it's integrated with other traditional forms of communication.

This research demonstrates that the adoption of Mobile Content Services among cell phone users is strongly influenced by a number of independent factors as stipulated by the IDT model. The analysis of this survey's results indicates that a majority of the independent factors (Relative Advantage, Compatibility, Complexity, Trialability, Observability, Image and Cost) have either directly or indirectly impacted on the intent to use some of the content services (Mobile applications). These findings are consistent with similar research conducted in other parts of the world. Smartphone applications as an innovation can play a very key role in the shaping of a company's activities and acts as a spring board.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This section presents the procedures followed to ensure that the objectives were achieved in conducting the study. It outlines how the study was carried out. The chapter presents the research design, the population, sampling methods and the sample size, data collection method and instruments and data analysis procedures.

3.2 Research design

The study used both the qualitative and quantitative research designs. This is because some objectives of the study required qualitative approach and others were better assessed with the quantitative approach. As per the purpose and objectives of the study, to examine the suitability of Smartphones in boosting SME growth in the country, the study chose the qualitative approach to help define the validity of Smartphones in boosting SMEs growth. This type of research was chosen because of its effectiveness in addressing social and economic issues. By using the qualitative approach, a researcher is able to collect data and explain a phenomenon deeply and more exhaustively (Mugenda and Mugenda, 2003). On the other side the quantitative approach offers hard data to meet the required objectives. This study was exploratory in nature and therefore aimed at exploring the possibility of the Smartphone as a tool to aid in SMEs growth. The exploratory study sought to collect data describing the suitability of Smartphone to SMEs by asking individuals about their perceptions, attitudes, and behaviour/values. It measures the degree of association among variables (Mugenda and Mugenda, 2003)

3.3 Population of the study

The target population in this study was all the SMEs in Kenya. However due to the fact that most of the rural areas have insignificant penetration of Smartphones, Nairobi was purposively sampled. It was assumed that SMEs in Kenya face similar challenges in the running of their businesses as the regulatory and market environment is the same so the results of the study would be generalizable. The differentiation of SMEs from other

enterprises was a company with an annual turnover of between Kenya shillings 70 Million to Shillings 1 Billion. This was obtained from Kenya's Top 100 Survey which is an initiative of KPMG Kenya and *Business Daily* owned by the Nation Media Group. This survey identifies Kenya's fastest growing medium sized companies in order to showcase business excellence and highlight some of the country's most successful entrepreneurship stories. Past research has found that the size of a firm is one of the major determinants of the strategy of chosen strategy (e.g., Dholakia, 1995; Ibrahim, 1993; Kean et al., 1998; Miller and Toulouse, 1986). Limited resources restrict SMEs' ability to compete (Coviello and Martin, 1999). Smaller firms are less able to manage the fixed and variable costs associated with the use of the Internet, given their limited resources and hence are less likely to adopt the Internet than large firms.

3.4 Sample Size and Sampling Procedure.

Sampling is the selection of a group of persons from a population with each person having an equal chance of being selected. The objective is to draw a representative sample and the results obtained from the sample can be generalised to the population (Porter, 1996). The sampling frame was from year 2010 and 2011 Top 100 SMEs' list. Purposive sampling was employed in choosing the sample of the study. This was used as it allows the researcher to use cases that have the required information with respect to the objectives of the study (Mugenda and Mugenda, 2003). In this study, 5 different sectors of the economy were sampled for study. These were: Telecommunications, Motoring, Marketing and Advertising, Service and Manufacturing. At most, two companies were chosen from each sector because of the limitations of time and resources. The respondents in this study were picked on the basis of being Owners of the SMEs or serving in the senior management of the company. Companies that deal with goods that are taken as raw materials by other SMEs were omitted as they were not relevant in this study and would not achieve the desired results.

3.5 Data collection procedures

Direct Interviews, experience Interviews and Secondary analysis of data were used to collect data from the chosen sample of respondents. These were the most relevant for the study in question. In most companies the Interviewee was the owner, CEO or a senior person in the management. Companies with over 50 persons were contacted by phone to identify a suitable respondent beforehand.

3.5.1 Direct interviews

An Interview Schedule and a cover letter introducing the researcher and the rationale of the study were mailed to the sampled businesses. This helped in saving time as questionnaires would have taken a lot of time in mailing and filling which was a constraint in the process of the research. Interviews were used to gather data from respondents as it offered a face-to-face interaction. Respondents were owners and/or managers of Small and Medium sized Enterprises (SMEs). A protocol of questions was created based on the objectives of the study. This protocol was used as a guideline in the interviews (see Appendix). The protocol was pre-tested with a colleague, and was revised accordingly. In the interviews, the researcher asked participants questions about their current usage and their views on the potential of Smartphones for running their enterprises. Specifically, these questions ascertained the Smartphone's day to day usage. This usage would be used to ascertain the suitability of the Smartphone for businesses and recommend adoption

The direct interviews were organized according to a four-step pattern reflecting to answer the research questions:

- Application features and main functions;
- Impact on processes and Activities and organization;
- Main benefits;
- Costs, investments and decision-making process before the adoption;

Both open-ended as well as fixed alternative questions were used to capture the relevant information on each of the issues mentioned above.

3.5.2 Secondary Data Analysis

Secondary data analysis is another form of exploratory research data collection procedure. This is data that have been gathered for some purpose other than the one at hand. Cooper and Schindler (2003) explain that secondary data is a useful qualitative technique for evaluating historical or contemporary confidential or public records, reports, government documents and opinions. However little literature was available on Mobile Applications use by SMEs at the time of this research, Secondary data helped in precisely defining the problem. This was obtained from newspapers, journal publications, government publications and the internet. Internet was used to access countless sources of secondary data quickly and at minimal expense.

3.5.3 Experience Interview Analysis

Experience Interviews involved talking with 2 knowledgeable individuals who would provide insights into the problem owing to their being authorities in the field of this study. The survey was much like an informal discussion and no questionnaires were used instead the respondents were just provided with a list of the topics to be covered to prepare beforehand. For example an interview with Mr. Gaurav Sighn, the General Manager of Squad Digital Company and Mr. Rado Kedzia, the Deputy MD Huawei Technologies.

3.6 Data analysis and presentation

In data analysis, data must be organized, arranged and coded for purposes of reduction and classification of behaviour, feelings, and thoughts (Wiersma, 1995). Before processing the responses, the Interview protocols were edited for completeness and consistency. The data was then coded to enable the responses to be grouped into various categories. The responses options use a 5-point Likert scale. Qualitative data was analyzed qualitatively and the findings presented and summarized using tables

where appropriate. Tables presented the responses for further analysis and to facilitate comparison and lead in interpretation.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 DATA ANALYSIS

Introduction

This chapter analysed the findings of the study as set out in the research methodology. The results were presented on the 'Implications of integrating Smart Mobile Phone Applications on SMEs in Kenya'. The data was gathered from interview sessions with owners of SMEs in Nairobi region or senior Management in the SMEs. In addition, separate interview sessions were arranged with experts in the Mobile Applications and devices industry who had a first knowledge and experience on the usage and functionalities. The Interview Schedule was designed in line with the objectives of the study. To enhance quality of data obtained, Likert type questions were included whereby respondents indicated the extent to which the variables were practiced In a five point Likert's scale.

In this thesis, participants and their comments are identified by only one name and job titles. However, it must be noted that this implies the possibility that an individual reading this could potentially research and identify the full identity of participants by linking them to their job titles. All of the participants were fully informed about the potential risk of being identified in this report, and they still agreed to participate in the study.

The researcher gathered data from a list of 10 respondents who had been shortlisted for the study. Of the 10 respondents, 8 were male and 2 were female.

The researcher sought to know what capacities the respondents served in at their respective SMEs. Findings show that all the respondents were either the owners of the SMEs in question or at the Senior Management of the business.

4.1.1 Key Functionalities of Smartphones

Smartphone Ownership

The researcher sought to know the number of respondents who owned a Smartphone. Of the 10 interviewed, 9 responded to own a Smartphone of some sort. The 1 remaining was still using the native mobile for their operations. However Smartphone ownership and usage are not synonymous, as not all those who owned Smart application had understanding to the usefulness of the features inherent. Betty[1] runs a cleaning company and responded not to have adopted the Smartphone. She has not learned on the advantages this has on her daily life and in the running of the business. She had this to say;

My daily routine is tight and I do not have the time to use the features in those big phones. I do not know what extras it will bring in to my business and I cannot buy something I do not need.

She terms the overwhelming adoption of Smartphones as a fuss and only geared towards ostentation.

All the other nine owned a feature-rich mobile phone for their daily usage. This is shown in Table 4.1 below.

Table 4.1: ADOPTION OF SMARTPHONES AMONG RESPONDENTS

	FREQUENCY	PERCENTAGE
ADOPTED	9	90
DID NOT ADOPT	1	10
TOTAL	10	100

The researcher sought to know the dominant age group in the adoption of Smartphones for their day-to-day life. Of the 10 respondents in this research, none were in the age group of between 15 and 20 years. 4 respondents were in the age group 21 – 30 years, 3 in years 31- 40 and 2 in the age group between 41– 60 years. No respondent above the age of 60 years answered to be using the Smartphone.

TABLE 4.2: ADOPTION OF SMARTPHONES BY AGE GROUPS

AGE GROUP (YEARS)	FREQUENCY	PERCENTAGE
FROM 15 TO 20	0	0

[1] Managing Director/ Proprietor, Professional Clean care

21 TO 30	4	44.44
31 TO 40	3	33.33
41 TO 60	2	22.22
60 >	0	0
Total	9	100

For the respondents who answered to own Smartphones, an inquiry was made on the frequency of use as this was an important item of observation. Out of the 9 respondents who confirmed to have adopted the Smartphone applications, none responded to often use the Smartphone to a very great extend. 2 responded to be using it to a great extend, 5 were using the Smartphone to a moderate extend, 1 was using it to a little extend and 1 was using it to no extend despite having bought it. Wokabi[2] uses the Smartphone to a great extend especially accessing social networks from every point. Wokabi puts it like this,

I do sales and marketing and I cannot afford not to know what is happening in other parts of the world and also with the competition.

Lawrence[3] shares the same opinion that, serious marketers and communications specialists will never afford to be offline as they operate most of the times from outside the office. He says,

I use my Smartphone to a large extend especially accessing my emails as my job entails meeting clients and selling ideas to them

Samir[4], Mohammed[5], Nene[6], Steven[7] and Carol[8] agree to use the Smartphone to a Moderate extend. Kirti[9] uses the Smartphone features on his phone rarely and to a little extend and Humphrey[10], despite owning a Smartphone, used it to no extend. He only uses the native features of voice, Text and Mobile Payment.

Table 4.3 shows the distribution that resulted from this question.

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[2] Sales and Marketing Manager, Design Corporate Ltd
[3] Communications and Marketing Manager, Apex Communications Ltd
[4] Operations Manager, Viva Product line Ltd
[5] Operations ,Charlestone Travel Ltd
[6] Managing Director, Capital Colours Ltd
[7] Operations Manager, Stantech Motors
[8] Marketing Manager, Swivel Marketing
[9] Partner and CEO, Tononoka Steel Mills Ltd
[10] Managing Director and Owner, Wines of the world

TABLE 4.3: FREQUENCY OF USE OF SMARTPHONES

	FREQUENCY	PERCENTAGE%
TO A VERY GREAT EXTEND	0	0
TO A GREAT EXTEND	2	22.22
TO A MODERATE EXTEND	5	55.55
TO A LITTLE EXTEND	1	11.11
TO NO EXTEND	1	11.11
TOTAL	9	100

Affluence in the use of Smartphones

The research findings show that no respondent answered to be using the Smartphone to a very great extend thus there were no excellent users. The 22.22% who answered to use the Smartphone to a very large extend are good users, 55.55% use the Smartphone to a moderate extent and this is an Average usage. 11.11 % users use the Smartphone to a little extend and these are below Average. 11.11% have bought the Smartphone but do not use the features inherent. These are regarded as poor users.

Most prevalent Operating System (OS)

The interviewer sought to know the most prevalent Smartphone Operating Systems (OS) among the users in Nairobi region. The enquiry involved giving a list of the most popular OSs to choose from. Those who used a different operating system from the ones listed were to specify. For purposes of those who didn't know their phones operating system, an option was given to write the Smartphone Model and the series for the researcher to find out from the market what OS the Smartphone runs. Table 4.4 shows the distribution of impressions by Operating systems among the respondents

TABLE 4.4: PREVALENCE OF OPERATING SYSTEMS

Operating System	No Of Users(Frequency)	Percentage %
IOS	1	11.11
Android	4	44.44
Blackberry	1	11.11
Nokia Symbian	3	33.33
Windows Mobile	0	0
Others	0	0

Total	9	100

Upon examining the responses, majority of the Smartphone users, 4, still use Google Android as their Operating system of choice. This translates to 44.44% of the users. Android is followed closely by the Nokia OS with 3 users, an equivalent of 33.33%. Others are IOS and Blackberry with 1 user each, an 11.11%. The least used is Windows Mobile which has no user in the respondents interviewed. Rado[11] who is a professional in the field attests to the changing trends in the usage of different operating system. According to him, this will continue to change. He had this to say,

This shows that Android powered Smartphones have taken over the Mobile phone market, earlier on dominated by Nokia Phones. Android has partnered with several manufactures of relatively low priced Smartphones like Samsung, Huawei, HTC, Alcatel, Sony-Erickson, LG and others to guarantee affordability hence proliferation of Smartphone Usage.

From the findings, the use of IPhones and BlackBerry has remained relatively low owing to the market prices as compared to Smartphones running on the Android or Nokia OS.

Favourite Applications/Categories of applications on Smartphone by Respondents

This study focused to know the mostly used applications by respondents and the ones which were used more regularly. According to this study the fourth through seventh most popular application categories were for Sports, Lifestyle, Utilities like news, and Travel; respectively. An overwhelming percentage of the respondents attested to using their Smartphones mostly to access social Network applications like Facebook, Tweeter, You Tube, LinkedIn and Skype. However a noticeable no. of respondents displayed signs of using the Smartphone for marking appointments on their calendar applications and also making bookings online.

The researcher sought to know what category of applications was most popular with the interviewed respondents. The findings show most of the respondents (33.33%) prefer general surfing of the internet followed by 22.22% of the Smartphone who prefer news applications and 22.22% who prefer Sports applications. In addition 11.11% prefer applications related to

[11] Regional Chief Technology Officer and Vice President, Huawei Technologies Co. Ltd

Travel and 11.11% prefer online shopping applications in Smartphones. This is evident from the responses received as per Table 4.5 below

TABLE 4.5: FAVOURITE APPLICATIONS BY RESPONDENTS

Category of Application	Frequency	Percentage%
News Applications	2	22.22
Sports Applications	2	22.22
Business Applications	0	0
Weather Applications	0	0
Shopping Applications	1	11.11
Travel Service Applications	1	11.11
General surfing of the Internet	3	33.33
Total	9	100

4.1.2 Key Functionalities of Smartphone

Smartphone users are lured by several combinations of Smart features when choosing a Smartphone to purchase. According to the interviews with both the experts and the leaders of the SMEs, the current Smartphone users are fascinated by devices with high internet connection speeds and State-of-the-art operating systems, ability to add applications through downloading, high definition cameras, excellent screen quality of size and style like touch, Wifi and Bluetooth enabled and large data storage capacities.

According to Rado, there are the major functionalities that users give priority to when shopping for/choosing a Smartphone. He had this to say,

GPS functionality is a vital feature in the Modern Smartphones and many Smartphone users consider it when deciding on what phone to purchase.

Contentment with current Smartphone and Applications

The researcher sought to know how happy and contend the respondents were with their current Smartphones and applications. There was an overwhelming response with all the respondents wishing the manufacturers would incorporate other applications like CRM and

point of sale (POS) where one can be able to work on his phone when on the move or when away from the office setting.

Wokabi, Ratemo, Nene, Samir and Lawrence wished they could access their office solutions like the CRM on Smartphones. These respondents demonstrated that Sales and Service Force Automations were the most preferred applications they wished Smartphone and application providers would incorporate in their products. Mohammed, Carol and Samir preferred Travel Guides on their Smartphones to help them when they are on business or Holiday outside the country. According to the interview with carol, she wishes to have travels guides incorporated in Smartphones. She put it like this,

My phone has a nice navigation software I wish I could have a travel guide stored in it to retrieve when I'm travelling.

On the other hand, Humphrey, though not making use of the applications on his phone, said he would be happy if there was an application that would enable him make online flight bookings from 'the comfort of his Smartphone'

4.1.3 Comparison of Smartphones with Traditional Methods of Communications and Marketing

Access of Internet Applications on Smartphones and PC

Upon examining the responses, of the 10 interviewees, 6 access Internet applications more on Smartphones than the usual PC. This is 60% of the respondents. Of the remaining, 2(20%) access internet applications more on PC than the Smartphones and the other 2(20%) do not use internet on Smartphone at all.

TABLE 4.6: ACCESS OF INTERNET APPLICATIONS ON SMARTPHONES AND PC

Internet Applications Access	Frequency	Percentage%
More on Smartphone	6	60
More on PC	2	20
Never on Smartphone	2	20
	10	100

Benefits of using the Smartphone - Powered Applications over the Traditional Methods of Communication and Marketing

When asked on the reasons for preferring the Smartphone over the traditional modes of communication, the respondents reported that; accessibility was the greatest reason as to why many prefer Smartphones over other methods. According to Wokabi, accessibility from anywhere as long as there is network connection was the biggest attraction for users.

He says,

> *Nowadays you can never abscond responsibility just because you are not at yourworkplacePeople will always try to reach you regardless of wherever you are.*

According to the interview with Nene, Smartphones help him in arranging for teleconferences with staff in the office. He says,

> *Sometimes I have to do telephone conferences with managers in the office when I am out of the country just to get updates on the developments in the business and any quagmires encountered.*

Other respondents preferred the Smartphone because it offers all the information you need in real time. According to Samir, he uses Smartphones to surf the internet when on the move to look for information required urgently. He puts it like this,

> *These devices connected to high speed internet encourage me to consume data and always go online to search for information needed urgently. This can range from the meaning or spelling of a word from the dictionary when on the move. When out at a clients place and want to get details, I always connect through my Smartphone and get the desired information for the client.*

His opinion is shared by Lawrence that the greatest advantage is that you can always send information to customers from anywhere. He says that when out in the field, he can always edit and send customers proposals.

According to Mohammed, Smartphone has proved to be easy to use in the running of business for making bookings. He had this to say,

Making bookings online whenever you are, for clients has been the greatest innovation for her in terms of Smartphone usage. This is faster and easier than having to write letters or calling to make reservations for clients.

4.1.3 Actual Usage of Smartphones by SMES in Nairobi Region

Reasons for not Using Smartphones

The interviewer sought to know the reasons why some 'would be users' in Nairobi had not adopted the Smartphone.

According to Rado, there were misconceptions and lack of knowledge regarding the Smartphone cost and benefits among the potential users. He had this to say,

Some non-adopters believe that Smartphones are expensive while others lack knowledge on the potential benefits of integrating the Smartphone to the existing modes of Communication and business enhancement.

These views were shares by Peter[12], who was also interviewed as an expert working with a device manufacturing and distribution company. It was also misconceived that Smartphone technology was not easy to use and many residents of Nairobi claimed not to know how to use the features inherent in the Smartphone. Some do not use mobile phone as they believe that it does not offer anything new and does not even have enough applications. This is according to the interview with Betty who as per the interview has not adopted the Smartphone. According to Mr. Singh[13], some websites and applications do not look good on Smartphone as they are sometimes on the PC. This is a possible cause for non adoption. He has this to say,

Manufacturers should come up with applications that are both compatible with PC and the Smartphones' operating systems to enable the accessibility through Smartphones. Some applications do not look good on Smartphones and cannot be effectively used by a Smartphone user.

[12] The Marketing and Communication Manager at ZTE Company Limited
[13] The General Manager, Squad Digital

Use of Smartphones for Marketing/ Advertising and Communication

All the respondents agreed to have gone for the phones with high data processing speeds and internet connectivity in their search for a Smartphone. 9 of the respondents had phones with the ability to add applications through downloading. According to Nene, his Symbian operating system on a Nokia N9 Smartphone enables him to download Smart Applications and games. He said,

> *I chose this phone as it gives me the opportunity to add the applications I like to my phone through downloading. I am in the process of linking my business to my phone to enable me access the office applications from my phone.*

According to Carol, she uses her Smartphone for surfing the internet and sending emails. She had this to say,

> *I'm always online unless my phone is low on battery. I can send and receive emails from any point. My phone is like my baby and I always hold it dear. That's where I store all my data.*

According to Steven, he only uses his Smartphone for Surfing the internet and accessing social networks like LinkedIn. He has been able to link with peers and several professionals in the Industry. He says,

> *I can now procure unavailable parts which are required urgently from the local market by enquiring through friends I have met Via LinkedIn.*

According to him, the company has not embraced the use of Smartphones by its employees however. He agrees that the use of smart applications through phones comes in handy for field sales men in the department. He recommends that equipping field customer support and repairmen with Smartphones having good-resolution cameras and access to the internet would be a good move for the company. He adds this,

> *When repair personnel are on site at a customer's place, they would snap a close-up photo of a broken or faulty part and immediately send it back to the office either by*

email or post on the Facebook page to verify the correct part number, and check to see if it's available in stock or in other shops locally. If available, it can be easily send over by courier or a rider together with the invoice. This would help to avoid delays in ordering parts, and unnecessary running around to source and install parts.

He says that Social networks are also a good platform to use to send service reminders to customers and also to monitor their discontentment through complains.

Lawrence uses his Smartphone for social purposes like downloading music and games. However he admits that having data on the move through the Smartphones is a revolution to the creative designers. He had this to say,

With my Carzeis 8.4 mega pixels camera enabled Sony phone, I can take photos of anything creative I see while on the move and use the leads when I get back to the office to conceptualize a great idea .If I could arm all the employees in the office with hi-tech phones when they are on the move, we would have many creative ideas and this are good leads to create our commercials and endorsements from.

Mohammed says he's able to track all the vehicles on call with the Smartphone using applications in Smartphones like GPRS. This helps to ensure a hired vehicle is not used outside the territory it is supposed to cover.

According to Wokabi, the Smartphone can be used to take HD photos of available interior decorations and demonstrate to clients while outside the office. When a client enquires, one doesn't have to go back to the office to get catalogues.

Whether I am on duty or not, I always have my Smartphone with me and can always show Samples of designs stored in the Smartphone or upload them on email and sent samples to prospective clients.

According to Kirti businesses can benefit exponentially from the impacts of Smartphone applications. However, each SME should choose solutions depending on the specific need in

question. Kirti uses 'package Tracker'; an application that tracks packages through FedEx, DHL and other courier services. He says,

> *This helps when importing or exporting goods or raw materials. I can track when the consignment is at the airport or when the ship has docked. In the case of finished goods imported for sale, a trader can start planning on clearing them and servicing received orders from clients to avoid high storage charges. If a client wants to know where their shipment is and I am out of the office, it is now an easy matter as I can check on it from my Smartphone and give feedback immediately. This is convenience.*

According to Carol, the Smartphone has been a force to reckon with for marketers and users whose job involves working outside the office. She uses Smartphone Applications to fill-in forms, sign and return documents from her mobile device. There is no more printing, signing and faxing documents with such solutions on Smartphones. She says,

> *With a convenient Smartphone application to fill in forms, add a digital signature and send them to the other party, without needing to print them out, fill and fax them back, this is magnificent innovation. This saves time as it can be done from any point out of the office and it is convenient to the customer too as there are no delays.*

Use of a Social Network Accounts to interact with the Public

All the 10 respondents in this research agree to their SMES having adopted a Social Network account to interact with the public. Even those who do not personally use social media from their Smartphones, the business does and has someone to Monitor the discussions and control the views and wishes of Stakeholders an example being customers and suppliers. All the 10 SMEs in question have a Facebook page where the public can view their business profiling, join the page and share their sentiments. This acts as a good visibility and marketing tool.

According to feelings shared by Wokabi and Nene who are both in the creative design business, it is argued that customers are more visual than graphical nowadays. According to the findings, they use Facebook to share available designs for prospective clients to have a feel of what is on offer.

On the other hand a tweeter account, as per Lawrence, helps when sending an urgent message to your public for a new product launch or price Slash for a certain product. The findings of this study agree that social media is an unavoidable tool in marketing for introducing a product to a clients.

According to Samir, Facebook has helped in marketing their products to bars and individual customers. *He had this to say,*

> *We deal with local and imported liquor and we have not really incorporated the company systems to Smartphones. However, we have a Facebook page where customers can like and be getting updates on available drinks and place an order on the same Platform.*

4. 2 DATA INTEPRETATION

Data interpretation means attaching meaning and significance to the data analysis. Smartphone adoption was most popular with respondents of the age groups 21-30 and 31 – 40. These are young professionals who are trendy and ambitious. The Smartphone embodies much of what young people demand namely mobility, affordability and constantly staying in touch with friends. In so doing, it allows users to express their individuality, satisfies their technology-obsession and builds image. The research suggests that the 'Y-Generation' has accepted the Smartphone as a personal accessory because it is mobile, useful and has changeable characteristics. This group is techno-savvy and is not afraid to try out trendsetting capabilities, and is of risk takers. This group finds the cell phone liberating, free from monitoring, easy to use and provides instantaneous access to their peers.

In this study, the Nation-wide mobile phone spread/ penetration was a prerequisite to the successful adoption of Smartphone applications for SMEs. However this was not by itself sufficient incentive for the actual adoption. 100% respondents who said to have adopted the habit of carrying mobile phones with them owed this to the successful penetration of the native mobile phone as a prerequisite. Respondents perceived the Nationwide and ubiquitous use of mobile phones to have provided them with an exposure to exploit the new Smartphone technology.

Another prerequisite is a viable technical base in communication. The existence of another communication technology usage was a precursor to the spread and adoption of the Smartphone. People who have a prior experience with a previous technology tend to adopt a new and related technology faster than those who did not have this technology. In the case of this study, many of the respondents who have adopted the Smartphones for the daily usage have a prior experience with using the native mobile phone. This is known as Compatibility of technologies (Rogers, 1995). To add to this, the technical usage of Smartphones does not seem to be a bother to users as respondents attested to having no big problems in learning on how to use the Smartphone. The technology is not complex and it guarantees ease of use. This was as a result of them learning on the basics of navigating on various aspects of the phone gained from a long usage of the native mobile phone.

These findings suggest that first-hand knowledge about Smart applications is an important prerequisite for a meaningful adoption to achieve a critical mass. Many of the respondents wished to have more information about a New Smartphone application through a pilot phase before adopting the system. This was through innovators and early adopters who adopt the technology immediately it is unveiled. A large portion of the respondents, who had adopted different Smart mobile applications, stated that through the knowledge and experience gained in the pilots, they were able to decide whether the technology was worth adopting. This is referred to as observability (Rodgers, 1995) i.e. the Smartphone has made a consequential impact to the current users and brought a relative exposure of the innovation.

Another prerequisite is the need for a seamless, state-of-the-art and effective mode of communication when on the move. Many respondents had a clear need for a new and more sophisticated mode of communication other than the usual PC and traditional methods of communication and were therefore ready to explore Smartphones and consider adoption. All the respondents, commented that they need alternatives to the usual ways of communication, networking and running their affairs whether in business or in their daily normal operations.

4.3.1 Smartphone usage

The Smartphone offered much functionality that were missing in the Native Mobile Phone and this was a prerequisite for Adoption. However, the non adopters responded that they never deemed the Smartphone to offer any new/important thing than their native phone had in store for them. Some respondents claimed that the Current Smartphones could not provide some of the utilities they needed and therefore had not yet adopted. Also, consistent with the survey findings, lack of competitive pressure was cited as a reason why firms had not yet moved into use Smartphones for business. Many interviewees mentioned that they would not consider investing in mobile applications at this stage unless their competitors and strategic partners began to experiment with the new practices.

A large portion of the respondents attested to using their Smartphones mostly to access Social Network Applications like Facebook, Tweeter, YouTube, LinkedIn and Skype. However a noticeable number of respondents displayed signs of using the Smartphone for marking appointments on their calendar applications and also making bookings Online. As reported, Smartphones are widely used to purchase utilities like movie tickets, bus and flight tickets. A Smartphone user can make a booking for his/her flight from the comfort of her daily routines on the Smartphone. A user does not have to wait to access internet on a PC to be able to make a booking.

Many of the respondents agreed to the fact that Smartphone had the potential to turn round a business which was not performing well to become a market leader. Most of them, who owned a Smartphone, were not happy with what their phone had to offer in terms of Services. They wished the manufactures would incorporate other applications like CRM and Sales/Service automation where one can be able to work on his phone when on the move or when away from the office setting. This would ensure on-the-spot sorting of emergencies and also support to customers even when on the move. Businesses with few staff would embrace multitasking among themselves, both inside and outside the office. These functionalities will see increased benefits in sales and customer satisfaction therefore resulting to business growth.

Respondents wish their Smartphones had applications to enable them get travel related information like the tickets rates and special boarding/Hotel offers in the market. Getting an application that would help them get detailed information on where to get a particular kind of good or service when travelling, would help business persons in knowing where to get a service/product cheaply, conveniently and of good quality.

Respondents would also appreciate if their phones had been enabled with applications to allow them monitor traffic in different roads in the city. These would make it easy to move around in the process of doing your business and attending to appointments. The application would be able to show which roads have traffic to avoid and which ones are clear to use for easier navigation. Currently the only well developed Smartphone application offering such services is Google Maps which is not so detailed to show the extent of the traffic.

From the findings of the study, many of the respondents attested to using more of news, sporting, social, and general WAP surfing as compared to business, Travel, shopping and weather applications. Respondents like using Smartphones for gaming and having fun as well as Social Networking. This usage can be translated to enhance business growth. A large number using the Smartphone for accessing Social Networks and games application form a good market for products of SMEs. The high usage of these applications lays a basis and already confirms that most people are using their Smartphones to access social networks. These social networks can be used to foster SMEs growth by having a page where an enterprise can interact and share with its publics. This is a good platform for marketing and advertising and as well for getting feedback from an SME's customers.

4.3.3 Business applications

As per the purpose of the research, 'to examine the Impact of Smart Mobile Applications on SMEs in Kenya', the researcher sought to find out the current extend of usage of Smartphone applications by SMEs in Nairobi. This is because Nairobi has received the highest rate of Smartphone penetration in the country being the capital city and also the business centre in Kenya. The respondents are either the owners of the SMEs or in the management. Those who have already adopted the Smartphone Technology for running their businesses use Social

Media Applications like Facebook, YouTube, tweeter and Skype to suite their different needs. The study shows that a Facebook page which can be monitored 24 hours/7days to interact with Facebook users as they are the existing and potential customers is a prerequisite for any well-to do business. Facebook on a Smartphone can be monitored from anywhere by the authorised party (as the administrators) as long as they have the login passwords. Customers can get answers on their enquiries immediately and also have their concerns regarding a particular product or service addressed promptly. A Tweeter account on the other hand can be used for introducing a new product or a promotional offer to a product to the SME's followers.

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 INTRODUCTION

This chapter provides the summary of the findings from chapter four, and also gives the conclusions and recommendations of the study based on its purpose and objectives i.e 'to examine the impact of Smartphone applications on SMEs by seeking an in-depth understanding of the uses to ascertain the suitability of Adopting Smartphones for growth by SMEs in Kenya'.

5.1 SUMMARY OF FINDINGS

The findings in chapter four show that both the Smartphone and Personal Computer (PC) receive relatively high penetration among the sampled group of respondents. With the growing popularity of mobile communication for the masses comes the development of Smart Mobile Applications. Hundreds upon thousands of mobile applications have been created by telecom companies, software designers, and users. This research sought to explore the implications of these mobile applications and the devices that are capitalizing on the exponential growth.

The research explored to know the most common features and functionalities of Smartphones, attitudes towards the use of mobile services by users of both smart application–enabled mobile phones and non–enabled phones. It also collected information on Smartphone ownership and the usage patterns, perception of adopters and non-adopters on the impact of Smartphones on their lives and to a larger extent that of their businesses. It also concerned itself with gathering information on Smartphone suitability in communication, marketing/advertising and enhancing the smooth operation of SMEs.

5.1.1 KEY FEATURES AND FUNCTIONALITY OF SMARTPHONES

From the finding of this study, the Smartphones being used in the Nairobi market depicted several features which were not available in the native mobile phone. The most prevalent and most outstanding were; fancy, large and high quality screens, state of the art operating systems coupled by high speeds of internet, large storage for data, high definition cameras with LED and many more.

Slide out screens, touch screens and onscreen QWERTY keyboards are common features inherent in present day Smartphones. This is coupled by bigger screens to make functions easier to use on Smartphone.

Smartphones are characterised by high internet speeds for processing of large amounts of data. All the available Smartphones allows a user to sync internet data via Wi-Fi and Bluetooth. This allows users to share information within their Smartphones and to print and fax documents from their Smartphones by connecting to printer and fax via Bluetooth. The Mobile Internet is one of the inventions of all times and Smartphone are the best devices to offer this, owing to their ubiquitous nature. These Smartphones allow downloading of other applications on top of what has been sold with the Smartphone. These features are the enhancers of the functionalities that users like for their day usage of Smartphones. With high speeds of internet connection, users can receive and sent information via their Smartphones while on the move thereby avoiding downtime and enhancing working while on the move. With high definition camera enabled Smartphones, users can take graphical images and share them using the same device through email or social networks. This brings three functionalities under one device. ie the Camcorder, Smartphone and a Digital Camera. It presents a good example of convergence of much functionality in one device i.e the Smartphone.

The GPS was recorded to be a favourite and Key application to Smartphone users. This provides a navigational Kit that helps in finding your way in a less populated place or in a new place. Applications like Google Maps take a lot from the GPS.

Modern Smartphone boasts of the possibility to store large amounts of data. It enables a user to store pictures, documents and movies. According to Rado, this is an important feature as it enables a Smartphone user to move with large amounts of data with ease. This is what he had to say,

Most of the Smartphones have up-to 80 GB of storage space. They also allow a user to expand the storage space using Micro Discs and memory Cards. This functionality to store data in bulk can be used to carry documents by a sales person when on the way to a customer's premise to

close a sale. A Smartphone can be used as a form of entertainment as it is said to store music in all Format's.

The Smartphone doubles up as a 'Personal Assistant' as it is a data organising tool. It provides plenty of functionality for organising especially alarms, calendars and other applications for business purposes. A user would schedule appointments, diarise and set an alarm as a reminder, all on the Smartphone. The appointment calendars can be synchronised through active sync to all members of a department on PC.

State-of-the-art Operating Systems and Browsers are an important feature in the Smartphone. The latest mobile browsers are optimized so as to display Web content most effectively for small screens on portable devices. Mobile browser software must be small and efficient to accommodate the low memory capacity and low-bandwidth of wireless handheld devices as compared to the PC.

It was noted that some Smartphones have character recognition features which allow for handwritten input into the Smartphones. This feature helps in making a document within a less time as compared to the native mobile phone. Moreover, latest Smartphones have Microsoft office compatible applications like Excel, Word and PowerPoint helping in making and editing of documents while on the move to address an urgent need.

5.1.2 COMPARISON OF TRADITIONAL METHODS OF COMMUNICATION WITH SMARTPHONE POWERED APPLICATIONS

With the increase in the content that consumers can receive on their mobile phones as a result of the discovery of state-of-the-art Smartphones, users can now receive HTML-styled pages, graphics, video, MMS and other services that were only available within the mediation of a PC. There has been a shift in the way users access these services by adopting the Smartphone.

Findings from the research have shown that respondents are less enthusiastic in shopping online using a fixed terminal such as PC. In contrast, respondents expressed their willingness to buy concert/cinema tickets, buying travel tickets, Making hotels and other facility bookings and buying utilities online using a WAP-enabled Smartphone. One possible explanation could be

that the decision may often be made on an impromptu basis, for example to watch a movie, where fixed terminals such as PC may not be readily accessible. Thus, the ability to order tickets anywhere, anyplace and anytime through a WAP-enabled Smartphones makes it the ideal device for such transactions. Likewise, accessing appointment reminders via a fixed terminal such as PC does not generate as much interest as compared to performing the same activity using a Smartphone. Since the likelihood of sharing a WAP-enabled Smartphones is low compared to a fixed terminal such as PC, respondents may feel that using it to retrieve personal information is more convenient and secure as it offers privacy to users.

The results also show that the adoption of Smartphones by respondents has mostly been noted mostly on previous and current users of the PC and PC-mediated internet services. This shows a trend where technology is easily accepted by users who had an experience with another previous technology. The adoption of the Smartphone applications by users of previous technologies proves its benefits over the predecessor's. They have had a previous encounter with technology and already know the benefits. The adoption of Smartphones is also as a result of the advantage of mobility offered by Smartphones over and above those of the usual PC and other modes of traditional communications. The Smartphone offers a relative advantage over the PC hence the choice to adopt.

From the findings of this research, it is evident with the arrival of Smartphone technology that, those most poised to adopt the technology quickly would be those who have a prior experience in surfing the internet and those who currently hold the native mobile phone. This is because Smartphone technology combines two of the hottest innovations–mobile phone and the Internet (Mackenzie and O'Loughlin 2000). Therefore Smartphones applications are poised to succeed the Internet as the next big thing.

The findings also show that adopting a technology whose existence is short-lived (the native mobile phone) does not motivate people anymore. Mobile operators have always taken every opportunity to promote the relative advantages of using a WAP - enabled Smartphone in accessing the Internet over a fixed terminal such as PC. However, without complimentary Smartphone applications, the promise of WAP - enabled Smartphones relative advantages will

never be fulfilled. Thus, mobile operators and content providers should seek to deliver these complimentary applications, in the telecommunication industry, to woo users and consequently improve the adoption rate. The ability to access the Internet anywhere, anyplace and anytime will only be useful if doing so serves a purpose such as meeting a specific time schedule for a business.

5.1.3 ACTUAL USAGE OF SMART APPLICATIONS IN THE OPERATIONS OF SMES IN NAIROBI REGION

The results show that Smart Mobile phone applications users are generally young, male, and educated. The majority own Smartphones and personal computers for their day–to–day running of their business. As expected, they usually access the Internet and internet supported applications from home and office from the PC, and from the Smartphone when on the move.

Respondents also express significant interest in using WAP-enabled Smartphones for various time-sensitive activities such as buying concert/cinema tickets, receiving personalized news, receiving appointment reminders, etc. In addition, the value of personalization is evident because Smartphones are usually designed for use by only one person, compared to a PC. The receptivity of respondents to advertising on the Smartphone is dependent on the degree of personalization and benefits of receiving such advertisements.

According to findings of this study, respondents believe that businesses that would fully adopt the Smartphones would see a major improvement in work efficiency:

- Smartphone technologies would improve the ability to do their job.
- Some say these technologies would improve their ability to share ideas with co-workers.
- Others say these tools will allow them more flexibility in hours spent at work as they can work from anywhere.

However, despite the vast improvements that have been made, SMEs are realizing that the mobile workforce isn't nearly as empowered as it may appear on the surface. This is because many critical business Smart applications used every day like some CRMs were not developed for Smartphone access. Some are completely inaccessible to the mobile workforce, only available to those back behind the confines of corporate headquarters. Employees working at home, from a hotel, at a client location, or even on an airplane are unable to access valuable

information from ERP, CRM and some accounting softwares as an example. Owing to this, despite tremendous infrastructure improvements, the flow of critical information from the server to the mobile workforce is limited, causing delays and inefficiency in the execution of assignments that require mobility.

The researcher sought to examine respondents' perception on advertising and marketing on Smartphones. Social networks offer abundant opportunities to SMEs to engage with customers. For most marketers, social networks are an opportunity to engage consumers. In this research, it was found that big number of marketers is using Social networking tools to collaborate with consumers on product development, service enhancement and promotion. SMEs can therefore use Social networking tools on the Smartphone (which is widely adopted by users and can be used from anywhere at any time) to improve collaboration with both its business partners and consumers. Networks such as Twitter and Facebook are now becoming common elements and offer outlets to address customer issues and improve products. Some use Tweeter to release "breaking news" and upcoming events. Tweeter allows users to get instant updates from friends and industry experts and tweet from multiple accounts. A tweeter account can be beneficial for product endorsements and announcing new products in the market. The administrator of the account on a particular product will always try to follow as many tweeter users as possible. In return, friends of those being followed will follow the product page. A tweet can be sent whenever there is a new product in the market to inform would be users. A tweeter account is also good in reminding people of upcoming events.

YouTube is a leading network to disseminate videos that feature executives/users speaking regarding their products. YouTube is a good platform for advertising or demonstrating a product to potential customers. Streaming on YouTube can also be posted in Facebook and tagged on to different user's walls.

Skype is a good forum for VOIP (Voice over Internet Protocol) calls as it enables two Skype users to call free of charge. This is helpful for interoffice communication when one of the users in out of the confines of the office. Skype can also be helpful for business to business communications (B2B) as long as both ends are logged in to the network. This can be used for

placing orders anywhere in or away from the office premises. A Skype user can always make and receive calls from anywhere to contact a customer or a supplier in the channel of business engagement.

Job placement applications like Brighter Monday and Career point are used by SMEs in Nairobi for advertising vacant positions in their businesses. According to the U.S. Bureau of Labor Statistics, 70% of all jobs in the world are found through networking. It's no surprise, then, that so many SMEs in Kenya are on the lookout for tools to improve their networking skills where they can advertise and receive applications online. The brighter Monday applications and others in Nairobi can be used from a Smartphone where a job applicant can upload their application online and the employer receives it from the other end by logging in into their signed up account any time from anypoint.

These days, there are so many ways to exchange contact information. Some people prefer traditional business cards, while others enjoy the linking on professional network applications like LinkedIn or tweeting their business cards. In the world of fragmented information exchange, there is one business standard that we may be able to rely on: LinkedIn. The free Smart application on the Iphone, Android, Blackberry, Nokia Symbian and Windows Mobile gives a SME the power to connect with over 60 million professionals and businesses worldwide. One can also set their status, invite contacts, accept invitations, read and respond to messages and keep up with their contacts' updates. This helps Employees to keep in touch with peers in the industry and learn of any advancement in order to accomplish their duties in a better and smarter way. As an example, a field technician can post from his Linked account on his Smartphone when he encounters a difficulty to inquire on how to carry out a certain repair.

As per this study, tracking applications can track your package through UPS, FedEx, DHL and other courier services. This will help in cases where one is importing or exporting goods or raw materials. This application comes in handy for planning purposes. An importer of goods can be able to track when the consignment is at the airport or when the ship has docked. In the case of finished goods imported for sale, a SME can start planning on clearing them and servicing

received orders from clients to avoid high storage charges. A variety of applications now make it possible to conveniently track packages being delivered.

'Whatsapp' is an application that allows users to exchange messages without having to pay for SMS costs. Both users need to have signed up for this application on their Smartphones to allow sending and receiving of texts. Adopting this application reduces the communication budget for SMEs in and outside the office premises. It can also be used for sending bulk Marheting SMS by SMEs

It was noted that a SME can monitor the web via Smartphone to see who has commented on a product or service. Through a Smartphone, a user would also be in a position to direct customers or suppliers on a particular inquiry even when out of the business premises. This can also be used to check re-order levels for stocks and also check availability of a product before making a promise to a customer.

5.1.4 SMART WAYS OF USE OF THE SMARTPHONE APPLICATIONS TO SMES IN KENYA

SMEs have become more competitive by using Social Networks marketing strategies to compete with larger companies. As new businesses grow and develop, new technology is used to decrease the gap between businesses and customers. Social networks have become more intuitive and user friendly to provide information that is easily reached by the end user. For example, SMEs use Twitter to offer customers coupons and discounts for products and services.

In this day the assumption is that many people already use their Smartphones to retrieve and answer short emails or take voice calls while out of the office. However these are the basics and people have already embraced other innovations to adopt smart applications on their mobile phones in-order to increase their mobility while out of the office. What these study focuses on here are innovative uses of mobile devices to operate your business, to close sales, to source the right repair parts and get them into the hands of your repair staff, to deliver goods and services to customers, to manage inventory and supply levels, take payments outside the office and much more. If an SME is currently using mobile devices to such levels, then you are on the right track.

There are several ways of integrating Smart mobile devices and applications into your internal operations to generate more revenue, improve your bottom line, or deliver better customer service as learned from the findings of this study:

Filling in forms, sign and return documents from your mobile device – No more printing and faxing documents when you are on the move outside the office. Use a convenient Smartphone application to fill in forms, add a digital signature and send them to the other party, without needing to print them out, fill and fax them back. This saves time as it can be done from any point out of the office and it is convenient to the customer too as there are no delays.

It can be used for putting QR Codes on items to give your customers more information. QR codes are 2-dimensional codes that you can create and print on documents such as marketing materials and even business cards. Then using a QR scanner application on a Smartphone, the customer can get more information directly on their handheld device on documents you sent them like plans and structures which require more details. You might use QR codes to provide more product details or even coupons and discounts.

Loading catalogs or images of product models on your Smartphone – There won't be any need to carry catalogs if good resolution images and other information can be available on your Smartphone instead. You can opt to email selected information to the customer to print out from their side.

Tracking inventory with Blackberry or other Smartphone applications provided by Android — using a combination of an inventory software application, and a barcode scanner app or add-on for your Smartphone device, you can scan and/or check inventory on site or while mobile.

5.2 CONCLUSIONS

Even with the proliferation of Smart Mobile Applications, the diffusion of Smart Mobile Applications among Kenyan SMEs is still limited. A reasonable spread of these solutions is evident only in a few SMEs and especially those dealing with ICT related products and banks. However, increasing customer and other stakeholder needs and requirements are pushing businesses to adopt these technologies or otherwise lose business. Among the applications, the

Sales Force Support systems are the most prevalent, followed by mobile office. As per the findings of the research, the reasons for not adopting these solutions are basically a lack of knowledge about these kinds of applications and difficulties perceiving the benefits and value before implementation. This makes SMEs to be hesitant to risk into spending into an application which might not bear fruits in the immediate future. Subsequently, when the value of these applications becomes clear, as indicated by the respondents, anyone can afford to take a risk in adopting them.

As learned in the study, SMEs are unique and different compared to bigger businesses, especially in the availability of organizational resources, so managing SMEs is different from managing larger businesses (Aragon-Sanchez & Sanchez-Marin 2005; O'Regan & Ghobadiah 2004; Welsh & White 1981). As SMEs grow, they face new problems. The first problem is due to their limited staff: growth means that existing staff must deal with additional workload and new duties brought by the growth. Here the immediate problem is controlling and managing SMEs as a whole. The second problem is limited access to resources (Welsh & White 1981). For SMEs to grow, they must acquire more resources, yet due to their original smaller size this is not an easy task. The limited resources owned by SMEs lead to limited options in conducting business, limited options in acquiring assets and technology, and limited access to financial assistance such as loans. The third problem relates to their increasing customer numbers: SMEs must dedicate some of their already limited staff and resources to managing their relationship with customers. All these challenges call for a seamless IT system in the office when on the move. As seen in the finding of this study, SMEs play a significant role in the Kenyan economy.

Non adoption of IT like Smartphone technology within SMEs is caused by lack of resources i.e human resources, financial resources, technological resources. SMEs frequently do not have adequate IT knowledge and expertise within their organization or funds to acquire the knowledge. This can lead to inappropriate adoption of Smartphone technology or even failure to adopt it (Al-Gahtani 2004, Chakravorti 2004, Fink 1998). Availability of user-friendly IT applications has made SMEs' operations effective and increased efficiency (Foong, 1999). However when talking about ICT and specifically Smartphone technologies, only few SMEs

have been able to tap the technology of Smart Mobile Applications to further growth in their businesses through increasing of visibility, in their production and through cutting down their operational costs. Owing to their size, they do not have large budgets to spend a lump sum on complicated IT system development and system integration and they lack enough manpower for technology management. They only need telecom services similar to what the large corporates use to improve productivity, but cannot afford the same model and price. The solution is to give them the same thing in a different way. Smartphones offer a nice scenario for SMEs efficient selling and operation. SMEs are keen on mobility due to their limited staff who multitask on several duties in and out of the office. Therefore, they would be more comfortable with Smartphones endowed with the required applications in the hands of decision makers and employees to work in and outside the office.

The development of the Smartphone has fuelled the expectation of both industry players as well as consumers. With an increased mobile and internet penetration in Nairobi region, SMEs should face few inhibitions towards adopting Smartphones for use in their enterprises. This high penetration coupled with the deregulation in the telecommunication industry (On zero rating tax levied on computer, mobile phone devices and related parts in the 2010 budget) should give the SMEs a new lease of life.

Being accessible while you run minor errands can increase productivity by cutting down on delayed replies in communication. Smartphones have never been more popular than they are today, and with 3G and 4G networks people can use these gadgets to stay connected, consume information and entertain themselves on the go. Of importance in this study is the moving of SMEs business from a desktop computer or laptop to web connected Mobile Phone i.e the Smartphone.

The adoption of Smartphones will lead to an increase in the revenue earned from sales as through effective advertising and marketing strategies on applications. Lesser costs will be incurred in paying employees as a small number of staff will be required. This is because staff will be able to serve more than one duty, thanks to easier and quicker mode of operation ensured by the Smartphone.

Business will thrive on Smartphone applications communication. Because:

- Business can keep track of consumer needs/trends and consumer relates this back to business by giving feedback trough the Smart Applications
- Consumer is more aware of different options available to him when in the need to purchase a good or service.
- SMEs can communicate their products and services offering to a wider range. Hence better quality of products and services are offered to customers. Businesses can Catalogue Products or Services they offer. An example is the Kenyan application, Mocality, which is a platform that connects businesses and consumers through a simple, intuitive Smartphone and PC interface. Businesses use the platform to attract and communicate with new and existing customers. On the other hand, Consumers use the platform to search, discover and interact with businesses to get their products and to check on the best in the market.

The study agrees that there is a noticeable benefit of Business to employee (B2e), business to Business (B2B) and Business to customer (B2C) Smartphone applications for SMEs. Gebauer and Shaw (2004) and McIntosh and Baron (2005) highlight how the use of these applications can increase both operational efficiency and organizational flexibility; improving SMES' ability to handle external or internal changes. Benefits include increased output, better work experience, cost saving, time management, high profitability, ease of connectivity among others. Smartphone applications will extend the reach and productivity SMEs. Once you equip yourself and your employees with Smartphones empowered with these business-favouring applications, then both you and them can perform all sorts of business functions while out of the office traveling, on sales calls, making service calls and many more.

SMEs in the Kenya should take advantage of the availability of Service providers who have already realized the importance of these applications suitable for Enterprise growth and increased research and production of suitable applications. Examples are; Vodafone (a telecommunications company dealing with voice and data) which has set up a marketplace for

applications (Business Place) - an applications store - that is aimed at developing business and productivity applications for SMEs. Currently, more than 50 of its partners provide business applications. Other than that, it has synergized efforts with other providers like Huawei technologies (a Chinese technology company offering cheaper and equally admirable) and created an Intranet of mobile applications on which SMEs can set up a "private" area as explained by Rado.

The proliferation of relatively Cheap and affordable Smartphones in Nairobi by both Huawei and Samsung companies will go a large way in inducing and enticing a large portion of the population to using Smart-application-enabled phones. This creates a large market repertoire for SMEs as the potential customers would be easily accessed on applications like Facebook and tweeter on their enterprises fan page. Customers who use the enterprises products and are on the social network will be always in the picture when a new product is in the market just by following the business profile. The SME in return will also have the opportunity to gauge the customers' demands and their satisfactions via comments and feedbacks given on the social media networks. A SME will find out real-time information about potential customers; including when they visit, how often, whether they commented positively/negatively about your establishment to their friends, thus you can reach out and incentivize them to be repeat customers.

It's undeniable that mobile business communications technology gadgets like Blackberrys, Iphones, Androids and other Smartphones greatly improve our productivity. The trend will continued changing and what SMEs need to realize is that competition will continue to stiffen. The solution is to look for relatively cheap and fully networked handheld as there's no such thing as downtime. For SMES that are considering making the move to indulge in mobile businesses, there is good company as business users are one of the fastest growing market segments for Mobile Phone communications technology. (Lotus Software)

The key ingredient relies on the fact that most Smartphones are connected, running on a device that tends to always be physically with the consumer, and sometimes having more computing power than a desktop computer or laptop. We are seeing evidence that more people are 'on

the go', more accessible, consuming more data with mobile applications; companies can reach their target market quicker and more cost efficient than ever before.

Early adopters of e-business are sensitive to the strategic actions of their competitors and the leading firms in the industry. They quickly respond to changes in the competitive environment. Secondly their adoption decision is based on a series of trial-and-error efforts at different stages. This explains why they do not tend to take a "wait-and-see" attitude toward e-business. Third, they are innovative and their firms have stronger intentions to pursue e-business than less innovative firms.

Leung and Antypas suggest that mobile commerce can enhance business efficiency by distributing information to the workforce remotely and by offering new channels on which to interact with customers. Varshney and associates further suggest that organizations capable of harnessing the power of mobile technologies to automate and streamline business processes may reap the benefits of improved productivity, lowered operational costs, increased customer satisfaction, and improved decision making.

Emergency Handling relates to the need to perform a certain task within a short time frame following a triggering event. In such situations, the ability to act swiftly, even when out of the office, is of great importance. In addition to notification, support to actually act on urgent tasks can be a valuable contribution of mobile business applications. This inspires the proposition that Smartphone business applications should have operational impacts by way of improving productivity and efficiency. These improvements come about mainly because of the compression of business processes resulting from reduced idle time and the possibility of distributing workloads more evenly across time and space. In addition, Smartphone business applications are also expected to have an impact on process effectiveness and organizational flexibility, including the capability for emergency handling. These effects result from the fact that mobile applications allow employees to keep informed about ongoing events and to interact with their corporate base while physically out of the office.

5.3 RECOMMENDATIONS

Before investing in an expensive Smartphone a business user should first think carefully about which extra features he/she will need and whether what is being offered is helpful to the task in question. It is therefore advised to have the knowledge to download additional extra applications as Smartphones rely on users downloading additional applications to Expands the phones functionality. If you realize you only need a phone for voice calls and texting, then it is not worth paying so much for a Smartphone as good Smartphones come at a prime rate compared to the Native Mobile phone.

Once you have made the decision, mobile communication has become an essential part of your business via the use of Smartphones. Few people spend their entire day chained to their desks anymore therefore require the ability to communicate while they move around within the organization and the outside world.

To ensure growth in this sub- sector of the economy, we should ensure that SMEs are endowed with the same access to services as we provide to large corporations, which gives them a competitive advantage. Hambali (1990), Putranto et.al. (2003), and Sandee and Rietveld (2001) found that one of the factors causing SME failures is a lack of capability to acquire appropriate technology that is important for the business. The failure to adopt appropriate IT might cripple SMEs financially and leave them no systems to use. The types of communication have also become more complex. Whereas a person once communicated primarily by voice, in today's world; text, data, and video are playing an increasingly important role.

The future for businesses and individuals in Kenya is bright. The fixed and mobile broadband markets will continue to evolve bringing more and more features and applications to their disposal as a result of the revolution in connectivity. With the handset prices falling and Smartphones becoming increasingly available, the SMEs embracing the technologies are set to experience an increased penetration rate of their sales through increased adoption of Smartphones by the consumers.

At the very minimum SMEs should ensure that their websites are mobile optimized when someone accesses it from a Smartphone. A mobile optimized website takes your existing

website, however, presents it best for small screens. Therefore many of the presentation factors are eliminated to accommodate for faster page load speeds over cellular networks. Content information, navigation and buttons are made larger to account for fingers and thumbs acting as the pointing device versus a mouse. Great examples include Yahoo, YouTube, Facebook and Twitter mobile websites.

5.3.1 Enhancing the use of Smart Applications by Kenyan SMEs

Promoting creativity and innovation in the SME sector is a key driver for the Kenyan economy.

This can be done through the:

- Facilitation of the linkages between research institutions and SMEs to support and enhance innovation and Smart Applications technology development.
- Uses of ICT access points provide access to SMEs by facilitating Smartphone technology transfer and diffusion through training;
- Through the introduction of regular ICT trainings for SMEs, and make deliberate efforts to make business applications such as accounting and finance, business planning, human resource etc. available for SMEs use through Smartphone applications. This is already happening within Kenya with arrangements like the IHub which are helping as a resource for SMEs ICT incubation.
- Deliberate efforts to encourage the development of SME-specific Smartmobile Applications in the country owing to the proliferation of mobile phones and the increase in the speed and accessibility of internet. This is being done on a small scale by ISPs (Internet Service Providers) and Cellular Network Providers like the Safaricom cloud which is a good resource for SMEs to tap from.

- Equipping of ICT access points with relevant human resources, skills and equipment for them to provide the needed support to SMEs;
- Unprecedented need for the Government and private sector support enhancing a conducive business climate for SMEs

Mobile payment is also an existing revolution in the Kenyan Mobile business sector but has not been fully exploited by the SMEs in Nairobi. SMEs need to adopt Mobile payment as one of the ways in which customers can make Point of Sale(POS) payments . This can be integrated will other existing traditional methods of payment. The adoption of Mobile payments has seen the creation of user designated business numbers where customers can settle their bills by sending their money to a certain number. With the discovery of MPESA, Airtel Money, Yu Cash and Orange Money, customers do not have to walk with hard cash always in their pockets but can just use their phones like when the need arises just like in the case of Credit Cards. Businesses that offer mobile payments are forerunners and tend to attract more customers because of making the process of shopping easier. Paying with a mobile phone speeds up payments and mobile payments increase impulse purchases. Mobile payment benefits include the ability of customers to pay independent of time and of place. It is easy for the user to learn to use the mobile payment system.

In addition, companies ought to embrace social networking Marketing and Advertising for Smartphone because:

- Social networking is going to happen. According to the findings of this study, Workers increasingly have Internet access on their Smart phones. It has been projected that by the year 2013, 43% of global Mobile Internet(MI) users (607.5 million people worldwide) will be accessing social networks from their mobile devices.(ITU, 2011)
- Most employees will use it wisely and for the benefit of the enterprise despite allayed fear that social networking would lead to "Networking" instead of doing their jobs. Employees with proper training and guidance will use this new "technology" in ways that will enhance the enterprise's products and services.

- Social networks can make workers more productive. 3 out of the 8 experts interviewed for this research, said that use of the Internet enhances human intelligence, and the remaining 3 said use of the Internet has improved reading, writing, and rendering of knowledge. This means that having Internet always on the move makes an Employee more empowered.
- Social networks enhance the engagement of people from around the globe. Great ideas are gems that are ready to be found on social networks and can come from any level of a company. Using social networks internally fosters collaboration, and allows workers at all levels to contribute ideas. The use of social networks externally via the Smartphone can help employees network with peers and get a solution to a problem in the company.

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APPENDICES

APPENDIX 1: SAMPLING FRAME

2011 Kenya Top 100 companies	2010 Kenya Top 100 companies
Rank Name of Company	Rank Name of Company
1 JUNGLE MACS EPZ LTD	1. PROFESSIONAL MARKETING SERVICES
2 PENTAPHARM LTD	2. DESIGN CORPORATE LTD
3 KEMA E A LTD	3. COMPTER PLANET
4 PG BISON KENYA LTD	4. ULTIMATE ENGINEERING LTD
5 MUKURWEINI WAKULIMA DAIRY	5. FLOORING & INTERIORS LTD
6 SOFTWARE TECHNOLOGIES LTD	6. APEX COMMUNICATION LTD
7 KENTONS LTD	7. DAWA LTD
8 SBO RESEARCH LTD	8. SOFTWARE TECHNOLOGIES LTD
9 LEE CONSTRUCTION LTD	9. GAP MARKETING LTD
10 SATGURU TRAVELS AND TOURS	10. SWIVEL MARKETING
SERVICES LTD	11. CANON ALUMINIUM FABRICATORS LTD
11 DAWA LTD	12. DISTRIBUTED COMMUNICATION SYSTEMS LTD
12 TRANS BUSINESS MACHINES	13. SECURITY WORLD TECHNOLOGY
13 UNES LTD	14. STANTECH MOTORS LTD
14 HEALTH CARE DIRECT	15. MUKURWEINI WAKULIMA DAIRY LTD
15 PRINT FAST LTD	16. BELL ATLANTIC COMMUNICATION
16 GAP MARKETING LTD	17. GINA DIN CORPORATE COMMUNICATION
17 RADAR LTD	18. MANJI FOOD INDUSTRIES LTD
18 SPICE WORLD LTD	19. SATGURU TOURS & TRAVEL LTD
19 VICTORIA FURNITURES LTD	20. LOTA AUTOMOBILES LTD
20 MURANGA FORWARDERS LTD	21. POWER CONTROLS LTD
21 INVESTEQ CAPITAL LTD	22. HEALTHCARE DIRECT (K) LTD
22 CANON ALUMINIUM FABRICATORS LTD	23. INVESTEQ CAPITAL LTD
23 KENBRO INDUSTRIES LTD	24. VICTORIA FURNITURES
24 LANTECH AFRICA LTD	25. TIGER BRANDS (K) LTD
25 CHEMICALS & SCHOOL SUPPLIES LTD	26. SKYLARK CREATIVE PRODUCTS LTD
26 OASIS LTD	27. VITAFOAM PRODUCTS LTD
27 SEASONS RESTAURANTS & HOTELS LIMITED	28. BRAND LIMITED
28 CHARLESTON TRAVEL LTD	29. KAMILI PACKERS LIMITED
29 SHEFFIELD STEEL SYSTEMS LTD	30. BISELEX KENYA LTD
30 SUNPOWER PRODUCTS LTD	31. SARACEN MEDIA COMPANY
31 BISELEX KENYA LTD	32. GENERAL ALUMINIUM
32 PLANNING INTERIORS LTD	33. UNES LTD
33 FURNITURE INTERNATIONAL	34. TONONOKA ROLLING MILLS LTD
34 MASTER POWER SYSTEMS LTD	35. SPICE WORLD LIMITED
35 BBC AUTO SPARES LIMITED	36. ISOLUTION ASSOCIATES
36 TRANSPORT & LIFTING SERVICES	37. CHARLESTON TRAVEL LTD
37 GENERAL ALUMINIUM FAB LTD	38. EGGEN JOINEX LTD
38 COMPUTER PLANET LTD	39. SAHAJANAND ENTERPRISE LTD
39 VAJRA DRILL LTD	40. RELIABLE ELECTRICAL ENGINEERS(NRB) LTD
40 AVTECH SYSTEMS LIMITED	41. EXPRESS AUTOMATION LTD
41 TYREMASTERS LTD	42. VIVA PRODUCT LINE LTD
42 COMPLAST INDUSTRIES LTD	43. LACHLAN KENYA LTD
43 HEBATULLAH BROTHERS LTD	44. DESBRO ENGINEERING LTD
44 OPTIWARE COMMUNICATIONS LIMITED	45. ALPINE COOLERS
45 GANATRA PLANT & EQUIPMENT LTD	46. KENTONS LTD
46 AFRICA TEA BROKERS LTD	47. MURINGA HOLDINGS LTD
47 SAI PHARMACEUTICALS LTD	48. THE PHOENIX LTD
48 SILVERBIRD TRAVEL PLUS	49. TRANS BUSINESS MACHINES
49 WARREN ENTERPRISES LTD	50. MASTER POWER SYSTEMS LTD
50 PELICAN SIGNS LTD	51. GANATRA PLANT EQUIPMENT
51 NAIROBI GARMENTS ENTERPRISES LIMITED	52. OIL SEALS & BEARINGS LTD
52 CHEMSERVE CLEANING SERVICES LIMITED	53. RANGECHEM PHARMACEUTICALS LTD
53 GINA DIN CORPORATE COMMUNICATIONS	54. SPECICOM TECHNOLOGIES LTD

54 MADHUPAPER KENYA LTD	55. PENTAPHARM LTD
55 KEVIAN KENYA LTD	56. SILVERBIRD TRAVEL PLUS
56 BIODEAL LABORATORIES LTD	57. SIGMA SUPPLIES LTD
57 VIVA PRODUCTLINE LTD	58. HEBATULLA BROTHERS LTD
58 CAPITAL COLOURS CREATIVE DESIGN LTD	59. IMPALA GLASS INDUSTRIES LTD
59 KINPASH ENTERPRISES LIMITED	60. WARTSILA EAST AFRICA LTD
60 FARAM EA LTD	61. FURNITURE INTERNATIONAL
61 THE PHOENIX LTD	62. AVTECH SYSTEMS LTD
62 KANDIA FRESH PRODUCE SUPPLIER LTD	63. SAHAJANAND STORES LIMITED
63 DALCO KENYA LTD	64. KEVIAN KENYA LTD
64 UNION LOGISTICS LIMITED	65. SMART PRINTERS LTD
65 CREATIVE EDGE LTD	66. CREATIVE EDGE LTD
66 MARKETPOWER INTERNATIONAL LTD	67. PREMIER INDUSTRIES LTD
67 WAUMINI INSURANCE BROKERS LTD	68. PARAPET LTD
68 STOIC FLEET WATCH	69. PELICAN SIGNS
69 R & R PLASTICS LIMITED	70. KENYA BUILDERS & CONCRETE CO LTD
70 EAST AFRICAN ELEVATOR COMPANY LIMITED	71. SECUREX AGENCIES(K) LTD
71 ALPINE COOLERS LTD	72. MADHUPAPER KENYA LTD
72 SPECIALIZED ALUMINIUM RENOVATORS LIMITED	73. KENYA SWEETS LTD
73 PANESAR'S KENYA LTD	74. TRAVEL AFFAIRS LTD
74 NATIONWIDE ELECTRICALS INDUSTRIES LIMITED	75. PHILAFE ENGINEERING LTD
75 TOOLCRAFTS LIMITED	76. 76WINES OF THE WORLD
76 CIRCUIT BUSINESS SYSTEMS	77. BIODEAL LABORATORIES LTD
77 SAHAJANAND ENTERPRISES LTD	78. MICROSKILLS I.T (K) LTD
78 WINES OF THE WORLD LTD	79. CIRCUIT BUSINESS SYSTEMS
79 AIRTOUCH COOLING SYSTEMS	80. CROWN FOODS LTD
80 HARDWARE AND WELDING. SUPPLIES	81. CAPITAL COLOURS C. D LTD
81 LIMELIGHT CREATIONS LIMITED	82. FAIRVIEW HOTEL
82 AXEL ENGINEERING AND MANUFACTURING LTD	83. PWANI CELLULAR SERVICES LTD
83 VIRGIN TOURS LTD	84. BROLLO KENYA LTD
84 SKYLARK CREATIVE PRODUCTS LTD	85. ONE WORLD COURIERS LIMITED
85 EGGEN JOINEX LTD	86. NIVAS LTD
86 DESBRO ENGINEERING LTD	87. DEEPA INDUSTRIES LTD
87 TIGER BRANDS KENYA LTD	88. KARNATAKA WATER PUMPS AFRI LTD
88 CATALYST TRAVELS LIMTED	89. TRUFOODS LTD
89 PROFESSIONAL CLEAN CARE LTD	90. PRAFUL CHANDRA & BROTHERS
90 PREMIER INDUSTRIES LTD	91. VISH ELECTRIC LTD
91 CHUMA FABRICATORS LIMITED	92. TYRE MASTERS LTD
92 PRAFULCHANDRA & BROTHERS LTD	93. UNION LOGISTICS LTD
93 PARAPET LIMTED	94. ALPHA MEDICAL MANUFACTURES LTD
94 RONGAI WORKSHOP & TRANSPORT LIMITED	95. TRAVELSHOPPE CO.LTD
95 ZAVERCHAND PUNJA LTD	96. CONTINENTAL PRODUCTS
96 TRAVELSHOPPE COMPANY LTD	97. SHEFFIELD STEEL LTD
97 EUROCON TILES PRODUCTS LIMITED	98. SUPERFOAM LTD
98 GLOBAL TRADE MARKET PLACE	99. SAI PHARMACEUTICALS LTD
99 RANGECHEM PHARMACEUTICALS LTD	100. TRAVEL CARE LIMITED
100 VARSANI BRAKELINING LTD	

Source: www.smenetwork.co.ke

APPENDIX 2: INTRODUCTION LETTER

My name is Ben Kisini Muli. I am a MA student in the School of Journalism at the University of Nairobi and in my final year of study. As part of the requirement for the award of the degree of Master of Arts in Communication Studies, I'm undertaking a research on the 'Implications of Integrating Smart Mobile phone applications on SMES in Nairobi Region.' The data gathered in this questionnaire will be handled strictly, confidentially and solely for purposes of this thesis unless agreed otherwise with you. The study will be published as a report, and it can as well be used by mobile phone manufacturers, mobile application developers and service providers in designing devices and developing services for all business sectors. It will be available at the University of Nairobi Library for use by the Public in enhancing Knowledge in the field of Smartphone Applications.

In this regard, I'm kindly enlisting for your support in terms of time, and by responding to the attached interview protocol.

Your accuracy and candid response will be critical in ensuring objective research.

However, it will not be necessary to write your name on this questionnaire or interview protocol.

Thank you for your answers, time and cooperation.

Kind regards,

Kisini Muli

muliksn111@yahoo.com

University of Nairobi

APPENDIX 3: INTERVIEW PROTOCOL FOR EXPERTS

INSTRUCTIONS

Please answer all the questions by ticking appropriately or writing on the spaces provided.

1) What experience do you have in using Smartphones?

2) Please describe your experiences as a Smartphone user in the day to day running of your Life.

3) What are the major features and functionalities on Smartphone (not available in the ordinary/Native Mobile Phone?)

Slide Out/ Qwerty Key Boards or/ Touch Screens ☐ High Internet Connection Speeds☐ Ability to add applications through downloading ☐ LED flash for Cameras ☐ State – of – the – Art Operating Systems ☐ Excellent Screen quality and Size ☐ Push Email☐ Digital TV Tuner ☐ Wi-Fi and 3G enabled☐

4) What are the most common operating systems with users of Smartphones Withing Nairobi Region?

5) Please describe in depth how the Smartphone as a business communication tool has been a tool of disruption on other traditional methods of communication.

6) Let's talk a little more about advertising/marketing on Smartphone applications. What factors need to be observed in adopting Smartphone applications for advertising/marketing?

8) What does the future hold in using Smartphone applications for SMEs growth?

9) Describe any problems you've had to overcome in using the Smartphone for running operations in your business? What are the challenges SMEs anticipate in the endeavour to adopt Smartphone Applications for the running of your business?

10) What do you think has been the main reason for non adoption of Smartmobile applications by SMEs in Nairobi?

11) Do you think communication through Smartphone powered applications has impacted on your business?

12) Recommend effective ways of using the smart phone to enhance the development of SMEs

13) What are the reasons for non adoption of Smartphones?

- ❒ I cannot afford a Smartphone/Too Expensive
- ❒ Lack of knowledge of the benefits of using a Smartphone
- ❒ I don't know how to use a Smartphone
- ❒ Not enough applications
- ❒ It does not offer anything new
- ❒ It is very slow than the usual PC
- ❒ The websites do not look as good on mobile
- ❒ It is only good for limited use
- ❒ Other (Please specify)

APPENDIX 4: INTERVIEW SCHEDULE

INSTRUCTIONS

Please answer all the questions by ticking appropriately or writing on the spaces provided.

PART 1: PERSONAL DATA.

- Age(tick as appropriate)
  - 15-20 ☐
  - 21-30 ☐
  - 31-40 ☐
  - 41-60 ☐
  - 60 and more ☐
- Gender Male ☐ Female ☐

- What Position/ Role do you hold in the company

- How long have you been working for the company?

  Less than One year ☐ Two years ☐ Five years

  ☐ Ten years ☐ More than Ten Years ☐

PART 2: KEY FUNCTIONALITIES IN SMARTPHONES

Q1. Do you own/use a Smartphone?

Yes ☐ No ☐

Q2. If your answer is yes, how often do you use your Smartphone?

To a very Great Extend ☐ To a great Extend ☐ To a Moderate extend ☐

To a little extend ☐ To no extend ☐

Q3. What are the major features and functionalities on your Smartphone (not available in the ordinary/Native Mobile Phone?)

Slide Out/ Qwerty Key Boards or/ Touch Screens ☐ High Internet Connection Speeds ☐

Ability to add applications through downloading ☐ LED flash for Cameras ☐ State – of –

the – Art Operating Systems ☐ Excellent Screen quality and Size ☐ Push Email☐ Digital TV Tuner ☐ Wi-Fi and 3G enabled☐

Q4. What operating system does it run?

IOS☐ Android☐ Blackberry☐ Symbian(Nokia OS) ☐ Windows Mobile☐ Other (specify).....

Or what model/Series is it?

Q5. Are you happy /content with your current mobile phone & applications?

YES ☐ NO ☐

Q6. If No, What applications do you wish your phone had?

Sales Automation/Service Automation and CRM (Customer Relations Management ☐ Online Bookings☐ Online Shopping ☐ Travel Guide☐ Other☐

Q7. If yes, what category of applications do you like most in your Smartphone?

- ❒ News Applications
- ❒ Sports Applications
- ❒ Business Applications
- ❒ Weather Applications
- ❒ Shopping Applications
- ❒ Travel Service Applications
- ❒ General Surfing of the Internet

PART3: COMPARISSON WITH TRADITIONAL METHODS

Q8. Do you access Internet applications more on your Smartphone or on the PC?

More on Smartphone☐ More on the PC☐

Do you think the Smartphone has been a tool of disruption to other Methods of Communication and Marketing for SMEs?

Q9. What would you describe as the main benefits of using Smart application on your mobile phone as compared to the traditional methods of Communication?

❒ Its accessible everywhere

❒ I can search for information that I need urgently

❒ Ease of use

❒ It allows me to use online utilities when I am out and tend to my work

❒ Other, please specify .....

PART4: ACTUAL USAGE OF SMARTPHONES BY SMES

Q10. How affluent do you regard yourself as a Smartphone user?

❒ Excellent☐ Good☐ Average☐ Below Average☐ Poor☐

Q11. Do you use the Social Media for interacting with your customers i.e marketing and Advertising/Branding purposes?

YES ☐ NO ☐

Q12. Which applications would you prefer for business networking/ Business Enhancement i.e for communicating with your customers, employees and suppliers on Smartphone?

Mocality☐ Google Trader☐ Facebook☐ Tweeter☐ Linkedin☐ Skype☐ Mobile Email☐ Google trader☐ Africa Travel Guide☐ Afribiz☐ Brighter Monday☐ Mocality☐

PART 5: EFFECTIVE WAYS OF USING SMARTPHONES

Q13. Recommend effective ways of using the smart phone to enhance the growth and development of SMEs

Thank you for your answers, time and cooperation.