FACTORS INFLUENCING THE UPTAKE OF INTERNET CONNECTIVITY IN MERU MUNICIPALITY, MERU COUNTY IN KENYA

BY

NDEKE DOMINIC MWIRIGI

A RESEARCH PROJECT REPORT SUBMITTED IN PARTIAL FULFILLMENT FOR THE REQUIREMENT OF THE AWARD OF DEGREE OF MASTER OF ARTS IN PROJECT PLANNING AND MANAGEMENT OF THE UNIVERSITY OF NAIROBI.

2013

DECLARATION

This research project is my original work and has not been presented in any other university.

Ndeke Dominic Mwirigi

Sign: _____Date:_____

L50/64745/2010

This research project is submitted for examination with our approval as the university supervisors.

Dr. Stephen W. Luketero

Sign: _____Date:_____

Senior Lecturer

School of Mathematics

University of Nairobi

Mr. Chandi J. Rugendo

Sign: _____Date:_____

Lecturer

Department of Extra Mural Studies

University of Nairobi

DEDICATION

I dedicate this research study project to my parents James Ndeke and Margret Karimi who provided great inspiration and encouragement during the period of study.

ACKNOWLEDGEMENT

I wish to acknowledge the support of all people, who in one way or the other, made the research project successful. My special thanks goes to my supervisors, Dr Stephen Luketero and Mr. Chandi J. Rugendo who tirelessly guided me, provided professional advice, encouragement when fine tuning the research project. My appreciation also goes to my classmates and friends for their ideas and assistance in various ways.

I would also wish to acknowledge the entire University of Nairobi particularly Extra Mural Studies Centre for giving an opportunity to study and availing all the needed resources to undertake this study to completion. My special thanks also goes to Dr. Jane Gatumu for her guidance and knowledge impacted on research proposal writing.

Am also grateful to Peter Chabari-District Development Officer, Tigania West for his guidance and encouragement .A lot of encouragement support and prayers also came from all my family members.

To you all, I say thank you very much.

TABLE OF CONTENTS **Page**

LIST OF FIGURE

Page

LIST OF TABLES **Page**

ABBREVIATIONS AND ACRONYMS

BW- Bandwidth

CCK- Communication Commission of Kenya

DSL- Digital Subscriber Line

DDO -District Development Officer

DA-Distribution Area

FCC- Federal Communication Commission

FTTH- Fibre To The Home

FTTM-Fibre To The Micro-node

IPR- Internet Penetration Rate

LA- Living Area

LED-Light Emitting Diode

TCP/IP- Transmission Control Protocol/ Internet Protocol

MDU-Multi-Dwelling Unit like an apartment complex

KNBS- Kenya National Bureau of Statistics

NPV- Net Present Value

SCS- Small Consumer Splices

SFU- Single Family Unit like (fully/semi) detached row housing

SPSS - Statistical Package for Social Science

3G-Third Generation Network

ABSTRACT

Human communication has come a long way and is ever evolving. It not only changes the way people interact with one another, but also the world around them. The internet, a virtual mesh that facilitates nearly every aspect of our daily lives, is maturing to the point where the existing telecommunication structure can no longer support it. Besides our dependence on it paying our bills and reading the daily news, we look to it for sources of entertainment such as instantly streamed videos, songs and other bandwidth heavy applications straight to our personal computers and mobile devices. Already demand for bandwidth has exceeded 100Mbps, for high-end, power users, and demand for different offerings is converging towards higher speed offerings. This study was descriptive and was limited to internet connection in Meru Municipality

of Meru County, Kenya. Simple random sampling method was used in the selection of the respondents from various connected individuals across the Municipality. Questionnaire with both structured and unstructured questions was used in collecting primary data. This was done to selected individual connected persons. The main objective of the study was to investigate the factors influencing the uptake of internet connectivity among Meru Municipality residents. This study therefore examined the influence of Bandwidth speed on the uptake of internet connectivity. This study also sought to find out the influence of cost of internet on uptake of internet connection. It also sought to determine the influence of advertisement on internet connectivity. The study also sought to assess the influence of literacy levels on uptake of internet connectivity. Data was analyzed using SPSS. One of the key findings was that, the high cost of internet subscription was identified as one of the most hindrance factor to internet accessibility by majority of youths and even adults. Advertisement was identified as the second influencing factor with majority of respondent feeling much has to be done by internet providers to reach potential customers. Considering the population sample had 98 percent O level of education and 98% knew English or Kiswahili, Literacy levels was identified as the third influencing factor. Lastly, connection speed was identified as the least factor. Hence, the study concluded that high cost of internet is one of the hindrance factors to internet penetration in Meru Municipality and thus a study should be initiated by internet service providers to determine the actual cost of internet provision across different towns which shall be pegged to the prevailing socio-economic climate in the area. Finally, the findings can be useful to Policy makers especially the Ministry of Information and Technology, County Government, Internet Service Providers and other stakeholders who are aspiring to turn Kenya into a regional ICT hub and achieving Kenyans Long term development plan of Vision 2030.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Today the world has become a global village; people are able to communicate miles away each and every day. This has been enabled through internet connectivity. The Internet is increasingly making its presence felt, not only playing an important role in research and education but also serving as a catalyst to a country's socio–economic, cultural and political development. It is therefore not a surprise that the Internet has become a development of the highest significance. Various connections are available across continents by different service providers (Barki, 2006).

As of 2010, the world average Internet Penetration Rate (IPR) was about 28.8 percent. The United States had an IPR of about 77 percent. Other countries that had IPRs of less than 1 percent included Burkina Faso and Cambodia, each with an IPR of 0.5 percent. Afghanistan, Benin, Mauritania and Turkmenistan also had very low IPRs of 1.5 percent, 1.8 percent, 1.0 percent and 1.4 percent, respectively. Cuban official documents say that the country has an IPR of about 16 percent, but it's thought that the country's true IPR is closer to 1 to 3 percent. The countries that have the highest IPR include the Falkland Islands, Iceland and Norway, with IPRs of 100 percent, 93.2 percent and 90.9 percent, respectively. Other countries in Africa that had lots of Internet users as of 2011 included South Africa, with 6.8 million; Algeria, with about 4.7 million; and Sudan, with about 4.2 million. Algeria and South Africa had IPRs of almost 14 percent, and Sudan's was 9.3 percent. About 65 percent of Africa's Internet users in 2011 were from Nigeria, Egypt or Morocco. Egypt had more Facebook users than Morocco and Nigeria combined with about 9.4 million users. In 2007, less than 1 percent of Africans had access to broadband Internet (Simenda, 2009).

The countries that have the lowest Internet access rates include Myanmar and East Timor, where only about 0.1 percent of the population has Internet access; Sierra Leone, where about 0.2 percent of the population does; and Bangladesh, the Central African Republic, Niger and the Democratic Republic of the Congo, where the Internet access rate is about 0.3 percent. An Internet access rate is often described as an Internet penetration rate (IPR). More than 120 countries have an IPR of less than 23.8 percent (Scott, 2006).

As of 2011, the African country with the highest Internet penetration rate (IPR), the percentage of a country's population that has Internet access was Morocco, with 41.3 percent of the population, or about 13.2 million people, having access to the Internet. Nigeria had the most Internet users, about 44 million, and an IPR of 28.3 percent. Internet users in Nigeria accounted for about 37 percent of all Internet users in Africa. Egypt was second in terms of Internet users, with about 20 million, and had an IPR of about 24.5 percent. Egypt's Internet users accounted for about 16.9 percent of the total for Africa (Simenda, 2009).

According to CCK 4th Quarter report (2010), There are 22 million mobile subscribers in Kenya,9.5% mobile subscriptions growth, which is increasing over the previous quarters,6.63 billion minutes of local calls were made on the mobile networks,740 million text messages were sent, Prepaid accounts for 99% of the total mobile subscriptions, The number of internet users was estimated at 8.69 million, The number of internet/data subscriptions is 3.2 million, Broadband subscriptions increased from 18,626 subscribers in the previous quarter to 84,726. A whopping 99% of the internet traffic in Kenya is done via mobile operators, meaning 3G, Edge or GPRS. An estimate for those with internet access in Kenya is closing in on 9 million users, and at over 22% of the population (CCK, 2012).

The 2nd CCK quarter report of 2011/2012 indicates the number of Internet users grew to 17.38 million as at December last year compared to 8.89 million users in the previous year. This, compared to the previous quarter, represents a growth of 21.55 percent. CCK statistics indicated 14.3 million Internet users in the previous quarter.

CCK attributes the increase to intensified promotions on social media by mobile operators.

The use of internet has been on a rising trend, with the figure showing that 44.12 percent of the populations have access to the Internet with majority accessing internet through mobile phones. According to the report, with the steady growth in mobile subscriptions, the growth in Internet usage is likely to continue as operators seek to leverage on new and emerging technologies to offer attractive packages aimed at garnering more subscribers to use this service. Kenya has a high penetration of mobile phones standing at 71.3 percent with 28.08 million mobile subscriptions in the country up from 26.49 million subscriptions recorded during the year 2010/2011.

The report however shows the bandwidths in Kenya are underutilized. According to the CCK, international available bandwidth has increased more than 25-fold, from 202,720.02Mbps from December 2010 to 5,261,919Mbps in December 2011. The usage levels remain low with only 1.01percentunderutilization. This indicates that a lot of potential still lies in this sub-sector and initiatives towards formulating policies and projects that encourage the uptake of this capacity.

The period saw the number of internet subscriptions rise to 6,152,687 Internet subscriptions from 5,422,009 during the previous period, representing a 13.48 per cent increase.

Broadband subscriptions increased to 131,829 from 126,589 recorded during the previous period. Mobile data/Internet subscriptions on GPRS/EDGE and 3G recorded the highest portion of the total Internet/data subscriptions of 6.07 million subscriptions compared to 5.37 million subscriptions recorded during the previous period.

Fixed fiber subscriptions recorded an upward trend with a growth of 66.97 per cent during the period. Compared to the same period of the previous year, a growth of 337.43 per cent was recorded, which shows that the service is rapidly gaining ground and possibly consuming subscriptions from satellite service that have been on a declining trend.

Additionally, satellite subscriptions declined from 774 subscriptions in the previous period to 669 during the quarter under review. A reduction of 13.57 percent was recorded

during the period as well as a 27.36 percent decline compared to the same period of the previous year (CCK, 2012).

In Kenya more and more Towns are being connected to the recently launched Fibre optical inclusive of the Meru which is in tandem with Kenya's Vision 2030 aims to improve the quality of life for the citizens of Kenya by transforming employment markets, enhancing social infrastructure and securing good governance and making Kenya an ICT hub in Africa.

Table 1.1: Internet Subscriptions per operator in Kenya by CCK (2012)

No	Name of the Operator	Subscriptions	Market Share
1	Safaricom	2,977,584	92.18
2	Airtel Kenya Ltd	149,053	4.61
3	Telkom Orange	77,668	2.40
4	Access Kenya	7,512	0.23
5	Wananchi Telkom Ltd	7,500	0.23
6	Kenya Data Networks	7,451	0.17
7	Africa Online	1,608	0.05
8	Flexible Bandwidth	1,198	0.04
9	Swift Global	1,133	0.03
10	Callkey Network Ltd	800	0.02
11	Others	516	0.01
12	Total	3,232,023	100

Source CCK (2012)

1.2 Statement of the Problem

Meru is one of the towns in Kenya where internet subscriptions is low compared to other towns like Nakuru, Eldoret, Kisumu with each having over 15,000 internet broadband subscriptions among other towns despite the availability of high speed internet connections. Data available from Orange Telkom Meru Branch indicates a connection of 363 Units with 200 router connections and 163 live box connections, Meru Telkom

Orange Data bank (2013). Safaricom has over 2,200 internet connections in Meru Municipality according to Meru Safaricom Retail Shop Data Bank (2013). Individuals, businesses, residential places, banks, government offices, hospitals, learning institutions and other private entities have been connected to the internet but the uptake has taken a low turn. Hence the researcher sought to investigate the factors influencing this slow uptake of internet connectivity by Meru Municipality residents as compared to other towns.

1.3 Purpose of the study

The purpose of the study was to investigate factors influencing the uptake of internet connectivity in Meru Municipality.

1.4. Objectives of the Study

The researcher's objectives of the study were:

i. To establish the influence of bandwidth speed on the uptake of internet connectivity in Meru Municipality
ii. To assess the influence of advertisement on the uptake of internet connectivity in Meru Municipality
iii. To determine the influence of cost of internet on the uptake of internet connectivity in Meru Municipality
iv. To examine the influence of literacy levels on the uptake of internet connectivity in Meru Municipality

1.5 Research Questions

The research study was guided by the following research questions:

i. How does bandwidth speed influence the uptake internet connectivity in Meru Municipality?
ii. How does advertisement influence the uptake of internet connectivity in Meru Municipality?
iii. How does cost of internet influence the uptake of internet connectivity in Meru Municipality

iv. How does literacy level influence the uptake of internet connectivity in Meru Municipality?

1.6 Significance of the Study

The study would be important to the policy makers especially the Ministry of Information and Technology in assessing our steps toward achieving Kenya Vision 2030 which is our country long term development objective of making our country an ICT hub in Africa. It will also be necessary in measuring our achievements towards meeting the Millennium Development Goals.

Much of the information would also be vital to future academics whereby the findings of this study will be used as a foundation base for further research.

1.7 Delimitation of the study

The study covered Meru Municipality areas of Township, Gakoromone and Kaaga. The researcher involved selected individuals connected to the internet. The target population was also a good representative. The findings of this study can also be generalized to larger populated towns like Kisumu or Nakuru with a higher population of over 100,000 persons.

1.8 Limitations of the Study

The study was limited to several challenges; time to exhaustively cover all the Municipality area, also through the interview some of the respondents were unwilling to give some information for security reasons or answers they felt were too personal or difficult. The questionnaire design might had some inadequacy such that some information from the respondents might have been inaccurate.

1.9 Assumptions of the study

The researcher assumed that majority of the Meru Municipality residents had a concrete idea of what internet connectivity entails.

The researcher assumed that the connected customers targeted as respondents participated fully in the research and their responses were honest.

1.10 Definition of Significant Terms

Advertisement- Is a form of communication for marketing and used to encourage, persuade, or manipulate an audience (viewers, readers or listeners; sometimes a specific group) to continue or take some new action.

An optical fiber (or optical fibre) is a flexible, transparent fiber made of glass (silica) or plastic, slightly thicker than a human hair. It functions as a waveguide, or light pipe, to transmit light between the two ends of the fiber.

A router - is a device that forwards data packets between computer networks, creating an

overlay internetwork. A router is connected to two or more data lines from different networks. When a data packet comes in one of the lines, the router reads the address information in the packet to determine its ultimate destination. Then, using information in its routing table or routing policy, it directs the packet to the next network on its journey. Routers perform the traffic directing functions on the Internet. A data packet is typically forwarded from one router to another through the networks that constitute the internetwork until it reaches its destination node.

Bandwidth- Connection speed available to the consumer, usually in multiple offerings (Very Low, Low, Medium, High, and Very High). Subscribers choose the speed that suits them the best.

Distribution Area- Area served by one node, or distribution point in the network's geography

Drops- Number of final infrastructural connections made to the consumer.

Internet (or internet) is a global system of interconnected computer networks that use the

standard Internet protocol suite (TCP/IP) to serve billions of users worldwide. It is a network of networks that consists of millions of private, public, academic, business, and

government networks, of local to global scope, that are linked by a broad array of electronic, wireless and optical networking technologies.

Internet Connectivity- Internet access is the means by which individual terminals, computers,

mobile devices, and local area networks are connected to the global Internet. It is a source

through which users can access Internet services.

Living Unit - Household unit that subscribes to the internet.

Live box - a device that allows the end user to communicate via his landline phone and at the same time surf the internet.

Literacy-Adult literacy rate is the percentage of people ages 15 and above who can, with understanding, read and write a short, simple statement on their everyday life.

Micro-Node- A point in the network's geography close to the customer than a Node.

Node- A point in the networks' geography where an aggregated signal is split to be distributed to customers.

1.11 Organization of the Study

The study covered five chapters with chapter one covering the background to the study, statement to the problem, significance of the study, limitation and assumption of the study. Chapter two covered literature review, Chapter three covered the research methodology, Chapter four covered data analysis and presentation and lastly Chapter five covered findings, discussions, conclusion and recommendations of the study

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviewed literature from related studies on bandwidth speed, advertisement, cost of internet, literacy levels as independent variables and conceptual framework.

2.2 Bandwidth Speed and internet connectivity

Internet bandwidth is an electronic byway that connects the internet to your computer. Increasing bandwidth (widening the lane) allows more traffic to flow, increasing speed. Having a little or a lot of Internet bandwidth available makes the difference between watching a graphic-intensive web page load in phases over a period of several minutes or having it pop into your window like a flash of lightening. The more bandwidth your connection has, the faster it will load and the more time you will save (Aron, 2003).

Internet bandwidth test meters are available online to test your connection speed. The hosting site provides upload blocks of data recording the amount of time it takes to complete the transfers. Speed is a measurement of how much data can be transferred from the Internet to your computer per second. A graph reveals the results, allowing you to see if your connection is performing as expected. According to Coleman (2006), Morocco has best connection in Africa. UK has the fastest connection to Africa. Rabat tops the rankings by city, with a connection speed of 3251 kilobits per second (Kbps). Followed by Tunis (2211 Kbps) and Casablanca (2030 Kbps). The best in Africa still remains behind the rest of the world. For example, the United States, (18th worldwide) has a rate that is 10 times higher than Morocco (33464 Kbps). Rabat leads with 26%, followed by Casablanca (7.3%). The city of Midrand (South

Africa) comes third. Despite these statistics, Morocco is still far behind some leaders, including the United States with a rate of 92% (Heeks, 2003).

Even in terms of average speed connections (from 2 Mbps), Morocco has again the best penetration. Rabat leads with 61%, followed by Tunis (48%), followed by Casablanca (33%). With rates at 99% the United States and some European countries are far ahead. Internet service providers (ISPs) allot computer connections so much bandwidth based on the price of the package purchased. To get more speed, you have to upgrade to a package with a greater allowance of bandwidth. In the case of dial-up, the slowest type of Internet service, the technology itself limits the connection speed to less than 56 kilobits per second (kbps). As a point of reference, one Megabyte is 8,192 kilobits so transferring one Megabyte of data over dial-up can take close to three minutes. This limitation eventually pushes most customers towards faster technologies (Kolko, 2007).

There are several different types of high-speed Internet one can get depending on local availability. Options include Digital Subscriber Line (DSL) offered over conventional copper telephone wires, cable Internet via the neighborhood cable TV provider, and fiber optic services available over newer fiber optic wires that are replacing conventional copper lines in many regions. If you live in a rural area, dial-up or satellite Internet might be your only choices. DSL serves up the most affordable Internet packages, several times faster than dial-up. DSL entry-packages provide 768 kilobits per second (kbps). A connection of this sort normally delivers one Megabyte of data in 12-15 seconds, a big improvement over dial-up's three minutes. DSL also offers much faster packages that compete with cable (Cardona, 2007).

Entry-level cable packages typically offer a heftier allotment of Internet bandwidth, perhaps up to 3000 kbps (3MBPS), delivering a Megabyte in about three seconds. Subscription prices vary, generally starting at $30 - $40 USD monthly. Packages increase in speed and price from there, though many cable providers offer only a single package. The faster the package, the higher the price tends to be within the normal range of the cable market. Fiber optic Internet services start as high as 10 or 20 mbps, with top-tier packages offering 50 mbps of Internet bandwidth. That's a transfer rate speed of roughly

a Megabyte per second, two Megabytes per second, and five Megabytes per second, respectively. The fastest possible Internet packages currently offered cost an excess of $100 USD monthly (Mittal, 2001).

Cable and fiber optic services will often bundle TV and digital phone with Internet access for one monthly bill. Bundles are optional and can be customized to exclude a service that isn't required. For those who would like DSL but do not have landline service, some telephone companies now offer naked DSL or DSL without telephone service for customers who use their cell phones instead of landlines. Fiber-optics, also called optical fiber, is a technology that allows light to travel along thin glass or plastic wires. These wires are typically bundled into fiber-optic cables. This type of cable is used most commonly in the communications industry, because digital information can be converted into light pulses that move along the length of the wires. The cables vary in length, from a few feet to long enough to cross continents or oceans (Nielson, 1998). Telephone calls, the Internet, and cable television are examples of the kinds of information that can pass through a fiber-optic cable. It is typically less expensive than copper wiring. These cables may run to homes and businesses, but they are typically used for long distance communication. It has not been known to turn corners easily without losing signal strength, however, so it is used more often for straight, level distances.

Many individuals in the communications industries prefer fiber-optics to copper wiring. First and foremost, fiber-optics typically offers better bandwidth, meaning they can carry more information at once. Secondly, there is usually less attenuation, or signal degradation, in a fiber-optic cable. Thirdly, whereas copper wires use electrical signals, fibers use light waves, so there is less chance of interference in the signal. Lastly, optical fiber wires are made of glass, so there is little risk of fire. A fiber-optic cable is made up of many fiber-optic wires all bundled together. The major component in each wire is the optical glass or plastic core. This core is a thread of clear material that must be as pure as possible in order to conduct light over long distances while impurities in the core may cause degradation in the signal (Kenzier, 1997).

Any fiber-optic cable uses a process called total internal reflection to transmit information down its bundled wires. This particular type of reflection occurs when light hits a clear surface at a precise angle and bounces back instead of penetrating it. An example of total internal reflection occurring in nature can be seen when a swimmer is just barely underwater and he or she can see the ocean floor reflected in the undersurface of the water. This reflection occurs due to the angle of the swimmer in relation to the water's surface (Kumar, 2007).

The light pulse within a fiber-optic cable hits the outer walls of the wire at a similar angle, which keeps the light wave moving forward. The outer surface of the glass wire provides just the right angle of reflection to keep the light bouncing back and forth along the length of cable. The core is encased in cladding, which is an optically-reflective material that aids in this process. Light signals typically enter the fiber-optic cable at one end and are received at the other. The signals are usually converted from digital or voice information by a computer. They are then emitted into the cable in the form of light pulses made by a laser or a light-emitting diode (LED) through a lens.

2.3. Advertisement and internet connectivity

Advertising has the potential to influence every aspect of a business. As a communications tool, ads are used to reach a diverse mix of people affected by the products or services. These audiences can include not only customers, but also employees and investors. From employee management to customer relations, companies rely on effective advertisements to influence the success of business (Thompson, 2001).

The essence of being in business by any business outfits is to produce sales and make profits. In order to remain in business an organization must generate enough sales from its products to cover operating costs and post reasonable profits. For many organizations, sales estimate is the starting point in budgeting or profit planning. It is so because it must be determined, in most cases, before production units could be arrived at while production units will in turn affect material purchases.

Tellins (1998) argues that taking decision on sales is the most difficult tasks facing many business executives. This is because it is difficult to predict, estimate or determine with accuracy, potential customers' demands as they are uncontrollable factors external to an organization. Considering, therefore, the importance of sales on business survival and the connection between customers and sales, it is expedient for organizations to engage in programmes that can influence consumers' decision to purchase its products. This is where advertising and brand management are relevant. Advertising is a subset of promotion mix which is one of the 4ps in the marketing mix i.e product, price, place and promotion. As a promotional strategy, advertising serve as a major tool in creating product awareness and condition the mind of a potential consumer to take eventual purchase decision.

Advertising, sales promotion and public relations are mass-communication tools available to marketers. As its name suggests, mass communication uses the same message for everyone in an audience. The mass communication tools trade off the advantage of personal selling, the opportunity to tailor a message to each prospect, for the advantage of reaching many people at a lower cost per person (Thorbjornsen, 2002). Today, definitions of advertising abound. We might define it as communication process, a marketing process, an economic and social process, a public relations process or information and persuasion process (Maria, 2001). Dunn (1978) viewed advertising from its functional perspectives; hence they define it as a paid, non-personal communication through various media by business firms, non-profit organization, and individuals who are in some way identified in the advertising message and who hope to inform or persuade members of a particular audience.

Morden (1991) argues that advertising is used to establish a basic awareness of the product or service in the mind of the potential customer and to build up knowledge about it. Thomson (2001) sees advertising as one of the four major tools companies use to direct persuasive. Communications to target buyers and public noting that it consists of non-personal forms of communication conducted through paid media under clear sponsorship. According to him, the purpose of advertising is to enhance potential buyers'

responses to the organization and its offering, emphasizing that it seeks to do this providing information, by channeling desire, and by supplying reasons for preferring a particular organization's offer.

While writing on advertising nature and scope, Thorbjornsen (2002) succinctly captured advertising as having four features: A verbal and or visual message, a sponsor who is identified, delivery through one or more media, Payment by the sponsor to the media carrying the message. Summarizing the above, he concluded that advertising then consist of all the activities involved in presenting to an audience a non-personal, sponsor-identified, paid-for message about a product or organization.

Those views of Thorbjornsen (2002) coincide with the simple but all-embracing definitions of Davies (1998) and Maria (2001). For instance, while Davies (1998) stated that advertising is any paid form of non-personal media presentation promoting ideas/concepts, good s or services by an identified sponsor. Maria (2001) expressed almost the same view describing advertising as the personal communication of information usually paid for and usually persuasive in nature about products (goods and services) or ideas by identified sponsors through various media.

From the foregoing, it could be concluded that the purpose of advertising is to create awareness of the advertised product and provide information that will assist the consumer to make purchase decision, the relevance of advertising as a promotional strategy, therefore, depends on its ability to influence consumer not only to purchase but to continue to repurchase and eventually develop-brand loyalty. Consequently, many organizations expend a huge amount of money on advertising and brand management. A brand is a name given by a manufacturer to one (or a number) of its products or services. Brands are used to differentiate products from their competitors. They facilitate recognition and where customers have built up favorable attitude towards the product, may speed the individual buyers through the purchase decision process. Individual purchasers will filter out unfavourable or un-known brands and the continued purchase of

the branded product will reinforce the brand loyal behavior. Without brands, consumer couldn't tell one product from another and advertising then would be nearly impossible.
Advertiser's primary mission is to reach prospective customers and influence their awareness, attitudes and buying behaviour. They spend a lot of money to keep individuals (markets) interested in their products. To succeed, they need to understand what makes potential customers behave the way they do. The advertisers goals is to get enough relevant market data to develop accurate profiles of buyers-to-find the common group (and symbols) for communications this involves the study of consumers behaviour: the mental and emotional processes and the physical activities of people who purchase and use goods and services to satisfy particular needs and wants(Maria,2001).

Proctor et al. (1982) noted that the principal aim of consumer behaviour analysis is to explain why consumers act in particular ways under certain circumstances. It tries to determine the factors that influence consumer behaviour, especially the economic, social and psychological aspects which can indicate the most favoured marketing mix that management should select.

Consumer behaviour analysis helps to determine the direction that consumer behaviour is likely to make and to give preferred trends in product development, attributes of the alternative communication method etc. consumer behaviours analysis views the consumer as another variable in the marketing sequence, a variable that cannot be controlled and that will interprete the product or service not only in terms of the physical characteristics, but in the context of this image according to the social and psychological makeup of that individual consumer (or group of consumers).
According to Mark (1998), Advertising is a communications tool used to market a product, value or service. A common misconception is that advertising and marketing are the same elements. To clarify, marketing is the overall strategy that organizations develop to enhance perceived value and persuade consumers toward a purchase decision. Advertising is one of many marketing tools used to communicate and persuade. It can be a stand-alone element or combined with a larger marketing mix. The general purpose is to influence behavior toward supporting a business as an employee, investor or customer.

Here are some examples of where advertisements can be placed: traditional media like newspapers, magazines and television; new media like online, mobile applications; high traffic areas like billboards, sign twirlers; office space like internal posters.

Advertisements are consumer focused to influence frequent shopping, enhance corporate reputation and increase sales. In addition to these benefits, the results of a good advertising program will also increase the demand for a product or service, gain more control of the market and bring in new customers. If businesses fail to gain new customers and obtain repeat business, there is a risk of losing money due to a decrease in sales revenue. Moreover, the success of a business is heavily influenced by an effective advertising platform.

Advertising to enhance investor relations is relevant for businesses whose shares are traded on a public stock exchange. If advertising has effectively increased sales, investors' interests are fueled and the enterprise value has increased. Business benefits include a boost to stock value, a reduction in capital costs and stability in financial projections. When advertising does not influence business growth, the strength of the company may be questioned (Thompson, 2001).

A good corporate reputation influences community support through influential advertising campaigns. Public and community relations are examples of cause-marketing initiatives that can influence community support and are enhanced by commercial advertising. If a business has not promoted a positive image through commercial advertising, nonprofit agencies may not benefit from the partnership and choose not to publicly endorse the business. However, an effective advertising campaign can attract and gain the support of nonprofit agencies, leading to community awareness and support of the business (Thompson, 2001).

2.4 Cost and internet connectivity

Cost is one of the factors which determine internet connectivity. When looking at the cost of Internet access in major United States (U.S) cities in comparison to other global cities,

it is difficult to ignore the fact that the U.S. is so much more expensive than many of its international counterparts. U.S. consumers often pay higher prices for slower service than many other parts of the world. For example, customers in Seoul, South Korea, can get a 100 Megabytes per second (Mbps) connection for as low as the equivalent of $23 United States Dollar (USD) while in Hong Kong (HK), it's possible to subscribe to a 500 Mbps connection from 3 in HK for about $38 USD. By contrast, it costs between $100 and $300 per month to get a connection speed of over 100 Mbps in most U.S.cities. Although various factors contribute to the cost and speed of Internet access in a community, a critical factor is competition. In markets where connections tend to be more affordable and faster, customers have access to at least three competitive Internet Service Providers (ISPs) offering similar plans. In the majority of U.S. cities, most consumers have a choice between a local telephone company and local cable company. According to the 2010 National Broadband Plan, 78 percent of households in the U.S. have a choice between two providers, while an additional 13 percent have just one option (Ward, 2012).

There are some exceptions, however. For example, in San Francisco, several local ISPs have emerged to compete with the incumbent cable and telephone companies. Smaller providers such as Sonic.net and Astound are offering more affordable high-speed Internet plans compared to Comcast. Moreover, in Lafayette, Los Angels (LA) in response to services of the municipal broadband provider, LUS Fiber Company, the incumbent cable operator, Cox changed its pricing strategy, ceasing to raise prices for three years straight when annual increases had been common before. Cox also introduced a new 50 Mbps speed tier in Lafayette in response to the higher speeds offered by LUS (Crawford, 2010).

The low level of competition that is common in much of the United States is not the case in many other developed nations. Unbundling policies, also known as open access, played a critical role in facilitating competition in the first transition to broadband in Europe and parts of Asia and are now central to efforts for the next generation networks. Open access policies require that incumbent broadband providers offer to lease capacity on their networks to new entrants selling competing Internet services to consumers. They have been critical in creating a robust competitive marketplace in Japan and France,

where new upstarts such as Yahoo and Free were able to compete with the telephone incumbents and now offer 100 mbps+ Internet connections at competitive prices. Moreover, contrary to criticisms of open access policies, many of the companies that got their start leasing access from incumbent providers have since invested substantially in building their own network infrastructure (Bode, 2010).

For example, Digital Subscriber Line(DSL) from Zen Internet Co. provides Up to 20Mb broadband on selected exchanges with a 10GB transfer limit costs £18.37 monthly with £48 (inc. VAT) activation. A DSL from Total Broadband provides up to 20Mb broadband (Option 1) for £14 per month (£7 first 3 months with an 18 month contract) with a 10GB transfer limit per month which includes a free wireless modem and connection. Line rental costs from £10 per month (12 months advance payment). Up to 40Mb broadband is available for £18 per month with a 40GB limit (£25 activation). With BT Vision+ (a digital TV recorder with access to iPlayer), the cost is £18 per month including broadband on an 18 month contract and £40 activation. Cable modem access from Virgin Media broadband provides 10Mb broadband with telephone is currently £28.40 per month (£17.90 for the first 3 months) on an 18 month contract (£13.90 phone line) while installation is £49.95(Federal Communication Commission,2012)

A Digital Subscriber line(DSL) from Orange Broadband provides Up to 20Mb broadband with a 10GB monthly download cap costs £15 per month (£10 for Orange mobile customers) with wireless modem on an 18 month contract (a BT phone line is required). Broadband and line rental is available for £24. A DSL from Plusnet provides Up to 20Mb, A DSL access costs from £6.49 per month for a 12 month contract with 10 GB per month usage allowance and free wireless router. Setup costs £25 (free if you take their £9.49 telephone line rental). After 3 months if you are in their low-cost areas you continue to pay £6.49 per month, otherwise you pay either £10.79 or £12.99 depending on where you live (Federal Communication Commission, 2012)

Almost a decade ago, the FCC abandoned similar unbundling policies in the U.S. The decision reversed regulations implemented after the passage of the 1996 Telecommunications Act, which had required local telephone companies to open up

access to their copper wiring to competitors. The original unbundling policy helped usher in new competition for telephone services, as well as enabling Internet service upstarts companies like AOL Co. and Compuserve Co. to bring the first dial-up service to consumers. As a result, there were over 9,000 Internet Service Providers (ISPs) in the U.S. in the year 2000. By 2005, when a Supreme Court ruling upheld the FCC's decision to deregulate broadband service, the number had fallen by 74 percent to just fewer than 2,500 ISPs (FCC, 2012).

According to figures from J:Com, the largest cable company in Japan, costs for upgrading to the Docsis 3.0 (capable of providing peak download speeds in excess of 100 Mbps) was just $20 per home. By comparison, Verizon spent an average of $817 per home to deploy its fiber-based FiOS service, Brodkin (2012). For example, when comparing triple play packages in the 22 cities surveyed, consumers in Paris can purchase a 100 Mbps bundle of television, telephone, and high-speed Internet service for the equivalent of approximately $35 .By contrast, in Lafayette, LA, the top American city, the cheapest available package costs around $65 and includes just a 6 Mbps Internet connection. A comparison of Internet plans available for around $35 shows similar results. Residents of Hong Kong have access to Internet service with symmetrical download and upload speeds of 500 Mbps while residents of New York City and Washington, D.C. pays the equivalent price for Internet service with maximum download speeds that are 20 times slower (up to 25 Mbps and upload speeds of up to 2 Mbps),(Burstein,2011).

Internet marketers need to be very aware of potentially volatile content and stay well clear of it which will allow them to take advantage of the huge progress in internet technology. Content regarding issues relating to the freedom of Western Sahara are also said to be areas to avoid when writing content although previously blocked websites containing such content are no longer inaccessible. Internet speeds and cost in Morocco have been steadily improving over recent years and A DSL access can cost as little as around £11 a month for a 2Megabytes per second (MBPS) or about £50 for a 20 MBPS connection. This may sound like a lot to those in places like the UK and US but are remarkable reductions in local terms and represent an opportunity for the increase in

internet use in Morocco which is already happening. Maroc Telecom, Meditel and Wana are the three main service providers in Morocco offering internet services and the competition between them has seen the cost of internet reduce for Moroccan people. The introduction of A DSL in Morocco saw internet subscriptions jump from 168,000 in 2005 to 468,000 by 2007 and this figure continues to grow offering an increasing audience that are hungry for quality content and competitive services. The huge increase of 3G broadband as well as the introduction and utilization of Arabic-language blogging platforms such as Jeeran and Maktoob indicate that successful internet marketers should create Arabic language websites alongside their English ones to capture the maximum amount of regular users (Barber, 2012).

The Moroccan blogosphere had increased to more than 30,000 by 2008 and Facebook users have already exceeded 4 million people as at the end of 2011 and places Morocco in 38th place in terms of total Facebook users by country. Facebook statistics indicate that 66% of users are between the ages of 18 and 34 suggesting a very young Facebook uptake, especially when you also consider that 24% of Facebook users in Morocco are between 13 and 17 years of age. Among the top five most popular brands on Facebook include Samsung and Sony Ericsson products offered by Maroc Telecom which suggests a heavy interest in mobile phones and mobile broadband. Considering the young age of most Facebook users and the top place on Facebook being Mazagan Beach Resort this suggests a keen interest in tourism and the coastal attractions. Since it is still the case that the affluent in Morocco have access to the top mobile broadband internet access packages it would be potentially lucrative for internet marketers to embark on lead generation campaigns targeted at tourist locations using mobile applications (Barber,2012).

High internet subscription cost in Kenya has hindered wide internet connectivity in the country despite Government's huge investment in undersea cable as well as a zero-rating of duty on ICT equipment. Most Kenyans are struggling with high cost of living that has been attributed to by unstable currency and high inflation rates currently at 18 percent emanating from hike food and fuel prices with majority of Kenyans living under $1.25 per day (Economic Indicator Survey, 2010).

A recent survey released by Kenya ICT (Information, Communication and Technological) Board in 2010 indicated that only 2.2 percent of the about 6 percent of households with computers have Internet connections. The survey further states that while Internet speeds have improved; prices have remained above the reach of average Kenyans. The report reveals 58 percent of Kenyans have no Internet connections for lack of computers, while 28 per cent who have computers cite cost of Internet subscription as hindrance.

Although there is low number of connection in Kenya internet usage in the country is high indicating that most connections are shared and largely comprise business which includes public accessible connections such as cyber café and education institutes.

According to the survey dubbed Julisha, 80 per cent of the respondents indicated they use mobile phones or Internet enabled mobile phones to access the Internet, followed by 71 per cent using desktop computers, 34 per cent using laptops, and 15 per cent using smart phones.

The growth in ICT is significant and has outperformed all other sectors over the last decade. Without the technology Kenya's economic growth rate is said would have only been 2.8 percent since 2000, barely exceeding population growth. While it is important to get a pocket friendly provider, you will also need to get one that will provide speeds fast enough to comfortably surf on the net, as well as easily download and upload files. To make sure you can comfortably download and upload files, you require at least 256kbps. While most ISPs in Kenya will offer you more than that or at least close enough, you still have to consider other factors such as cost and consistency to make sure you get the best deal (Communication Commission of Kenya, 2012).

Here is a comparison of Internet service providers in Kenya and the speeds they offer:

Table 2.1: Internet Service Providers in Kenya and their Speeds

ISPs IN KENYA	**ADVERTISED SPEEDS**	**ACTUAL SPEEDS**
Zuku (Wananchi Online)	8 Mbps	1.97 Mbps
Safaricom 3G	7.2 Mbps	0.68 -3Mbps
Safaricom Edge/GPRS	3.6Mbps	0.15 – 3.59mbps(low speeds of 0.15 in the afternoon)
Access Kenya	1.3 Mbps (peak speeds)	0.3 – 1.3 Mbps
Kenya Data Networks (KDN)	8 Mbps	0.09 – 1.25 Mbps
Airtel	3.75G	0.09 – 1.25Mbps
Orange 3G	21.1 Mbps	Not available
Orange 3G+	31.7	Not Available

Source CCK (2012)

2.5. Literacy levels and internet connectivity

Literacy is the ability to read and write one's own name and further for knowledge and interest, write coherently, and think critically about the written word. The inability to do so is called illiteracy or analphabetism. Visual literacy includes in addition the ability to understand all forms of communication, be it body language, pictures, maps, or video. Evolving definitions of literacy often include all the symbol systems relevant to a particular community. Literacy encompasses a complex set of abilities to understand and

use the dominant symbol systems of a culture for personal and community development. In a technological society, the concept of literacy is expanding to include the media and electronic text, in addition to alphabetic and number systems. These abilities vary in different social and cultural contexts according to need and demand (Lottor, 1995).

A survey done by Kenya National Bureau of Statistics on adult literacy in Kenya (2006) found that national literacy rate is 61.5% and numeracy rate is 64.5% with male literacy rate at 64.2 % and females 58.9%.Similary the male numeracy rate was at 67.9% compared to females at 61.4 %. Nairobi province had highest literacy at 87.1 % while North Eastern had 8.1%. Eastern province had 54.7 % literacy rate (KNBS, 2006)

The primary sense of literacy still represents the lifelong, intellectual process of gaining meaning from a critical interpretation of the written or printed text. Key to all literacy is reading development, a progression of skills that begins with the ability to understand spoken words and decode written words, and culminates in the deep understanding of text. The diffusion of innovation theory holds that a new idea or a communication idea begins at its point of origin and spreads through the surrounding geographic areas or from person to person within a specific area, Littlejohn (1996). According to this theory, once a certain number of individuals (perhaps 15 percent) in a system adopt an innovation, it will continue to spread in a self–sustaining process. Messages disseminated through personal interaction will achieve a greater level of understanding than if the same messages are passed through media channels only. The interpersonal interaction component is deemed to be essential to convergence or shared meaning of the message (Littlejohn, 1996).

Amendola and Gaffard (1988) noted that a new expanded interpretation of the process of innovation has emerged. Less emphasis is on the actual absorption of a given technology, and more importance is placed on the actual process through which a new technology is developed step by step. To a great extent, the snowball effect is visible in the diffusion of the Internet; by reaching its critical mass point, it allows the Web to take off at a considerable accelerating rate (Chen and Crowston, 2001).

According to Rogers (1983), innovators or the venturesome are people who are eager in launching the new idea in the social system by importing the innovation from outside of the system's boundaries. Thus, the innovator plays a gatekeeper role in the flow of new ideas into a social system. As for early adopters, they are a more integrated part of the local social system than are innovators. Innovators and early adopters of a technology are important to the diffusion of any innovation (Rogers, 1995). These individuals (or organizations or countries) are among the first to try out an innovation. They have a high degree of innovativeness, which is the degree to which an individual or other unit of adoption is faster in adopting new ideas than other members of a social system (William, 1988).

Rogers (1995) believes that the rapid evolution of the Internet presents a unique opportunity to revisit theories about the diffusion of innovations. The Internet differs from previous innovations in that it is an extraordinarily dynamic innovation; its recently developed capabilities include animation and extended interactivity (e.g. Java applets). This phenomenon demonstrates how a dynamic technology such as the Internet may adapt to areas beyond those originally intended, (Chen and Crowston, 2001).

Chen and Crowston (2001) noted that adoption and implementation of the Internet take place on at least two levels, organizational and individual. An organization may implement Web browsers throughout the organization, but individuals may not choose to use the technology. The opposite is also true. This brings attention to cases where organizations with existing computer communications systems may find the Internet to be an incremental innovation. Others may find the Internet to be a radical innovation, which, for example, introduces e–mail and changes the organization's communication channels. In another study, Rogers (2000) noted that the Internet has mainly diffused in urban areas among the comparatively wealthy and educated. He noted that much of the infrastructure needed for the rapid diffusion of the Internet is not found in the rural areas in India. Many villages in India do not have central electricity or telephone service and no one in these rural areas can afford to own a computer. According to Devraj (2000) even literate South Asians cannot benefit from the IT revolution without a working knowledge

of the English language because of poor localization, a highly technical process by which computer programs are translated into another language.

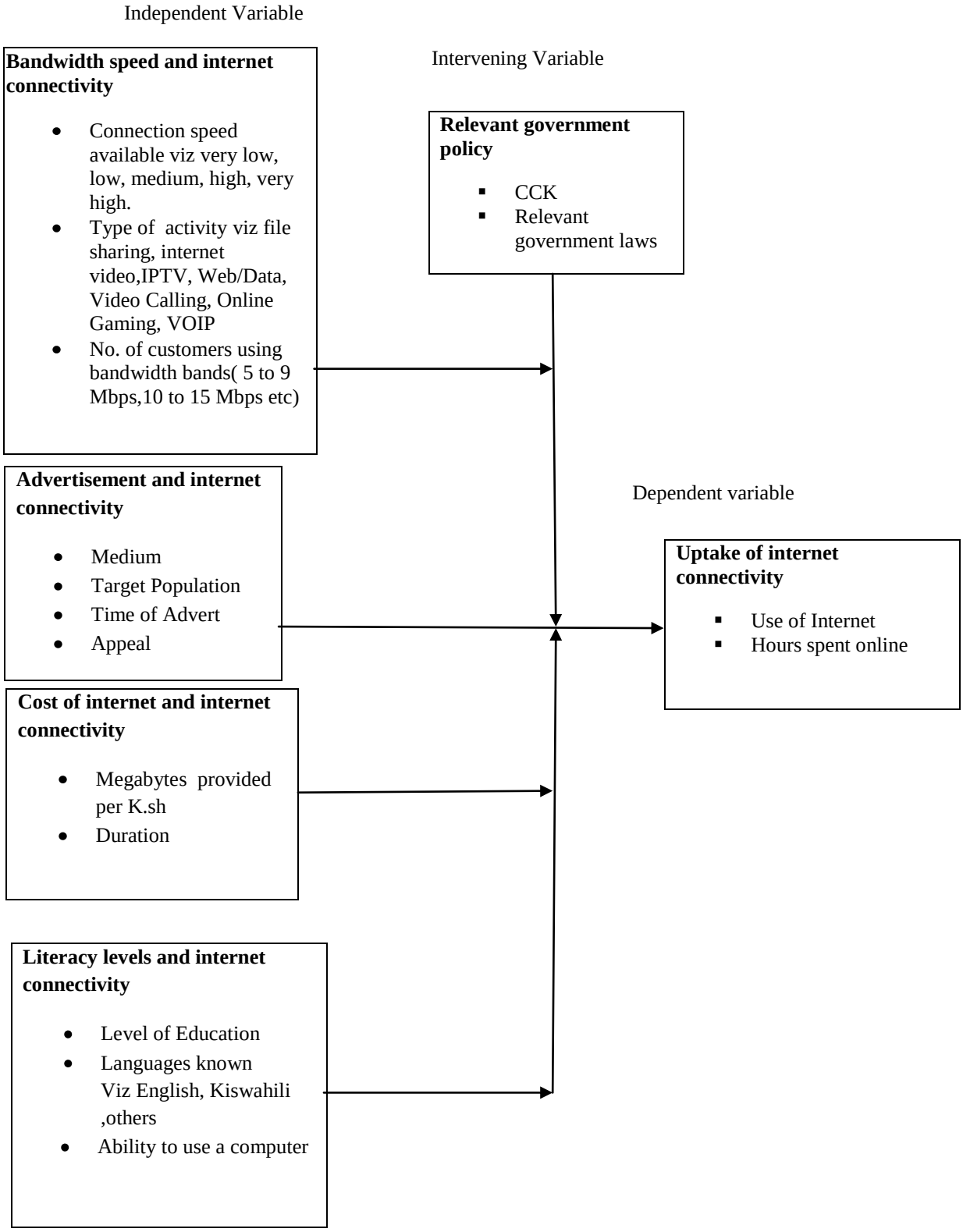
A study done by Consumer Insight in Kenya 2008, established that 74 percent of residents in Nairobi Kenya have used a computer at least once. The second and third best in computer literacy are Lagos in Nigeria and Kampala in Uganda at 69 and 68 percent, respectively. Lusaka in Zambia was ranked last with 32 percent. This study found that high computer literacy rate can be attributed to a general rise in literacy levels as well as concerted efforts by the government and other stakeholders in pushing the information communication and technology agenda forward. The study established that browsing the internet was the most common use across countries. According to this comparative survey, dubbed Maisha carried out in eleven leading commercial cities in African countries: Kenya, Uganda, Tanzania, Ethiopia, Rwanda, Burundi, Zambia, Nigeria, Zambia, Madagascar and Angola by (Consumer Insight, 2008).

2.6 Theoretical Framework

Economic theory has sought to establish relationships between selling prices, sales achieved and consumer's income, similarly, advertising expenditure is frequently compared with sales. Under the situations the importance of the consumer's motivations, perceptions, attitudes and beliefs are largely ignored. The consumer is assumed to be rational that is, to react in the direction that would be suggested by economic theory and financial principles. However, it is often apparent that consumer behaviours does not fall neatly into these expected patterns. It is for these reasons that consumer behaviour analysis is conducted as yet another tool to assess the complexities of marketing operations (Cannon, 1999). Hence the study sought to understand how the consumer behavior influenced the uptake of internet connectivity by Meru municipality residents with regard to bandwidth speed, cost of internet, advertisement and literacy levels.

2.7 Conceptual Framework

Figure 1: Conceptual Framework



2.7.1 Discussion of Conceptual Framework

Uptake of internet connectivity is influenced by various factors. Hence the conceptual framework sought to illustrate how the various factors namely, Bandwidth speed, advertisement, cost of internet and literacy levels influences this connectivity in Meru Municipality, Meru County in Kenya. Various different variables under four independent variables were also highlighted.

2.8 Summary of Literature Review

This Chapter reviewed literature on bandwidth speed, advertisement, cost of internet and literacy levels as some of the factors influencing internet connectivity. Finally, the conceptual framework was illustrated and discussed.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter dealt with the procedures through which the research data was collected. To be more specific; the research design, the target population, sampling methods (procedures) and methods of data collection are keys areas which the researcher looked into.

3.2 Research Design

A research design is a programme to guide the researcher in collection, analyzing and interpreting observable facts (Kothari, 2003). The research study was undertaken by use of descriptive survey. A descriptive survey is a method of collecting information by interviewing or administering a questionnaire to a sample of individuals. This type of research attempts to describe such things as possible behavior, attitudes and characteristics. Descriptive studies are not only restricted to fact finding but may often result in formulation of important of knowledge and solutions to important problems (Kothari, 2003).

3.3 Target Population

The study covered Meru Municipality administrative area namely Township, Kaaga and Gakoromone areas with total households of 8,159 and a population of 27,303 persons covering an area of 8.7 Sq KM. Sampling was done from a total population of 363 Orange internet connected units and 2,200 Safaricom connected individuals while the actual sample was got from individual connected persons among the connected population.. The researcher therefore got the necessary information from them.

3.4 Sampling procedure

Time and resources available to a researcher, the researcher should take a big sample as possible (Kothari, 2003). However, the sample size depends on other factors such as the number of variables in the study, type of the design, method of data analysis and the size

of the accessible population. For descriptive studies, 10% of the target population is enough (Gay, 2003). Hence on this basis, the researcher used 20 connected units from a population of 200 units connected through routers and a sample of 16 connected units through live boxes (10% of the 200 and 163 units respectively). A sample of 100 individuals was used as respondents from Safaricom (from a population of 2,200 Wi-fi routers connected individuals) to be distributed across the three administrative units of Gakoromone, Township and Kaaga areas (Tora, 1967) The Sample was distributed as follows, if Pi represents proportion of population in stratum i, and n represents the total sample size, the number of element selected from stratum i, is n.pi, Kothari (2006). This was calculated as follows; Sample size (n) = 100 to be drawn from a population size (N) = 27,303 divided into three strata sizes. The actual respondents from the sample was determined by getting the list of all numbered connected units from Telkom Orange and Safaricom Data Banks and randomly picking the twenty second connected individual in the list.

Table 3.1: Sample Size

Area	**Formula**	**Sample Size**
Township (N1)	4,156/ 27,303 * 100	15
Kaaga (N2)	11,689/ 27,303 * 100	43
Gakoromone (N3)	11, 458/27,303 * 100	42
Total		**100**

3.5 Methods of data collection

Both primary and secondary data was used for this research study. Primary data was collected through administration of questionnaires .The questions were both open and closed. Some of the questionnaires were self-administered but the researcher was also available to clarify on any questions that will be unclear to the respondents. In addition, some of the questionnaires were left to the respondents to fill later if they were unavailable to be collected on agreed date. Questionnaires were appropriate in gathering

much information from respondents on the uptake of internet connectivity in Meru municipality.

3.6. Piloting

Piloting of the research document was carried out to determine the validity and reliability of the research instrument.

3.6.1 Validity of the research instrument

Validity is the degree to which a tool measures what it purports to measure. Validity is concerned with whether the findings are really what they appear to be about. The instrument validity was ensured through continuous expert advice of my supervisors who are well versed in research.

3.6.2 Reliability

Reliability is a measure of the degree to which a research instrument yields consistent results on data after repeated trials. A reliable instrument is one that produces consistent results when used more than once to collect data from the sample randomly drawn from the sample population.

In the research study, a pilot study was carried out by administering the questionnaire to selected few individuals in order to determine the reliability of the tool. To test the reliability of the instrument, the researcher used spilt-half technique. The research instrument was split into two subtests, one consisting of odd numbered items/questions and the other made of all even numbered items. The score of all odd-numbered and even numbered items of the responses in the pilot study were computed separately. The odd numbered scores for all items were correlated with the even numbered scores using the Pearson product correlation co-efficient. The results of the Pearson Product correlation co-efficient turned out to be above 0.75, and hence the instrument was highly reliable.

Table 3.2: Operation Definition of variables

3.7 Operation definition of variables

Factors influencing the uptake of internet connectivity in Meru Municipality

Objectives	Type of Variable	Indicator	Measurement	Data collection Method	Level of scale	Types of analysis	Level of analy
To investigate influence of bandwidth speed internet connectivity.	Independent Variable Bandwidth speed	Type of activity No of Customers using bandwidth band(5 to 9 mbps, 10 to 15 mbps)	Type of activity like File sharing, internet, web/data, video calling etc Numbers	Questionnaire Questionnaire Questionnaire Questionnaire	Nominal Ratio Nominal	Quantitative Quantitative Quantitative	Descriptive Descriptive Descriptive
To find out influence of advertisement on internet connectivity	Independent Variable Advertisement	Medium Target Pop Timing	TVs, Posters, Radio, road shows Audiences Time of advert	Questionnaire Questionnaire Questionnaire	Nominal Nominal Nominal	Quantitative /Qualitative Quantitative Quantitative /Qualitative	Descriptive Descriptive Descriptive
To examine influence of internet cost on internet connectivity	Independent Variable Cost of internet	Duration Megabytes provided per K.sh	Days, Months Number	Questionnaire Questionnaire	Nominal Nominal	Quantitative /Qualitative Qualitative/ Quantitative	Descriptive Descriptive
To establish influence of literacy levels on uptake of	Independent Variable Literacy	Level of Education Languages Known	Levels Numbers	Questionnaire Questionnaire	Nominal Nominal	Qualitative/ Quantitative Quantitative / Qualitative	Descriptive Descriptive

internet connectivity	Levels						
	Dependent variable Uptake of internet connectivity	Hours Spent online Percentage of connections to the total population	Hours Percentages	Questionnaire Questionnaire	Nominal Rate	Quantitative Quantitative	Descriptive Descriptive
	Intervening variable Government Policy, Laws and regulation CCK	Relevant regulation Relevant bodies instituted	Regulation in place No of Institutions in place	Questionnaire Questionnaire	Nominal Nominal	Qualitative Quantitative	Descriptive Descriptive

Source: Author (2013)

3.8 Data Analysis and Presentation

After the researcher collected all questionnaires, the questionnaires were edited and coded to facilitate statistical analysis. The aim was to eliminate unusable data, interpret ambiguous answers and contradictory data from related questions. A coding scheme was developed for the response to each question. The coding scheme facilitated the development of an appropriate data structure for analysis .Data entry and analysis was done using Excel and SPSS.

Cross tabulation was also used to establish the relationship between dependent and independent variables. Chi-square test was also done. Data presentation was done in form of Tables, percentages, frequencies and summaries

3.9 Summary

In a nutshell, this chapter contained the research design used. The population target was 363 Telkom Connected individuals and 2,200 Safaricom connected individulas across the municipality. The sample used was 36 and 100 individuals for Telkom and Safaricom respectively of the target population. The data was collected through self administered questionnaire. Data analysis was done using SPSS and Microsoft Excel. Presentation of Data was through Tables, summaries and percentages.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter deals with data analysis, presentation and interpretation of the study findings, the findings were based on all data collected including primary as well as secondary data collected from the field. The main objective was to investigate the factors influencing the uptake of internet connectivity among Meru Municipality residents. The data was analyzed regarding general information like gender, area of residence, education level among others of the respondent. The research objectives covered included advertisement, cost of internet, literacy levels and bandwidth speed. Data was analyzed using SPSS. The findings were then presented in tables, frequencies and percentages.

4.2 Questionnaire return rate

A total of One hundred and thirty six (136) questionnaires were distributed to the respondents across three administrative units of Township, Kaaga and Gakoromone. The analysis below represents questionnaire return rate by Meru Municipality residents.

Table 4.1: Questionnaire Return Rate by Meru Municipality residents (2013)

Total questionnaire given	136
Questionnaire returned	105
Percentage	**76%**

Out of this a total of 105 questionnaires were returned representing a 76 percent return rate which was adequate for analysis.

4.3 Descriptive analysis on the uptake of internet connectivity by Meru Municipality residents.

The study sought to determine the demographic characteristics of the respondents based on gender, educational level and language spoken and the findings are as presented in tables that follow.

Table 4.2: Demographic characteristics of Meru Municipality residents by Gender distribution (2013)

	Frequency	Percent
Male	46	43.8
Female	59	56.2
Total	**105**	**100**

Majority of the respondents 59 (56.2%) were female with while male were 46(43.8%) hence the respondents gender no wide variance.

The study sought to investigate the respondent's level of education as shown in table 4.3

Table 4.3: Education level of Meru Municipality resident's (2013).

	Frequency	Percent
Primary level	3	2.9
Secondary level	31	29.5
Diploma Level	41	39.0
University level	30	28.6

Total	**105**	**100.0**

Of the respondents sampled, majority (41) had diploma level in education with 39.0 percent, while primary level of education had lowest respondents with (3) 2.9 percent. Secondary level had (31)29.5 percent while university level had (30) 28.6 percent indicating that majority of the respondents were literate enough to know what internet connectivity entails.

The study sought to determine languages spoken by respondents as shown in table 4.4.

Table4.4: Languages spoken by Meru Municipality residents (2013).

	Frequency	**Percent**
English or Kiswahili	103	98.1
Foreign Languages	2	1.9
Total	**105**	**100.0**

(103) 98.1 percent of the respondents were either familiar with English or Kiswahili while only two respondents were familiar with foreign languages mainly French as table 4.4 indicates.

The study sought to determine devices used by the respondent to access the internet as shown in table 4.5

Table 4.5: Devices used to access the internet by Meru Municipality residents (2013).

	Frequency	**Percent**

Computer	6	5.7
Mobile Phone	40	38.1
Both (Computer & Mobile)	59	56.2
Total	**105**	**100.0**

A majority of the respondents used both computers and their mobile phones to connect to the internet with (59) 56.2 percent while (40) 38.1 percent used mobile phones while the rest (6) 5.7 percent used computers to surf hence majority of respondents used both computers and mobile phones to access the internet as table 4.5 indicates.

The study sought to determine megabytes subscribed and their cost by the respondents as shown in table 4.6.

Table 4.6: Megabytes Cost (Subscriptions) of internet among Meru Municipality residents.

	Frequency	**Percent**
0-49MB for less than KES 100	44	41.9
50-99MB for KES 100- 150	36	34.3
100-499MB for KES 150-500	19	18.1
500-1000MB for KES 500-1000	6	5.7
Total	**105**	**100.0**

A majority of the respondents utilized a lower denomination Megabytes of less than KES 100 with a (44) 41.9 percent, (36) 34.3 percent subscribed to MB of between KES 100-

150, (19)18.1 percent subscribed to cost of between 150-500 K.sh while (6) 5.7 % subscribed to the cost of between K.sh 500 and K.sh 1000 clearly indicating that lower denomination subscriptions were in high use as shown in table 4.6

The study sought to find out respondent's access to internet as shown in table 4.7

Table 4.7: Access to internet by Meru Municipality residents (2013)

	Frequency	**Percent**
Once a Month	3	2.9
Once a week	17	16.2
Several times a week	40	38.1
Everyday	34	32.4
Several times a day	11	10.5
Total	**105**	**100.0**

A majority of residents accessed internet several times per week with (40) 38.1 percent, (34) 32.4 percent accessed every day, (17)16.2 accessed once per week, (11)10.5 percent accessed several times a day while (3)2.9 percent accessed once a month clearly showing that majority of residents accessed internet every day and several times a week as shown in table 4.7.

The study sought to find out respondent opinion on the cost of internet as shown in table 4.8

Table 4.8: Respondent Opinion on the cost of internet by Meru Municipality residents (2013)

	Frequency	**Percent**

Low cost	4	3.8
Medium Cost	58	55.2
High Cost	43	41.0
Total	**105**	**100.0**

Majority of the respondent viewed the cost of internet cost as medium with (58) 55.2 percent, (43) 41.0 percent viewed the cost as high while (4) 3.8 percent viewed the cost as low as shown by table 4.8.

The study sought to investigate hours spent online by the respondent as shown in table 4.9

Table 4.9: Hours spent online by Meru Municipality residents (2013).

	Frequency	**Percent**
Less than five hours	40	38.1
Six to Fifteen hours	41	38.0
Over fifteen hours	24	22.9
Total	**105**	**100.0**

Majority of the respondents spent zero to fifteen hours representing a (81) 76 percent. The rest (24)22.9 percent spent over fifteen hours clearly showing heavy use of internet was minimal as shown in table 4.9

The study sought the respondent opinion on speed provided by the internet service provider as shown in table 4.10

Table 4.10: Meru Municipality residents Connection speed opinion provided by internet service providers (2013).

	Frequency	Percent
Very low	5	4.8
Low	5	4.8
Medium	53	50.5
High	31	29.5
Very high	11	10.5
Total	**105**	**100.0**

Majority of the respondents viewed the speed provides by their internet providers at medium level with (53) 50.5 percent, (31) 29.5 percent viewed the speed as high, (11) 10.5 percent viewed the speed as very high while (5) 4.8 percent viewed the speed as low and very as shown in table 4.10.

The research study sought to assess respondent's opinion on speed satisfaction level as shown in table 4.11.

Table 4.11: Respondent Opinion on speed satisfaction levels by Meru Municipality residents (2013).

	Frequency	Percent
Yes	70	66.7
No	35	33.3
Total	**105**	**100.0**

(70)66.7 percent of the respondents were satisfied with the speed while (35) 33.3 percent viewed the speed as not satisfactory clearly illustrating that majority of Meru residents were satisfied with the speed as shown in table 4.11.

The study sought to determine respondent use of internet as shown in table 4.12

Table 4.12: Meru Municipality residents use of internet (2013)

	Frequency	**Percent**
Own entertainments	53	50.5
School or work purposes	52	49.5
Total	**105**	**100.0**

Almost an equal number used the internet for own entertainments and school or work purposes with (53) 50.5 percent for entertainment while (52)49.5 for school or work purpose.

The study sought to determine respondent's age distribution as shown in table 4.13

Table 4.13: Meru Municipality residents age distribution (2013).

	Frequency	**Percent**
10- 18 Years	16	15.2
19-25 Years	31	29.5
26-30 Years	32	30.5
31-35 Years	15	14.3
Over 35 Years	11	10.5

Total	**105**	**100.0**

About (32) 30.5 percent of the respondents were in the age bracket of 26- 30 years, (31) 29.5 percent were in the age bracket of 19-25 years, (16) 15.2 percent were in the age bracket of 10-18 years and (15) 14.3 percent were in the age bracket of 31-35 years while (11)10.5 percent were over 35 years clearly indicating access to internet was across the different age groups as shown in table 4.13.

The study sought to find out how the respondents learnt about internet connection shown in table 4.14.

Table 4.14: How Meru Municipality residents learnt about internet connection (2013).

	Frequency	**Percent**
TV advert	57	54.3
Posters Advert	32	30.5
Road show advert	4	3.8
Friends	12	11.4
Total	**105**	**100.0**

Majority of the respondent learnt about the internet through TV advert with (57) 54.3 percent, (32) 30.5 percent through posters, (12) 11.4 percent through friends and (4)3.8 percent through road shows as shown in table 4.14.

The study sought to know whether the advertisement made an appeal to the respondent or not as shown in table 4.15

Table 4.15: Opinion on advertisement appeal by Meru Municipality residents (2013)

	Frequency	Percent
Yes	89	84.8
No	16	15.2
Total	**105**	**100.0**

Of the respondents sampled, (89) 84.8 percent were appealed by the advertisement while (16) 15.2 percent were not appealed by the advertisement, a clear indication that there was a room for more advertisement as shown in table 4.15.

The study sought to determine respondent opinion on the factors influencing the uptake of internet connectivity as shown in table 4.16

Table 4.16: Opinion on the factors influencing the uptake of internet connectivity by Meru Municipality residents (2013).

	Frequency	Percent
Low Bandwidth speed	21	20.0
Lack of advertisement	18	17.1
High Cost	44	41.9
High literacy requirement	22	21.0
Total	**105**	**100.0**

Of the respondents sampled (44) 41.9 viewed high cost of internet as one of the major factor influencing internet connectivity, (22) 21 percent high literacy requirement, (21) 20 percent low bandwidth speed and (18) 17.1 percent lack of advertisement, a clear

indication that cost was one of the major factor influencing internet connectivity in Meru Municipality.

4.4 Cross tabulation of tables

1. To examine the influence of literacy levels on the uptake of internet connectivity among the Meru municipality residents

Table 4.17: A Cross tabulation of Respondents education levels versus respondent use of internet

		Respondent's use of internet		
Education level		**Own entertainment**	**School or work purposes**	**Total**
Primary Level	Count	3	0	3
	% within education level	100.0%	0.0%	100.0%
Secondary Level	Count	26	5	31
	% within education level	83.9%	16.1%	100.0%
Diploma Level	Count	16	25	41
	% within education level	39.0%	61.0%	100.0%
University level	Count	8	22	30
	% within education level	26.7%	73.3%	100.0%
Total	**Count**	**53**	**52**	**105**
	% within education level	**50.5%**	**49.5%**	**100.0%**

Education levels affected respondent use of internet, a (3)100% with primary level of education utilized the internet for own entertainment like chat rooms, playing computer games and downloading music or video. (26) 83.9 % with secondary level of education

used internet for own entertainment while (5) 16.1 % used internet for school or work purposed like sending or receiving emails, word processing and research. (16) 39 % with diploma level used internet for own entertainment while (25) 61 % used for school or work purposes. (8) 26.7 % with university level used internet for entertainment while (22) 73.3 % used it for school or work purposes. From this, we conclude that once education level of respondent rises much of the internet use is either for work or school purposes.

Table 4.18: Respondent literacy level * internet use Chi-square test

	Value	**df**	**Asymp. Sig. (2 sided)**
Pearson Chi-square	25.728	3	.000
Likelihood ratio	28.518	3	.000
Total cases	**105**		

Our p-value is 0.00 which is a very low probability making our variables dependent and thus concluding that education levels ties very much with what each respondent does when on internet since as one education level advances much of the internet use is either for work or school purposes.

Table 4.19: A Cross tabulation of Respondent age versus use of the internet

		Respondent's use of internet		
Respondent age		**Own entertainment**	**School or work purposes**	**Total**
10-18 years	Count	15	1	16
	% within respondent age	93.8%	6.3%	100.0%
19-25 years	Count	16	15	31
	% within respondent age	51.6%	48.4%	100.0%

26-30years	Count	14	18	32
	% within respondent age	43.8%	56.3%	100.0%
31-35 years	Count	5	10	15
	% with respondent age	33.3%	66.7%	100.0%
Over 35 years	Count	3	8	11
	% within respondent age	27.3%	72.7%	100.0%
Total	**Count**	**53**	**52**	**105**
	% within respondent age	**50.5%**	**49.5%**	**100.0%**

Majority of the respondents in the age bracket of 10-18 years used the internet for entertainment purposes with (15) 93. 8 % against(1) 6.3 % for school or work purposes. For 19- 25 age bracket, (16)51.6 % used for entertainment while (15)48.4% used for school or work purposes. For 26-30 age brackets, (14) 43.8 % used internet for entertainment while (18)56.3% used for school or work purposes. For 31-35 age bracket (5) 33.3 % used internet for entertainment while (10) 66.7 % used for work or school purposes. For those over 35 years, (3)72.7 used internet for school or work purposes while only (8)27.3 % used internet for entertainment. Therefore we can conclude that the younger generation used internet for entertainment purposes while the older generation utilized internet for school or work purposes.

Table 4.20: Respondent age * use of internet Chi-square test

	Value	**df**	**Asymp. Sig. (2 sided)**
Pearson Chi-square	16.714	4	.002
Likelihood ratio	19.281	4	.001

Total cases	**105**

Our p-value is 0.002 which is a very low probability making our variables dependent and thus concluding that respondent age ties very much with what each respondent does when on internet as the younger generation uses internet for entertainment while the older generation uses internet for work or school purposes.

2. To assess the influence of advertisement on the uptake of internet connectivity among Meru Municipality residents.

Table 4.21: A Cross tabulation of how the respondent learnt versus age of the respondent

		How the respondent learnt about internet connection				
Age		**TV advert**	**Posters adv.**	**Road show adv**	**Friends**	**Total**
10-18 years	Count	6	7	0	3	16
% within respondent age		37.5%	43.8%	0%	18.8%	100.0%
19-25 years	Count	21	5	1	4	31
% within respondent age		67.7%	16.1%	3.2%	12.9%	100.0%
26-30 years	Count	17	12	2	1	32
% within respondent age		53.1%	37.5%	6.3%	3.1%	100.0%
31-35 years	Count	6	6	1	2	15
% within respondent age		40.0%	40.0%	6.7%	13.3%	100.0%
Over 35 years	Count	7	2	0	2	11
% within respondent age		63.6%	18.2%	0.0%	18.2%	100.0%
Total	**Count**	**57**	**32**	**4**	**12**	**105**

% within respondent age	**54.3%**	**30.5%**	**3.8%**	**11.4%**	**100.0%**

In 10-18 years bracket majority of the respondents learnt about internet through posters advert at (7) 43.8% followed by TV advert at (6)37.5 %, in 19-25 years bracket majority of the respondent learnt about internet through TVs advert at (21) 67.7% followed by posters at (5)16.1%, in 26-30 years bracket majority of the respondent learnt about internet through TVs advert at (17)53.1% followed by posters at(12) 37.5%, in 31-35 years bracket majority of the respondent learnt about internet through TVs and posters advert tying at(12) 40.0 %. Those over 35 years learnt through TVs advert at (7) 63.6%. We conclude therefore majority of the respondents learnt about internet through TVs and Posters advert at (57)54.3% and (32) 30.5% respectively.

Table 4.22: How the respondent learnt *Age of respondent Chi-square test

	Value	**df**	**Asymp. Sig. (2 sided)**
Pearson Chi-square	12.247	12	.426
Likelihood ratio	14.149	12	.291
Total cases	**105**		

Our p-value is 0.426 which is a very high probability making our variables independent and thus concluding that the respondent age does not tie with how the respondent learnt about internet connection.

Table 4.23: A Cross tabulation of how the respondent learnt versus advertisement appeal

	Advertisement appeal to respondent		
How the respondent learnt	**Yes**	**No**	**Total**

TV advert	Count	50	7	57
% within how the respondent learnt		87.7%	12.3%	100.0%
Posters advert	Count	29	3	32
% within how the respondent learnt		90.6%	9.4%	100.0%
Road show advert	Count	2	2	4
% within how the respondent learnt		50.0%	50.0%	100.0%
Friends	Count	8	4	12
% within how the respondent learnt		66.7%	33.3%	100.0%
Total	**Count**	**89**	**16**	**105**
% within how the respondent learnt		**84.8%**	**15.2%**	**100.0%**

(50) 87.7 % of the respondents who learnt about internet connection through TVs advert were appealed by it, (29) 90.6 % of the respondents who learnt about internet connection through posters were appealed by it, and (8) 66.7% of the respondents who learnt about internet connection through friends were appealed. We conclude therefore that majority of the respondents were appealed by the advertisement to connect to the internet by whatever marketing medium.

3. To determine the influence of cost of internet on the uptake of internet connectivity among Meru Municipality residents

Table 4.24: A Cross Tabulation of Megabytes cost versus hours spent online

		Hours spent online		
Megabytes Cost	**Less than 5 hrs**	**6-15 hrs**	**Over 15 hrs**	**Total**
0-49MB for < KES 100	Count 25	17	2	44

	% within megabytes cost	56.8%	38.6%	4.5%	100.0%
50-99MB for KES 100-150	Count	11	17	8	36
	% within megabytes cost	30.6%	47.2%	22.2%	100.0%
100-499 for KES 150-500	Count	2	6	11	19
	% within megabytes cost	10.5%	31.6%	57.9%	100.0%
500-1000MB for KES 500-1000	Count	2	1	3	6
	%within megabytes cost	33.3%	16.7%	50.7%	100%
Total	**Count**	**40**	**41**	**24**	**105**
	%within megabytes cost	**38.1%**	**39.0%**	**22.9%**	**100.0%**

Majority of the respondents who subscribed to less than 50MB spent less than five hours online with (25) 56.8%, (17) 47.2 % of the respondents who subscribed for 50-100MB spent six to fifteen hours online,(11) 57.9% of the respondents who subscribed 100-499 MB spent over fifteen hours online and (3) 50.7% of respondents who subscribed for 500-1000MB spent over fifteen hours. We conclude therefore that respondents spent more hours online as the data bundle subscription increased.

Table 4.25: Megabytes cost * hours spent online chi-square test

	Value	**df**	**Asymp. Sig. (2 sided)**
Pearson Chi-square	28.671	6	.000
Likelihood ratio	29.541	6	.000
Total cases	**105**		

Our p-value is 0.00 which is a very low probability making our variables dependent and thus concluding that megabytes cost (subscribed) ties very much with hours spent online by the respondents with higher subscriptions respondent spending more time online.

4. To examine the influence of bandwidth speed on uptake of internet connectivity among Meru Municipality residents.

Table 4.26: A Cross Tabulation of Connection speed versus Access to internet

		Access to internet by respondent				
Speed	Once a month	Once a week	Several times a week	Everyday	Several times a day	Total
Very low	Count	0	2	0	2	1	5
	% within speed	0%	40.0%	0%	40.0%	20.0%	100.0%
Low	Count	2	1	1	0	1	5
	% within speed	40.0%	20.0%	20.0%	0	20.0%	100.0%
Medium	Count	0	7	19	21	6	53
	% within speed	0	13.2%	35.2%	39.6%	11.3%	100.0%
High	Count	0	4	14	10	3	31
	% within speed	0%	12.9%	45.2%	32.3%	9.7%	100.0%
Very high	Count	1	3	6	1	0	11
	% within speed	9.1%	27.3%	54.5%	9.1%	0%	100.0%
Total	**Count**	**3**	**17**	**40**	**34**	**11**	**105**
	% within speed	**2.9**	**16.2**	**38.1**	**32.4**	**10.5**	**100.0%**

Majority of the respondent who viewed connection speed as medium accessed internet several times a week with (19) 35.2% while others who accessed internet everyday with

(21) 39.6 %. Those who viewed connection speed as high accessed internet several times a week with (14) 45.2 % while others who accessed internet everyday with (10) 32.3%. Majority of the respondents who viewed connection speed as very high accessed internet several times a week with (6) 54.5 %. We conclude then majority of respondent accessed internet several times a week and viewed speed connection as medium and high.

Table 4.27: Connection speed * access to internet chi-square test

	Value	**df**	**Asymp. Sig. (2 sided)**
Pearson Chi-square	41.385	16	.000
Likelihood ratio	30.594	16	.015
Total cases	**105**		

Our p-value is 0.00 which is a very low probability making our variables dependent and thus concluding that connection speed ties very much with access to internet by respondents.

Table 4.28: A Cross Tabulation of Connection speed versus respondent speed satisfaction

		Respondent speed satisfaction		
Connection speed		**Yes**	**No**	**Total**
Very low	Count	3	2	5
	% within connection speed	60.0%	40.0%	100.0%
Low	Count	2	3	5
	% within connection speed	40.0%	60.0%	100.0%
Medium	Count	33	20	53

% within connection speed		62.3%	37.7%	100.0%
High	Count	23	8	31
% within connection speed		74.2%	25.4%	100.0%
Very high	Count	9	2	11
% within connection speed		81.8%	18.2%	100.0%
Total	**Count**	**70**	**35**	**105**
% within connection speed		**66.7%**	**33.3%**	**100.0%**

Out of the 53 respondents who viewed the speed connection as medium, (33) 62.3% viewed the speed as satisfactory while (20) 37.7 percent viewed the speed on the negative side. Out of 31 respondents who viewed the speed as high, 74.2 % that is 23 respondents confirmed the speed to be satisfactory while (8)25.4 % viewed the speed as not satisfactory. We conclude therefore that the respondents who viewed the connection speed as medium and high were comfortable with it, that is, a total of 56 respondents.

CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the findings of the study, conclusions, findings and recommendations made.

The purpose of the study was to investigate influencing factors on the uptake of internet connectivity in Meru Municipality, Meru County. Meru town is one biggest town in Kenya with a population of 100,000 persons. Despite having big population internet connectivity among the residents of Meru Municipality remains low. Hence the study wanted to investigate which factors that are influencing this slow uptake despite numerous advantages of internet. This study therefore examined the influence of Bandwidth speed on the uptake of internet connectivity. This study also sought to find out the influence of cost of internet on uptake of internet connection. It also sought to determine the influence of advertisement on internet connectivity. The study also sought to assess the influence of literacy levels on uptake of internet connectivity. For the said objectives to be achieved data was collected by use of questionnaires. Finally the data collected was analyzed by the use of SPSS and presented in frequencies, percentages and tables.

5.2 Summary of findings

Both male and female respondents were sampled, out of the total of 105 respondents, Majority of the respondents were females with 56.2 percent while males represented 43.8 percent. To get a picture of literacy levels among the respondents, results on education levels indicated that majority had diploma level in education with 39.0 percent, while primary level of education had lowest respondents with 2.9 percent. Secondary level had 29.5 percent while university level had 28.6 percent. On languages spoken, 98.1 percent of the respondents were either familiar with English or Kiswahili while only two respondents were familiar with foreign languages mainly French.

The results also indicated that a majority of the respondents used both computers and their mobile phones to connect to the internet with 56.2 percent while 38.1 percent used mobile phones while the rest 5.7 percent used computers to access internet. On the cost of internet and megabytes subscribed by respondents, the results analyzed indicated that a majority of the respondents utilized a lower denomination Megabytes of less than KES 100 with a percentage of 41.9 percent, 34.3 percent subscribed to MB of between KES 100-150, 18.1 percent subscribed to cost of between 150-500 K.sh while 5.7 subscribed to the cost of between K.sh 500 and K.sh 1000. When asked about their general view on the cost of internet, majority of the respondent viewed the cost of internet cost as medium with 55.2 percent, 41.0 percent viewed the cost as high while 3.8 percent viewed the cost as low.

On how often they accessed the internet, a majority of residents accessed internet several times per week with 38.1 percent, 32.4 percent accessed everyday,16.2 accessed once per week, 10.5 percent accessed several times a day while 2.9 percent accessed once a month while Majority of the respondents spent between zero to fifteen hours representing a 76 percent. The rest 22.0 percent spent over fifteen hours.

On the connection speed available, majority of the respondents viewed the speed provided by their internet providers at medium level with 50.5 percent, 29.5 percent viewed the speed as high, 10.5 percent viewed the speed as very high while 4.8 percent viewed the speed as low and very. In addition, 66.7 percent of the respondents were satisfied with the speed while 33.3 percent viewed the speed as not satisfactory.

On internet usage by the respondents, results indicate that almost an equal number used the internet for own entertainments and school or work purposes with 50.5 percent for entertainment while 49.5 for school or work purpose. The results investigated the age bracket of the respondent and discovered that about 30.5 percent of the respondents were in the age bracket of 26- 30 years, 29.5 percent were in the age bracket of 19-25 years, 15.2 percent were in the age bracket of 10-18 years and 14.3 percent were in the age bracket of 14.3 percent while 10.5 were in to over 35 years.

On how the respondent learnt about their current internet connection, majority of the respondents learnt about the internet through TV advert with 54.3 percent, 30.5 percent through posters, 11.4 percent through friends and 3.8 percent through road shows. In addition, of the respondents sampled, 84.8 percent were appealed by the advertisement while 15.2 percent were not appealed by the advertisement.

When asked about which factor the respondent thought influenced this uptake of internet, 41.9 viewed high cost of internet as one of the major factor influencing internet connectivity, 21 percent high literacy requirement, 20 percent low bandwidth speed and 17.1 percent lack of advertisement.

5.3 Discussions of Findings

Of the respondents sampled Male represented a 56.2% while females represented 43.8 % hence no big variation. Hence we conclude that gender did not have much effect on internet connectivity and hence depended on own individuality. To show the relationship between variables, cross tabulation and Pearson square was done.

Objective One: Literacy levels and internet connectivity

Education levels were cross-tabulated with use of internet, the results indicated that, a 100% with primary level of education utilized the internet for own entertainment like chat rooms, playing computer games and downloading music or video. 83.9 percent with secondary level of education used internet for own entertainment while 16.1 percent used internet for school or work purposed like sending or receiving emails, word processing and research. 39 % with diploma level used internet for own entertainment while 61 % used for school or work purposes. 26.7 % with university level used internet for entertainment while 73.3 % used it for school or work purposes. From this, we conclude that once education level of respondent rises much of the internet use is either for work or school purposes. In addition, 98.1 percent were familiar with either English or Kiswahili, which is in tandem with what search engines like Google offer their contents in. Also, a chi-square test revealed a low probability hence concluding that education levels ties very much with what each respondent does when on internet. This finding goes well with

Rogers (2000) who noted that the internet has mainly diffused in urban areas among the comparatively wealthy and educated considering Meru Municipality is an urban area.

Objective two: Advertisement and internet connectivity.

A cross tabulation of between the advertisement medium through which respondent learnt about internet connection and age revealed that, in 10-18 years bracket majority of the respondents learnt about internet through posters advert at 43.8% followed by TV advert at 37.5 %, in 19-25 years bracket majority of the respondent learnt about internet through TVs advert at 67.7% followed by posters at 16.1%, in 26-30 years bracket majority of the respondent learnt about internet through TVs advert at 53.1% followed by posters at 37.5%, in 31-35 years bracket majority of the respondent learnt about internet through TVs and posters advert tying at 40.0 %. Those over 35 years learnt through TVs advert at 63.6%. We conclude therefore majority of the respondents learnt about internet through TVs and Posters advert at 54.3% and 30.5% respectively. A chi-square test revealed a high probability and thus concluding that the respondent age does not tie with how the respondent learnt about internet connection. We can conclude that that the purpose of advertising is to create awareness of the advertised product and provide information that will assist the consumer to make purchase decision, the relevance of advertising as a promotional strategy, therefore, depends on its ability to influence consumer not only to purchase but to continue to repurchase and eventually develop-brand loyalty (Maria,2001).

Objective 3: Cost of Internet connection

A cross tabulation between the number of megabytes subscribed and hours spent online revealed that, majority of the respondents who subscribed to less than 50MB spent less than five hours online with 56.8%, 47.2 % of the respondents who subscribed for 50-100MB spent six to fifteen hours online, 57.9% of the respondents who subscribed to 100-499 MB spent over fifteen hours online and 50.7% of respondents who subscribed for 500-1000MB spent over fifteen hours. We conclude therefore that respondents spent more hours online as the data bundle subscription increased. The chi-square test also revealed a low probability hence concluding that that megabytes cost (subscribed) ties

very much with hours spent online by the respondents. We also conclude that majority of lower age brackets subscribe to lower data bundles mainly for chat room purposes. From these findings we conclude that the high cost of internet is a hindrance to internet subscription which is much shared with Kenya ICT Board survey (2010) which found that 28 % of Kenyans cited cost of internet subscription as a big hindrance.

Objective four: internet speed connection.

On internet speed connection, majority of the respondents viewed the speed provides by their internet providers at medium level with 50.5 percent, 29.5 percent viewed the speed as high, 10.5 percent viewed the speed as very high while 4.8 percent viewed the speed as low and very low. Hence majority were comfortable with the speed which can be attributed to the presence of 3G network provided by some of the internet service providers. The presence of high speed can be attributed to presence of fiber optic which provides a higher speed packet. A concept shared by Mittal (2001) since fiber optic services start as high as 10 or 20 Megabytes per second, with top-tier packages offering 50 Megabytes per second.

5.4 Conclusions

Internet connectivity is affected by many factors including Connection speed available, cost of internet, advertisement provided and literacy levels in a certain area. According to our research findings, the high cost of internet subscription was identified as one of the most hindrance factor to internet accessibility by majority of youths and even adults. Advertisement was identified as the second influencing factor with majority of respondent feeling much has to be done by internet providers to reach potential customers. Considering the population sample had 98 percent O level of education and 98% knew English or Kiswahili, Literacy levels was identified as the third influencing factor. Lastly, connection speed was identified as the least factor which can be attributed to present of high speed packet area around Meru Municipality. Hence it can be authoritatively concluded, that high cost of internet is one of the major hindrance factor to internet penetration in Meru Municipality.

5.5 Recommendations

1. A study should be initiated by internet service providers to determine the actual cost of internet provision across different towns which shall be pegged to the prevailing socio-economic climate in the area.

2. Various internet providers should re-engineer their advertisement systems to capture many potential customers.

3. New areas should be mapped and included to high packet transmission sites by internet providers.

Areas of Further research

There is a further need for thorough investigation on the effect of internet cost on internet subscriptions.

REFERENCES

Amendola, M., & Gaffard, L. (1988). *The Innovative choice: An Economic analysis of the dynamics of technology.* Oxford: Blackwell.

Aron, D J., and Burnstein, D E. (2003) .*Broadband adoption in the United States. an empirical study.* SSRN.

Austan, G. (2002). *Subsidies, the value of broadband and the importance of fixed costs*. AEI Brooking Joint Center for Regulatory Studies,Washington, D.C.

Bauer, J.M., Gai, P., Kim, J., Muth, T.A., & Wildman, S.S. (2003). *Broadband uptake in OECD countries.* Paper presented at the 31st Research Conference on Communication, Information and Internet Policy, Arlington, VA, USA.

Barber, D. (2012), *Dialing Up the Dollars*: *Telecommunications Interests Donated Heavily to NC Lawmakers.* National Institute on Money in State Politics.

Bazar, B., & Boalch, G. (1997). *A Preliminary model of Internet diffusion within developing countries.*

Banerjee, P., & Sirbu, M.(2003). *Towards Technologically and Competitively Neutral Fiber to the Home (FTTH) Infrastructure.* Broadband Services: Business Models and Technologies for Community Networks.

Brynjolfsson, E., Hitt, L. M., and Yang, S. (2002).*Intangible Assets: Computers and Organizational Capital.* Brookings Papers on Economic Activity: Macroeconomics (1).

Bode, K. (2010). *The Press Realizes the FiOS Party is over.* Broadband DSL Reports.

BCE reports (2011). *Second quarter results.* Bell Canada Enterprises.

Carter, L., & Belanger, F. (2005) .*The utilization of e-government services: citizen trust, innovation and acceptance factors.* Information Systems Journal.

Cardona, M. , &. Schwarz, A. (2007). *Demand estimation and market definition for broadband services.*

Canadian Internet Use Survey (2007) Statistics Canada.

Choudrie, J., Weerakkody V., & Jones, S. (2005). *Realizing e-government in the UK: rural and urban challenges,* The Journal of Enterprise Information Management.

Chen, H., & Crowston, K, (2001). *Comparative diffusion of the telephone and the World Wide Web:* An Analysis of rates of adoption.

Coleman, S. (2006). *African e-Governance – Opportunities and Challenges.* University of Oxford, Oxford University Press.

Consumer Insight (2008). *A comparative study on computer literacy dubbed Maisha.*

Curtin, G.G., Sommer, M. H., & VisSommer, V. (2003). *The World of E-Government.* New York: The Haworth Political Press, 1-16.

Crawford, P. (2010).*The Looming Cable Monopoly.* Yale Law & Policy Review, Vol. 29.

Devraj, R. (2000). *South Asia: Digital divide sharpens rich–poor gap.*

Federal Communications Commission (2012). *Internet Access Services:* Status as of June

30, 2011, June 2012,

Fisher, J.C.,& Pry, R.H., (1971). *A Simple Substitution Model of Technological Change; Technological Forecasting & Social Change;* vol. 3, no. 1.

Gay,L.R., & Airasian, P. (2003). *Educational Research: Competences for Analysis and Application.* Merill Pentice Hall, Pearson Education, Upper Saddle River, New Jersey.

George, F., & Lawrence, J., (September 2004).*The positive effects of unbundling on broadband deployment.* Phoenix Center for Public Studies

Gillett, S., & Lehr,W.(1999). *Availability of Broadband Internet Access: Empirical Evidence.* paper presented at 27th Telecommunications Policy Research Conference, Alexandria, VA.

Greene, W. H. (2003). *Econometric Analysis. (5th ed).* Upper Saddle River: Prentice Hall

ITU, *Core ICT Indicators*, Partnership on Measuring ICT for Development.

Government of Kenya (2009).*Kenya National Population and Housing Census.* Kenya National Bureau of Statistics.

Government of Kenya (2012).*Communication of Kenya Industry Performance report*.

Gilbert, D., & Balestrini, P. (2004). *Barriers and Benefits in the Adoption of e-Government.* The International Journal of Public Sector Management, 17, 4, 286-301.

Heeks, R. (2003). *Achieving Success/Avoiding Failure in e-government Projects.* IDPM, Univ. of Manchester, http://www.egov4dev.org/success/sfdefinitions.shtml.

Kolko, J. (2007). *Why Should Governments Support Broadband Adoption?* Working Paper No. 2007.01, Public Policy Institute of California.

Kedzie, C. (1997). *Communication and Democracy: Coincident Revolutions and the Emergent Dictator's Dilemma.* RGSD-127, RAND Corporation, Santa Monica.

Kenneth, F., & Chaudhuri, A.(2005). *An analysis of the determinants of broadband access, presented at the Telecommunications Policy - Research Conference*. Washington, DC, September 24, 2005

Kumar, V., Mukerji, B., Irfan, B., & Ajax, P. (2007). *Factors for Successful* e-*Government Adoption: A Conceptual Framework.* The Electronic Journal of e-Government.

Koen, C. (2009). *Techno-Economic Evaluation of a Next Generation Access Network Deployment in a Competitive Setting.*

Kothari, C.R. (2003). *Research Methodology (2nd Ed.).*New Delhi.KK Grupta of new Age international (P) Ltd.

Lichtenberg, F. & Lehr, W. (1998).*Computer Use and Productivity Growth in Federal Government Agencies.* 1987-92, Journal of Industrial Economics.

Littlejohn, S.W. (1996). *Theories of human communication.* Fifth edition. Belmont, Calif.: Wadsworth.

Lottor, M. (1995). *"Latest Internet host survey available: The Internet is growing faster*

than ever," at http://www.nw.com/zone/WWW-9507/isoc-pr-9501.txt

Maria, M. (2001).*Local competition and the role of regulation:* The EU debate and Britain's experience, Telecommunications Policy 25.

Marshall, A. (2007). *"White Paper, Future Bandwidth requirements for subscriber* and *visitor based networks";* Campus Technologies Inc.;

Mehrtens, J., Cragg, P.B., & Mills, A.M. (2001). *A Model of Internet Adoption by SMEs*. Information and Management.

Mittal, K. (2001). "*Internet Traffic Growth, Analysis of Trends and Predictions".*

MOH Report (2007). *Assessment of the Health Information System in Zambia*, www.who.int/entity/healthmetrics/library/countries/hmn_zmb_hisassessment.pdf

Muir, A. & Oppenheim, C. (2002) .*National Information Policy Developments Worldwide in Electronic Government.* Journal of Information Science.

Napoli, J., Ewing, M.T., & Pitt, L.F. (2000). *Factors Affecting the Adoption of the Internet in the Public Sector,* Journal of Nonprofit and Public Sector Marketing.

Nielsen J. (1998)." *Nielsen's Law of Internet Bandwidth".*

Noll, A. M. (1991). *"Introduction to Telephones and Telephone Traffic";* (2nd ed). Artech House.

Rogers, E.M. (1995). *Diffusion of Innovations. Fourth edition.* New York: Free Press.

Rogers Reports Second Quarter 2011. *Financial and Operating Results (2011).* Rogers

Communications Inc. [2011, June]

Simenda, K. (2009). *Electronic/Mobile Government in Africa: Progress Made and Challenges Ahead,* Addis Ababa, Ethiopia, http://www.unpan.org/emgkr_africa

Stiftung, B. (2002). *Balanced E-government: E-government – Connecting Efficient Administration and Responsive Democracy. A study by the Bertelsmann Foundation,* http://www-it.fmi.uni-sofia.bg/eg/res/balancede-gov.pdf

Scott,W. (2006). *Broadband and Unbundling Regulations in OECD Countries, Working Paper 06-16, June 2006.* AEI Brooking Joint Center for Regulatory Studies, Washington, D.C.

Scott, W. (2005). *Broadband penetration, an empirical analysis of state & federal policies ,Working Paper 05-12, June 2005.* AEI Brooking Joint Center for Regulatory Studies.

Tassabehji, R, & Elliman, T. (2006). *Generating Citizen Trust in e-Government Using a* Trust *Verification Agent: A Research Note. European and Mediterranean Conference on Information Systems (EMCIS),* http://www.iseing.org/emcis/EMCIS2006/Proceedings/Contributions/EGISE/eGISE4.pdf

Titah, R. & Barki, H. (2006). *E-government Adoption and Acceptance: A Literature Review,* International Journal of Electronic Government Research.

Thorbjornsen, H., Supphellen, M., Nysveen, H., & Pedersen, P.E. (2002). *Building Brand Relationship Online: A Comparison of Two Interactive Applications,* Journal of Interactive Marketing.

Thompson, C. (2001).*Supply and Demand Analysis in Convergent Networks*. Sloan

School of Management, Cambridge, MA.

The Electronic Journal on Information Systems in Developing Countries (2009) http://www.ejisdc.org EJISDC (2009) 38, 4, 1-13 13

United Nations Report (2002). *Benchmarking E-Government: A Global Perspective.* United Nations Division for Public Economics and Public Administration, http://unpan1.un.org/intradoc/groups/public/documents/UN/UNPAN021547.pdf

United Nations Report (2008). *UN E-Government Survey 2008: From E-Government to Connected Governance,* ISBN 978 -92-1-123174-8, UN White paper, http://unpan1.un.org/intradoc/groups/public/documents/UN/UNPAN028607.pdf

Venkatesh, V., Morris, M., Davis, G., & Davis, F. D. (2003). *User Acceptance of Information Technology: Toward a Unified View,* MIS Quarter.

Walter, D., Paolo L., & Fabio, M. (2006). *Platform Competition and broadband uptake:* Theory and Empirical evidence from the European Union., Information Economics and Policy.

Ward, J. (2012). *Industry Demands Scrutiny of Verizon-Cable Agreements*. NCTA Blog New Edge.

Wangpipatwong, S., Chutimaskul,W. & Papasratorn, B. (2005). *A Pilot Study of Factors Affecting the Adoption of Thai e-Government Websites.* The International Workshop on Applied Information Technology, Bangkok, Thailand.

Warkentin, M., Gefen, D., Pavlou, P.A., & Rose, G.M. (2002). *Encouraging Citizen Adoption of e-Government by Building Trust,* Electronic Markets.

Weldon, M., & Zane, F. (2003). *The Economics of Fiber to the Home Revisited*. Bell Labs Technical Journal.

William, H. L., Carlos A. O., Sharon, E. G., & Marvin, A. S.(2006). *Measuring*

broadband's economic impact. Massachusetts Institute of Technology Engineering Systems Division, Working Paper Series ESD-WP-2006-02

Woolridge, J. (2002). *Econometric Analysis of Cross-Section and Panel Data*. MIT Press,

World Economic Forum, Agusto Lopez –Claros and Klaus Schwab (2005) .The Arab World Competitiveness Report.

Zhu, J.J.H. and He, Z. (2002). *Perceived Characteristics, Perceived Needs, and Perceived Popularity: Adoption and Use of the Internet in China,* Communication Research.

Appendix A: Letter of Transmittal

Ndeke Dominic Mwirigi

Department of Extra Mural Studies

University of Nairobi-Meru Centre

P.O BOX 30197-00100

Nairobi

E-mail:mwirigidominic@gmail.com

Dear Sir/Madam:

RE: LETTER OF TRANSMITTAL OF DATA COLLECTION INSTRUMENT

My names are Ndeke Dominic Mwirigi and I am carrying out a research study for the award of a Masters Degree in Project Planning and Management of the University of Nairobi. The study will investigate the factors influencing the uptake of internet connectivity in Meru Municipality.

On successful completion of the research, the findings will be useful to the government in assessing if the government long-term objectives towards achieving Vision 2030 are being realized. Your input is therefore very important in determining the success of this research and will be treated in total confidentiality.

Attached please find a questionnaire that requires you to provide necessary information by answering questions honestly and objectively. Do not write your name anywhere the questionnaire. Please cooperate with my research assistants when filling in the questionnaire.

Yours Faithfully,

Ndeke Dominic Mwirigi

Cell: 0723 98 54 57

Appendix B: Questionnaire

Questionnaire on uptake of internet connectivity by Meru Municipality residents

Please tick or circle the appropriate:

Section A

1. Which area do you come from?

a) Township ☐

b) Kaaga ☐

c) Gakoromone ☐

2. What is your gender?

a) Male ☐

b) Female ☐

3. What age bracket are you?

a) 10- 18 years ☐

b) 19-25 years ☐

c) 26-30 years ☐

d) 31-35 years ☐

e) Over 36 years ☐

Section B

1. What is your highest level of education?

a) Primary Level ☐

b) Secondary Level ☐

c) Diploma Level ☐

d) University Level ☐

2. Which Languages are you Familiar with?

a) English or Kiswahili ☐

b) Any Foreign Language, please specify ☐

3. Which Device do you use to connect to internet?

a) Computer ☐

b) Mobile Phone ☐

c) Both (Computer and Mobile Phone) ☐

Section C

1. How did you learn about the current internet connection you are?

a) TVs advert

b) Posters Advert

c) Road-shows advert

d) Others, Please Specify

2. In your own opinion, did the advert appeal to you?

a) Yes

b) No

Section D

1. Which Megabytes do you subscribe to?

a) 0-40MB for less than 100K.sh

b) 50-99MB for 100-150K.sh

c) 100-499MB for 150-500K.sh

d) 500-1000MB for 500-1000K.sh

e) Others, Please specify

2. In your own opinion how is the cost of the internet subscription?

a) Low Cost

b) Medium Cost

c) High Cost

3. How many hours per week do you spend online?

   a). Less than five hours

   b). Six to Fifteen Hours

   c). Over Fifteen Hours

Section E

1. How can you rate the connection speed availed by your internet provider?

a) Very low

b) Low

c) Medium

d) High

e) Very High

2. In your own opinion are you satisfied by the speed provided by your internet provider?

a) Yes

b) No

3. When you access the internet, which of the following do you usually do?

a) Use the world wide for your own entertainment like chart rooms, computer games or downloading music or video

b) Use the world wide for your school or work purposes

4. How often do you access the internet?

a) Once a month or less

b) Once a week

c) Several times a week

d) Everyday

e) Several times a day

4. In your own opinion which factor has contributed to slow uptake of internet connectivity

a). Low Bandwidth speed

b).Lack of advertisement

c) .High Cost

d).High Literacy Requirement

Thank you!

Appendix C: Meru Municipality Administrative Units and Population

MERU MUNICIPALITY ADMINISTRATIVE UNITS AND POPULATION

Meru Municipality	Population	Households	Area in Sq KM	Density
	27,303	8,159	8.7	3,149
Township	4,156	1,043	0.8	4,980
Kaaga	11,689	3,462	3.9	2,963
Gakoromone	11,458	3,654	3.9	2,944

Source: KNBS 2009 National Census

Appendix D: Work Plan

TIME-SCHEDULE FOR RESEARCH PROJECT

Event	Month and Date
Identification of Research problem	1st- 30th January 2013
Proposal Writing	1st-30th March 2013
Adjustment of Proposal	1st-15th April 2013
Presentation of project proposal	16th-20th April 2013
Data Collection	23rd-7th May 2013
Data Analysis and report Writing	10th May- 10th June 2013
Presentation of Findings for Defense	15th June- 16th June 2013

Appendix E: Sample Size Determination Extract

Sample size for ±3%, ±5%, ±7%, ± 10% precision levels where confidence levels is 95% and P= 0.5

Size of the Pop.	±3%	±5%	±7%	±10%
500	a	222	145	83
600	a	240	152	86
700	a	255	158	88
800	a	267	163	89
900	a	277	166	90
1,000	a	286	169	91
2,000	714	333	185	95
3,000	811	353	191	97

a= Assumption of normal population is poor, Yamane (1967), the entire population should be sampled.

Source: Yamane Tora (1967)