

NATIONAL ICT SURVEY REPORT



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ACRONYMS/ ABBREVIATIONS

BPO	Business Process Outsourcing
CCK	Communications Commission of Kenya
CSPRO	Census and Survey Processing System
DVD	Digital Video Disc
DNS	Domain Name System
DK	Don't Know
EAC	East African Community
EPSEM	Equal Probability Selection Method
GDP	Gross Domestic Product
GoK	Government of Kenya
ICT	Information and Communication Technology
IP	Internet Protocol
ISPs	Internet Service Providers
ITU	International Telecommunications Union
KBC	Kenya Broadcasting Corporation
KDHS	Kenya Demographic and Health Survey
KNBS	Kenya National Bureau of Statistics
KP&TC	Kenya Posts and Telecommunications Corporation
KShs	Kenya Shillings
LAN	Local Area Network
MDGs	Millennium Development Goals
MTP	Medium Term Plan
NASSEP	National Sample Survey and Evaluation Programme
NS	Not Stated
PC	Personal Computer
PCK	Postal Corporation of Kenya
PEV	Post Election Violence
PPS	Probability Proportional to Size
RAs	Research Assistants
SPSS	Statistical Package for Social Sciences
TKL	Telkom Kenya Limited
TV	Television
VSAT	Very Small Aperture Terminal
WSIS	World Summit on the Information Society

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This report presents results of the national ICT Survey conducted by the Kenya National Bureau of Statistics [KNBS] in liaison with the Communications Commission of Kenya [CCK]. The survey was carried out over a period of thirty days.

The ICT Survey was designed to capture data that would be used to update statistics on ICTs such as computers, telephones – both fixed line and mobile – television and radio, with regard to among others, access, ownership, usage and cost.

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A.K.M. Kilele, MBS

Director General

Kenya National Bureau of Statistics

EXECUTIVE SUMMARY

Household Characteristics

In researching ICT penetration rates of a country, it is necessary to look at the target population demographic characteristics that facilitate use, access and ownership of the ICT facilities and equipments. As such, the ICT survey sought information on the general characteristics of the sampled population, including composition by age and sex, household size, education, employment, literacy, disability and source of electricity to households.

Employment and household size in many cases determine the household disposable income which in turn determines whether individuals in households can afford radios, TVs, computers, the internet and other ICTs equipments and facilities. Education contributes to the development of human capacity building for effective use of the ICT facilities, especially the internet. For the development and maintenance of ICT infrastructure it is important to have other infrastructure like electricity, water, road, rail, and air transport systems in place. In particular, electricity is a key driver of ICTs and therefore the survey sought to establish to what extent it affects penetration rates of ICT in the country. Other characteristics like age, sex and disability are important in informing if certain sections of the society are disadvantaged and therefore putting the necessary policies in place to alleviate any social inequalities.

Access, Usage and ownership of ICT Facilities by Households and individuals

For many years, ICT has been at the centre stage of economic development, notably through rapid technological advancement, facilitating speedy access of ideas and experiences, and prompt exchange of information. In today's world, access, usage and ownership of ICT are fundamental in linking communities, facilitating businesses and empowering communities socially and economically. Enhancement of access to information and communications services in rural, remote and underserved areas is therefore crucial to accelerating development.

The results of the survey show that in most cases there is correlation between access and usage on one hand and sex, education, and age on the other. Among the salient features of the findings is that use and access of ICT equipments and facilities was more widespread among the youth (20 – 34 years).

ICT in Education

Information and Communication technologies (ICTs) - which include radio and television as well as newer digital technologies such as computers and the internet – have been touted as potentially powerful enabling tools for educational change and reform. More than half of the household population attending ICT related courses are in primary school level, 32 per cent are in secondary. Households that are headed by males are more likely to use electricity from mains, generator or solar than those headed by females. The results of the survey show that the higher the education levels of the head of household, the higher the likelihood of using

electricity from the main grid. The positive impact of education on use of electricity is more visible at the attainment of secondary or higher education levels. This leads to better use of the ICT services.

The survey reveals that 33.1 per cent of household members aged above 3 years own a radio, 18.2 per cent own a computer, 15.0 per cent of households own a Television (TV) and 7.4 per cent have internet connectivity. The ownership of the ICT equipment varies across the provinces as well as across ages. Television and computer usage is common among residents of Nairobi Province. The results further show that radio usage is predominant among households headed by a person with pre-primary level of education. Television usage is common among households headed by a person who has attained secondary level of education while computers are widely used in households headed by a person with higher education levels above secondary, such as university

CHAPTER 1: INTRODUCTION

1.0 Background

For many years, the world has utilized the benefits of ICT leading to increased productivity in the manufacturing and service sector. However, the last decade has witnessed an explosion in the advancement of ICT technology. The benefits associated with the use of modern technology have given ICT prominence in the eyes of the public and decision makers. Through the use of modern technology, communication has become more reliable, faster and affordable. It is now possible to transmit data more effectively and at minimal costs. Similarly, the manufacturing sector has been able to achieve higher outputs through the use of automated production lines.

In order to maximize and harness the benefits of these technologies, it is imperative to regularly take stock of the country's level of development and utilization of the ICTs. In most instances, the *supply side* data can be availed through use of administrative records from providers and the regulatory authorities. However, the *demand side* statistics can only be sourced through user-targeted studies with specific objectives. Currently, the country does not have comprehensive data on the developments in the ICT sector, particularly at the household level. This calls for development of appropriate sector indicators for both academic and commercial purposes.

1.3 The National ICT Study

In an effort to address the ICT data challenges, the Communications Commission of Kenya (CCK) partnered with Kenya National Bureau of Statistics (KNBS) to undertake a comprehensive National ICT Survey. This was planned and executed during the months of May and June 2010. The main objective of the study was to establish the ICT access and usage levels at the household and individual in the country, The findings of the survey will serve to inform formulation of progressive ICT access programmes, projects and strategies in addition to providing input into the ICT Access Gaps study. .

1.4 Objectives

The main objective of the study was to collect, collate and analyse data relating to ICT access and usage by various categorizations in Kenya. The survey captured data and information on critical ICT indicators as defined by international bodies such as the International Telecommunications Union (ITU). These indicators focused on household and individuals; and the data was be disaggregated by age, gender, administrative regions, rural and urban locations. The specific objectives of the study were to;

Obtain social economic information with a view of understanding usage patterns of ICT services;

- (a) Obtain social economic information with a view of understanding usage patterns of ICT services;
- (b) Collect, collate and analyze ICT statistics in line with ICT indicators;
- (c) Evaluate the factors that will have the greatest impact in ensuring access and usage of ICTs and;

- (d) Develop a database on access and usage of ICT in Kenya.

1.5 Justification

The country's economic blue print, the Vision 2030, has identified ICT as a key enabler to the attainment of the goals and aspirations of the Vision. The thrust of the Vision in the ICT Sector is therefore to convert Kenya into a truly knowledge and information economy by enabling access to quality, affordable and reliable ICT services in the country. An integral step in achieving this objective is to establish the ICT access levels in the country, determine ICT access gaps that need to be served and evaluate barriers to ICT access such as costs, literacy levels and technological barriers. In furtherance of this objective, the Commission has committed, in its 2008-2013 Strategic Plan to undertake a comprehensive household survey to accurately establish the ICTs penetration levels in the country. It is estimated that the outcome of this study will inform the development strategies to accelerate access to ICT services in the country that will lay the foundation for harnessing the true potential of the ICT sector in Kenya. In particular, the study will identify the ICT access gaps in the country with a view to develop targeted policy interventions to accelerate ICT access in the country.

Furthermore, the effective roll-out of ICT services in the country is predicated upon reliable and accurate ICT data and information including ICT access demographics, and establishment of access costs. This study therefore provides the basis for ICT household data that can formally be employed in monitoring the sector's development towards achieving the Vision 2030.

CHAPTER 2: SURVEY ORGANIZATION AND METHODOLOGY

2.1 Survey organization

The Kenya National Bureau of Statistics served as the implementing agency on behalf of Communication Commission of Kenya (CCK) and as such played a primary role in the planning, survey execution and analysis, and report preparation. As the implementing agency, the Bureau undertook the responsibilities for operational matters; including planning and conducting fieldwork and processing of collected data. The Bureau also organized for the writing of the basic report. The day-to-day technical operations of the survey including identification and training of field and data processing staff, and the supervision of the office and field operations were fully undertaken under the supervision of KNBS.

To undertake the Survey, different categories of personnel were identified and trained. These included Lead Coordinator, Regional Coordinators, Supervisors and Research Assistants (RAs). The Identification criteria used for the selection of RA's was based on their academic qualifications. The minimum qualification was a diploma in any academic field. In order to execute the survey, KNBS segmented the country into five operational regions with Seventeen field teams constituted based on the regions and local language preference.

Each team comprised of four research assistants, one supervisor and a driver. The Field Supervisors were responsible for at least one team. The teams were assigned to operate in areas where their local languages are spoken. The supervisors were answerable to the Project Team Leader (The Lead Co-Coordinator) through designated Regional Coordinators.

2.2 Sample design and weighting

2.2.1 The Sample Frame

The National Sample Survey and Evaluation Programme (NASSEP IV) maintained by the Bureau was used as the sampling frame. The frame has 1,800 clusters spread all over the country, and covers all socio-economic classes and hence able to get a suitable and representative sample of the population.

2.2.2 Survey domains

The survey was distributed into four domains, namely:

1. National,
2. Major Urban areas,
3. Other Urban areas, and
4. Rural areas.

The major urban towns included Nairobi, Thika, Mombasa, Kisumu, Nakuru and Eldoret. All other areas defined as urban by KNBS but fall outside the major municipalities above were categorized as ‘other urban areas’. The rural domain was further sub-divided into their respective provinces, excluding Nairobi which is purely urban.

2.2.3 Estimation of Sample Size

Among the indicators of this study include the percentage of the population that uses the internet services, e-mail services, computers, mobile phones and fax machines. One device that is commonly used by both the urban and rural population is the mobile phone and on that basis, it was used to calculate the sample size.

The sample size was estimated using the formula

$$n = \frac{z^2 p q d}{e^2} \dots\dots\dots (1)$$

where,

- n = the desired sample size,
- z = the critical value or the confidence coefficient or simply called abscissa of the normal distribution curve and cuts off an area of 0.05 at the tails
- p = the prevalence rate for use of mobile phones,
- q = $1 - p$
- d = the design effect and
- e = the allowed margin of error

In calculation of sample size, there is need to adjust for possible non-response and the design effect. This is necessitated by the fact that under simple random sampling, the standard error of the estimates will be lower than the standard error in the case of the two-stage cluster sample design, which the NASSEP frame uses. Accordingly, a 10% adjustment was done after the sample size calculation to cater for the possible non-response.

2.2.4 Stratification

For the ‘rural’ component, the districts that display identical socio-cultural and economic conditions have been pooled together to create strata from which a representative set of districts is selected to represent the group of such districts. A total of 42 such stratifications were done and one district in each categorization was selected.

The major urban areas of the country namely Nairobi, Mombasa, Kisumu, Nakuru, Eldoret and

Thika were all sub-stratified into five sub-strata based on perceived levels of income into the:

1. Upper income
2. Lower Upper
3. Middle
4. Lower Middle and
5. Lower.

In this survey, all the six ‘major urban’ are included while just a few of the ‘other urban areas’ are selected depending on their population (household) distribution.

2.2.5 Selection of the Clusters for the Survey

The selection of the sample clusters was done systematically using the Equal Probability Selection method (EPSEM). Since NASSEP IV was developed using Probability Proportional to Size (PPS) method, the resulting sample retains its properties. The selection was done independently within the districts and the urban /rural sub-stratum.

2.2.6 Selection of the Households

From each selected cluster, an equal number of 15 households were selected systematically, with a random start. The systematic sampling method was adopted as it enables the distribution of the sample across the cluster evenly and yields good estimates for the population parameters.

Selection of the households was done at the office and assigned to the Research Assistants, with strictly no allowance for replacement of non-responding households.

2.2.7 Weighting the Sample Data

The resulting sample would not be self weighting owing to the unproportional allocation of the sample into the domains. Weights were developed to account for the selection probabilities. The weights were developed using the design weights of the clusters, the response levels and the number of clusters in the survey.

In the computation process, adjustment was done for cluster and household non-response. The generation of the cluster weights is the product of sample cluster design weight, household and cluster response adjustment factors. The mathematical formulation is given as follows:

$$W_{hi} = D_{hi} \times \frac{S_{hi}}{I_{hi}} \times \frac{C_h}{C_{hi}} \dots\dots\dots (2)$$

where,

- W_{hi} = Overall cluster weight for the i-th cluster in the h-th stratum
- D_{hi} = Sample cluster design weight obtained from cluster selection probabilities for the i-th cluster in the h-th stratum
- S_{hi} = Number of listed households in the i-th cluster in the h-th stratum
- I_{hi} = Number of responding households in i-th cluster in the h-th stratum
- C_h = Number of operating clusters in h-th stratum
- C_{hi} = Number of selected clusters in the h-th stratum

The weights were applied to each individual item to obtain estimates on any given variable in a specified domain or category.

2.2.8 Estimation of the Population Parameters

The estimates for the population indicators may be proportions, ratios (means) or totals. The estimation process involved multiplication of the weighting factor with the sample value and summing up the products.

The population estimates included totals and ratios. In the estimation of totals, sample weights were applied to obtain national and domain totals using the result:

$$\hat{Y} = \sum W_{hi} Y_{hij} \dots\dots\dots (3)$$

where,

- \hat{Y} = estimate of the total of the variable Y;
- W_{hi} = weight of the i-th cluster in the h-th domain.
- Y_{hij} = observed value of the variable Y in the h-th domain in the i-th cluster on the j-th individual or household

For a ratio estimate, the estimates for Y and X were weighted before the estimation of the ratio using the result:

$$R = \frac{\hat{Y}}{\hat{X}}$$

2.2.9 Allocation of the sample to domains

The distribution of the number of households in the survey to the clusters was determined using the sampling fraction within the clusters. The mean size of the clusters in NASSEP IV is 100 households. A 10% sample of the households in each cluster was considered sufficient. However, cluster sizes were not uniform with the average size being 100 households. Some clusters had sizes falling below 100 while others exceeded the mean size of 100 households. To avoid the complications that would arise by strictly adhering to 10% of the cluster, a uniform number of 15 households from each cluster was selected.

Due to the large differences in household composition in the domains, a proportional allocation would have resulted into small un-reliable sample in ‘other urban’ domain. An alternative power allocation method was used to allocate the sample of 8,295 into the strata. Further, a square root allocation was used to allocate the sample of 6,075 of rural domain into their respective sub-domains (provinces). The allocation of the sample of ‘major urban’ and ‘other urban’ domains was done proportionately to their total number of households.

2.3 The institutional questionnaire

The institutional questionnaire was administered to a sample of one primary and one secondary school within the clusters in which data was collected. The manager or the senior most teacher of the institution was be responsible for providing information for each of the sampled institutions. The Supervisor and his or her team of Research Assistants were responsible for administering the questionnaire in the districts they worked.

Where there was no school found within the cluster, Research Assistant was allowed to sample an institution from a neighbouring cluster. In some districts, the schools were found to be very far from the cluster and therefore could not be covered. Where a cluster was to be covered over a weekend, it was often not possible to find a responsible person in institutions to respond to the questionnaire.

2.4 Selection of Household Businesses

During the survey, the sampled households were asked about business ownership by household members.. The business module of the questionnaire was then administered to all household members who reported to own/operate a business.

2.5 Training and Data Collection

2.5.1 Training

The training for fieldwork personnel took 6 days. This covered the contents of the questionnaire as well as survey concepts, logistics and other related issues. The survey personnel were also taken through the standard survey methodology and data collection procedures which included among others; how to interview and record different types of responses, applying skip patterns and cancelling wrong answers. A total of seven trainers facilitated the training.

2.5.2 Data collection

To aid in identification and access to the household, letters of introduction and identification badges were provided to the RAs. This was in addition to facilitating the team with a village elder recognised by the community. Prior to visiting the clusters, teams also went for courtesy calls to the nearest provincial administration offices.

Data collection took 30 days from 30th May and 20th June 2010. Research Assistants visited sampled households to administer the questionnaires. It took the RAs approximately 40-50 minutes to administer the questionnaire depending on the size of the household. Most of the teams managed to collect the data within the stipulated timeframe except teams from Upper Eastern, Nairobi and Nyanza Provinces where data collection was completed a week later owing to various challenges that were encountered.

2.5.3 Response rates

Owing to the some logistical challenges the following clusters were partially or not covered at all:

- One cluster in Tana River due to floods.
- Two clusters in Molo where households shifted to safer areas after the Post Election Violence (PEV). As a result, fewer than the expected households were covered.
- One cluster in Koibatek was covered halfway due to relocation of households to pave way for a large plantation.

As shown in Table 2.1, the overall response rate stood at 85.9 per cent. Nairobi had the lowest response rate at 69.4 per cent while the highest (94.6 per cent) was realized in North Eastern. More than 95.5 per cent of all the sampled households were occupied out of which 85.9 per cent were interviewed.

Table 2.1: Results of household and individual interviews

	Sampled households	Occupied households	Interviewed households	Household response rate
Nairobi	990	977	678	69.4
Central	1140	1127	976	86.6
Coast	855	832	725	87.1
Eastern	1185	1115	952	85.4
North Eastern	450	443	419	94.6
Nyanza	1155	1073	917	85.5
Rift Valley	1530	1396	1308	93.7
Western	990	956	828	86.6
Total	8295	7919	6803	85.9

2.6 Data Processing

As a matter of procedure initial manual editing was done in the field by the RAs. The supervisors further checked the questionnaires and validated the data in the field by randomly sampling 20 per cent of the filled questionnaires. After the questionnaires were received from the field, an office editing team was constituted to do office editing.

Data was captured using Census and Survey Processing System (CSPRO) version 4.0 through a data entry screen specially created with checks to ensure accuracy during data entry. All questionnaires were double entered to ensure data quality. Erroneous entries and potential outliers were then verified and corrected appropriately. A total of 20 data entry personnel were engaged during the exercise.

The captured data were exported to Statistical Package for Social Sciences (SPSS) for cleaning and analysis. The cleaned data was weighted before final analysis. The weighting of the data involved application of inflation factors derived from the selection probabilities of the EAs and households detailed in section 2.2.7, on weighting the Sample Data.

CHAPTER 3: HOUSEHOLD CHARACTERISTICS

3.1 Household Characteristics

This chapter describes the general characteristics of the sampled population, including composition by age and sex, household size, education, employment, literacy, disability, and source of electricity to households. The survey further sought to establish household headship and the industry in which the household members worked. The ICT survey adopted the definition of Household used in the 2008/09 Kenya Demographic and Health Survey (KDHS). In the KDHS, a household was defined as a person or a group of persons, related or unrelated, who live together and who share a common source of food. The study was designed to consider only usual members of the household.

3.2 Population by Age and Sex

Details on composition of the sampled population are presented in Table 3.1. A striking aspect of the sampled population is that the share of male for the ages 0 – 19 and 50+ years is slightly higher than that of their female counterpart. The situation reverses for the ages 20 to 49 years where the female share is slightly higher than that of male. The population distribution by sex and age corresponds to a typical population pyramid save for a slight distortion resulting from a lower share of age 0-4 compared to 5-9.

3.3 Household Composition

Table 3.1 further shows the percentage distribution of the population by age, sex, province and level of education. Overall, there were as many female as male in the sampled population. About 21 per cent of the sample was from Rift Valley which was the highest, followed by Eastern with about 16 per cent while Nairobi contributed the smallest share of 7 per cent.

3.4 Percentage Distribution by Level of Education Reached

Education contributes to the development of human capacity building and therefore key in the effective use of ICT. The fundamental purpose of education is to gain knowledge, instil appropriate conduct and acquire technical proficiency. It was therefore imperative for the survey to collect basic information on education status of the population under study.

In addition to information on education supplied in Table 3.1, percentage distribution of the level of education reached by province and by sex is presented on Table 3.2. Nationally, one in every three persons had attained education beyond secondary school.

Table 3.1: Percentage Distribution of Surveyed Population by Sex, Province, Age and Level of Education

	Sex	Total
--	-----	-------

		Male	Female	
Province				
	Nairobi	49.4	50.6	3,299,618
	Central	49.3	50.6	4,330,378
	Coast	48.8	51.0	3,547,632
	Eastern	50.5	49.5	4,265,580
	North Eastern	53.4	46.1	1,343,302
	Nyanza	48.8	51.2	4,957,703
	Rift Valley	49.7	50.2	10,978,166
	Western	49.1	50.9	4,244,907
Rural/Urban				
	Rural	50.0	50.0	26,285,617
	Urban	48.6	51.3	10,681,669
Age				
	0 - 4 yrs	51.1	48.8	4,213,996
	5 - 9 yrs	48.5	51.5	5,143,790
	10 - 14 yrs	54.0	45.9	5,058,236
	15 - 19 yrs	51.9	48.1	3,923,056
	20 - 24 yrs	45.8	54.1	3,485,354
	25 - 29 yrs	41.1	58.9	2,975,766
	30 - 34 yrs	50.4	49.5	2,675,990
	35 - 39 yrs	47.8	52.1	2,078,368
	40 - 44 yrs	51.4	48.6	1,523,355
	45 - 49 yrs	47.2	52.8	1,428,842
	50 - 54 yrs	57.2	42.7	1,159,248
	55 - 59 yrs	49.6	50.2	802,251
	60 - 64 yrs	50.7	49.3	731,303
	65 - 69 yrs	47.3	52.6	493,351
	70+ yrs	49.7	50.3	1,265,877
Level of Education				
	Pre Primary	49.9	49.9	2,399,708
	Primary	51.1	48.8	13,462,729
	Secondary	54.7	45.2	3,572,185
	Higher	48.7	51.2	9,994,464
	Non Standard	57.2	42.8	85,269
	DK	42.9	57.1	64,066
	NS	45.3	54.6	7,388,865
Total		49.6	50.4	36,967,285

Table 3.2: Percentage Distribution of the level of education reached by sex province and Age

		Level of Education							Total
		Pre Primary	Primary	Secondary	Higher	Non Standard	DK	NS	
Province	Nairobi	6.4	22.0	12.5	44.8	.2	.2	13.9	3,299,618
	Central	5.1	35.7	13.8	33.6	.2	.5	11.1	4,330,378
	Coast	7.9	35.1	7.4	25.3	.6	.2	23.5	3,547,632
	Eastern	3.8	36.4	8.8	23.6	.2	.4	26.8	4,265,580
	North Eastern	2.6	30.2	5.8	6.7	.4	.0	54.3	1,343,302
	Nyanza	8.7	41.7	9.8	24.6	.6	.1	14.6	4,957,703
	Rift Valley	6.7	37.3	8.6	25.9	.0	.1	21.5	10,978,166
	Western	7.7	43.1	9.8	23.7	.1	.1	15.5	4,244,907
Rural/Urban	Rural	6.5	37.5	10.7	26.6	.3	.2	18.3	18,330,927
	Urban	6.4	35.3	8.7	27.5	.2	.2	21.7	18,613,699
Sex	Male	11.9	26.4	10.9	26.4	.0	.0	24.3	22,660
	Female	6.4	40.0	8.4	22.6	.2	.2	22.2	26,285,617
	NS	6.8	27.7	12.7	37.9	.2	.2	14.5	10,681,669
Age	0 - 4 yrs	20.2	3.2	.0	.0	.0	.0	76.6	4,213,996
	5 - 9 yrs	28.6	63.1	.0	.0	.0	.0	8.3	5,143,790
	10 - 14 yrs	.0	95.1	.0	.0	.1	.0	4.8	5,058,236
	15 - 19 yrs	.0	52.3	41.1	.0	.2	.0	6.4	3,923,056
	20 - 24 yrs	.0	42.5	36.3	12.6	.4	.1	8.1	3,485,354
	25 - 29 yrs	.0	.0	.0	90.0	.2	.5	9.3	2,975,766
	30 - 34 yrs	.0	.0	.0	87.3	.1	.1	12.4	2,675,990
	35 - 39 yrs	.0	.0	.0	89.0	.2	.2	10.6	2,078,368
	40 - 44 yrs	.0	.0	.0	83.7	.2	.2	15.9	1,523,355
	45 - 49 yrs	.0	.0	.0	84.2	.3	.0	15.6	1,428,842
	50 - 54 yrs	1.0	38.0	30.0	7.3	.4	.3	23.1	1,159,248
	55 - 59 yrs	1.6	46.1	19.6	5.8	.4	.9	25.7	802,251
	60 - 64 yrs	1.1	46.5	9.3	5.5	.4	.8	36.5	731,303
	65 - 69 yrs	1.6	43.5	10.8	3.2	1.5	.0	39.4	493,351
	70+ yrs	2.8	29.5	5.4	2.1	1.4	1.5	57.3	1,265,877
Total		7.9	36.4	9.7	27.0	.2	.2	20.0	36,958,7

Primary school was reported by 36.4 per cent of the population as the highest level of education reached while secondary were reported by 9.7 per cent. Only a negligible (0.2 per cent) of the population was reported to have undergone through a non-standard system of education. For all provinces except Nairobi, more than 30 per cent of their population had never schooled beyond primary. Nairobi had the largest proportion of the highly educated people with 44 .8 per cent of its population having attained higher education. This was attributed to concentration of white collar jobs in Nairobi and thereby attracting the well educated persons from other regions of the country. Only 5.8 per cent and 6.7 per cent of North Eastern's population had reached secondary and higher¹ level of education respectively.

3.5 Household Size

Household characteristics are important in analysis as they are a pointer of the social and economic well-being of the members of the household. In many cases, large household size may lead to constrained financial resources and therefore lack of basic necessities. Information on the size of the sampled households is provided on Table 3.3. Almost half of the households

¹ Post-secondary, Colleges, University

interviewed had three to five members while families with six to eight persons constituted 23.9 per cent the total households.

A salient feature of the population was a substantial proportion (5.7 per cent) of households of nine or more members. As would be expected, Nairobi had the highest proportion of small families with 34.6 per cent of its households having only one or two persons while North Eastern had the highest proportion of large families with 41.1 per cent of its households having at least six members.

Table 3.3: Percentage Distribution of Household Headship and Household Composition

		Sex of Household Head			Household Size				Total
		Male	Female	NS	1 - 2	3 - 5	6 - 8	9+	
Province	Nairobi	76.7	21.5	1.9	34.6	50.5	11.7	1.4	1,002,682
	Central	66.8	31.4	1.7	29.0	54.8	12.7	1.8	1,242,522
	Coast	72.1	23.9	4.0	20.8	37.5	27.9	9.7	773,561
	Eastern	70.9	27.0	2.1	18.5	48.2	25.4	5.9	947,927
	North Eastern	68.7	27.5	3.8	9.7	30.2	41.1	15.6	236,775
	Nyanza	65.7	34.0	.3	24.2	48.3	22.3	4.9	1,190,945
	Rift Valley	73.1	20.7	6.2	20.6	37.8	28.5	7.0	2,543,120
	Western	69.9	29.7	.4	16.5	43.9	32.7	6.5	906,971
Rural/Urban	Rural	70.3	26.1	3.6	18.1	40.9	29.7	7.7	5,750,812
	Urban	71.9	26.2	1.9	32.0	51.3	13.0	1.8	3,093,692
Age	15 - 19 yrs	59.6	40.4	.0	68.3	24.1	3.0	4.6	47,590
	20 - 24 yrs	78.8	21.2	.0	65.2	33.5	1.3	.0	416,493
	25 - 29 yrs	71.9	28.1	.0	39.1	53.7	7.0	.2	855,349
	30 - 34 yrs	83.5	16.5	.0	13.7	62.4	22.6	1.3	1,273,961
	35 - 39 yrs	77.0	23.0	.0	12.1	50.0	32.9	5.0	1,083,849
	40 - 44 yrs	75.9	24.1	.0	12.7	45.6	34.1	7.6	917,863
	45 - 49 yrs	73.8	26.2	.0	16.6	36.8	37.9	8.7	856,485
	50 - 54 yrs	75.5	24.4	.1	18.7	39.8	29.4	12.2	829,426
	55 - 59 yrs	68.9	30.9	.2	22.9	34.3	29.5	13.3	524,705
	60 - 64 yrs	64.7	35.3	.0	23.9	46.3	23.8	5.9	525,509
	65 - 69 yrs	61.2	38.6	.2	30.2	38.8	24.6	6.4	363,925
	70+ yrs	58.3	41.6	.0	35.5	41.0	17.2	6.2	886,841
Level of Education	Pre Primary	69.5	30.5	.0	16.4	57.8	22.7	3.1	183,025
	Primary	69.6	30.4	.0	21.0	43.7	28.0	7.2	4,386,994
	Secondary	79.1	20.9	.0	21.7	50.0	23.2	5.2	2,588,174
	Higher	81.4	18.5	.1	22.6	55.3	17.4	4.7	845,420
	DK	65.9	34.1	.0	28.0	43.7	22.5	5.8	71,827
Total		70.9	26.1	3.0	22.9	44.6	23.9	5.7	8,844,504

3.6 Household headship

Information on household headship and composition is detailed in Table 3.3. On average 26.1

per cent and 70.9 per cent of the households were headed by female and male respectively while an insignificant number of households did not state their headship. There were notable differences across provinces, with Nyanza having the largest proportion of households headed by female at 34.0 per cent while Rift Valley had the smallest proportion of 20.7 per cent.

3.7 Distribution of the Level of Literacy

Table 3.4 shows percentage distribution of literacy for persons aged 15 years and above. Nairobi had the highest level of literacy with 97.5 per cent of its population being literate. Second was Central province which reported 91.3 per cent while Nyanza was third with a proportion of 87.3 per cent. North Eastern province had the least percentage of literate population at 42.2 per cent. Interestingly, 7.7 per cent of those who had reached primary school level reported to be illiterate. A comparison between urban and rural reveal a notable disparity in literacy levels, whereas 94.8 per cent of urban population reported being literate, rural's literacy level was 81.7 percent; 13.1 percentage points lower.

Table 3.4: Percentage Distribution of the level of Literacy (15+) by province, sex and Age

		Literacy			Total
		Yes	No	DK	
Province	Nairobi	97.5	2.3	.2	2,290,744
	Central	91.3	8.2	.6	2,970,099
	Coast	80.3	19.3	.4	2,143,584
	Eastern	83.7	15.8	.5	2,712,608
	North Eastern	42.2	55.0	2.8	706,260
	Nyanza	87.3	12.6	.2	2,809,154
	Rift Valley	85.8	13.7	.5	6,498,171
	Western	85.7	14.0	.4	2,412,140
	Total	85.7	13.8	.5	22,542,761
Sex	Male	89.9	9.8	.3	10,949,293
	Female	81.8	17.6	.6	11,581,211
	NS	85.9	14.1	.0	12,257
	Total	85.7	13.8	.5	22,542,761
Place of Residence	rural	81.7	17.7	.5	15,663,082
	urban	94.8	4.8	.4	6,879,679
	Total	85.7	13.8	.5	22,542,761
Age	15 - 19 yrs	95.5	4.0	.4	3,923,056
	20 - 24 yrs	93.3	6.1	.6	3,485,354
	25 - 29 yrs	94.3	5.5	.2	2,975,766
	30 - 34 yrs	93.1	6.7	.2	2,675,990
	35 - 39 yrs	92.3	7.6	.2	2,078,368
	40 - 44 yrs	87.0	12.5	.5	1,523,355
	45 - 49 yrs	87.0	12.7	.4	1,428,842
	50 - 54 yrs	73.8	25.8	.3	1,159,248
	55 - 59 yrs	69.5	29.9	.6	802,251
	60 - 64 yrs	56.1	42.6	1.3	731,303
	65 - 69 yrs	56.4	43.2	.5	493,351
	70+ yrs	34.9	63.2	1.9	1,265,877
	Total	85.7	13.8	.5	22,542,761
Level of Education	Pre Primary	55.3	41.8	2.9	75,030
	Primary	92.0	7.7	.3	5,271,270
	Secondary	99.0	.9	.1	3,572,185
	Higher	100.0	.0	.0	9,990,915
	Non Standard	90.1	9.9	.0	81,159
	DK	74.8	25.2	.0	64,066
	NS	22.5	75.0	2.5	3,488,135
	Total	85.7	13.8	.5	22,542,761

3.8 Employment

Details on employment status by age and education level are presented on Table 3.5. One in every five people was employed while another one in every four people indicated as being self-employed. Fulltime students, retired, and incapacitated constituted 14.5, 2.1 and 0.9 percents respectively. Apparently the survey reveals a high level of unemployment as one person in every four reported to be unemployed.

Majority of persons with pre-primary, primary and non-standard education were either unemployed or self employed. As expected, persons with higher level of education had the highest proportion of employed at 30.3 per cent. Of those who had reached higher level of education 3.4 per cent were fulltime students, 33.2 per cent were self-employed while unemployed constituted 28.4 per cent.

Table 3.5: Percentage Distribution of the Employment Status (15+) by province sex, age and level of education

	Employed	Unemployed	Self Employed	Fulltime student	Incapacitated	Retired	Other	
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Total
Province								
Nairobi	36.3	31.6	17.5	11.6	.0	1.3	1.6	2,290,744
Central	23.1	16.9	41.3	12.8	2.9	2.2	.9	2,970,099
Coast	17.4	47.8	19.6	10.7	.2	2.3	2.1	2,143,584
Eastern	18.2	29.9	32.6	15.6	.3	2.1	1.2	2,712,608
North Eastern	8.7	60.5	13.6	11.3	1.2	1.1	3.5	706,260
Nyanza	14.8	20.7	35.7	18.6	1.9	2.6	5.7	2,809,154
Rift Valley	19.3	42.7	15.9	13.4	.4	1.7	6.7	6,498,171
Western	13.0	20.5	40.2	20.8	1.1	2.7	1.6	2,412,140
Sex								
Male	27.9	24.2	26.1	16.0	.6	2.4	2.8	10,949,293
Female	11.9	40.4	27.4	13.1	1.2	1.8	4.2	11,581,211
NS	28.7	28.4	28.7	14.2	.0	.0	.0	12,257
Place of Residence								
rural	14.9	33.4	28.0	16.3	1.0	2.3	4.0	15,663,082
urban	30.4	30.6	23.9	10.5	.7	1.4	2.5	6,879,679
Age								
15 - 19 yrs	3.7	28.8	2.6	62.6	.3	.0	1.9	3,923,056
20 - 24 yrs	16.3	46.8	14.2	17.9	.3	.1	4.4	3,485,354
25 - 29 yrs	29.2	39.6	24.9	3.2	.3	.0	2.8	2,975,766
30 - 34 yrs	31.7	28.8	31.6	.8	.3	.0	6.8	2,675,990
35 - 39 yrs	29.3	28.0	40.0	.1	.2	.2	2.2	2,078,368
40 - 44 yrs	29.3	26.2	39.4	.4	.1	.5	4.1	1,523,355
45 - 49 yrs	25.8	23.8	45.5	.0	.2	.8	3.9	1,428,842
50 - 54 yrs	26.7	24.2	43.2	.2	.3	2.0	3.3	1,159,248
55 - 59 yrs	13.0	28.5	45.8	.3	1.4	6.6	4.2	802,251
60 - 64 yrs	7.9	31.1	42.1	.0	1.7	14.7	2.5	731,303
65 - 69 yrs	4.3	28.1	45.4	.0	2.3	17.4	2.5	493,351
70+ yrs	6.3	34.4	28.7	4.4	9.8	13.3	3.1	1,265,877
Level of Education								
Pre Primary	10.0	23.6	33.4	24.2	2.5	2.9	3.3	75,030
Primary	11.9	33.3	22.0	25.5	1.2	2.7	3.5	5,271,270
Secondary	10.4	32.0	13.9	39.4	.0	2.3	2.0	3,572,185
Higher	30.3	28.4	33.2	3.4	.2	.7	3.8	9,990,915
Non Standard	22.9	31.4	26.5	13.9	2.1	3.2	.0	81,159
DK	14.1	14.9	50.3	.0	11.2	1.5	8.0	64,066
NS	10.7	44.6	27.9	4.3	3.3	4.6	4.6	3,488,135
Total	19.7	32.6	26.8	14.5	.9	2.1	3.5	22,542,761

3.9 Persons with Disabilities

The World Health Organization defines disabilities as “an umbrella term, covering impairments, activity limitations, and participation restrictions. An impairment is a problem in body function

or structure; an activity limitation is a difficulty encountered by an individual in executing a task or action; while a participation restriction is a problem experienced by an individual in involvement in life situations”.

Table 3.6 presents details on distribution of persons with disabilities. Nairobi reported 4.0 per cent of its population as having disabilities which was the highest in the country. Nyanza province was ranked second with 3.7 per cent of its population having different disabilities while Coast was third with 2.3 per cent of their populations reported as having disabilities. Rift Valley reported the least disability prevalence in the country at 1.6 per cent. About 2 in every 5 persons with disability linked their conditions to physical impairments while 1 in every 4 reported having visual disabilities. Other types of disabilities were reported by 35.3 per cent of those with impairments. The data shows disability prevalence rising with age; with 7.6 per cent of persons of 70 years and above reporting at least one type of disability compared to 2.3 per cent of total population having disabilities. Male reported a proportion of 2.4 per cent of disability which is slightly higher than 2.2 per cent for female.

Table 3.6: Percentage Distribution of Disability (2+) by province sex age and level of education

		Population with Disability					Total
		Having Disability	Physical	Visual	Hearing	Other	
Province	Nairobi	4.0	43.8	26.7	2.0	46.5	3,114,434
	Central	2.0	55.4	28.3	11.1	31.1	4,211,844

	Coast	2.3	27.0	22.1	19.3	41.3	3,382,861
	Eastern	1.7	26.6	18.0	23.3	40.0	4,131,941
	North Eastern	2.2	46.0	23.8	13.5	18.1	1,283,883
	Nyanza	3.7	37.4	28.2	18.4	24.7	4,772,168
	Rift Valley	1.6	40.1	23.3	7.2	44.1	10,478,548
	Western	2.2	39.5	20.6	28.0	25.2	4,124,373
Sex	Male	2.4	35.4	25.5	14.2	36.9	17,591,968
	Female	2.2	43.8	23.5	14.3	33.6	17,887,093
	NS	.0	20,990
Rural/Urban	rural	2.2	42.4	26.3	18.0	27.1	25,341,101
	urban	2.6	32.8	20.7	6.3	53.0	10,158,951
Age	0 - 4 yrs	1.3	21.5	40.8	.0	44.2	2,755,266
	5 - 9 yrs	1.3	32.7	20.2	25.4	28.1	5,143,790
	10 - 14 yrs	1.7	26.4	19.3	21.6	44.2	5,058,236
	15 - 19 yrs	1.8	20.8	17.7	26.3	44.3	3,923,056
	20 - 24 yrs	2.3	46.7	25.9	8.6	44.7	3,485,354
	25 - 29 yrs	2.6	48.1	26.6	11.2	43.7	2,975,766
	30 - 34 yrs	2.7	35.7	7.5	13.7	50.2	2,675,990
	35 - 39 yrs	2.6	30.7	7.8	3.0	60.7	2,078,368
	40 - 44 yrs	2.1	44.2	41.2	4.9	22.6	1,523,355
	45 - 49 yrs	2.0	40.7	22.3	19.4	30.4	1,428,842
	50 - 54 yrs	2.2	59.7	30.4	5.7	7.7	1,159,248
	55 - 59 yrs	3.4	74.5	24.6	6.0	17.8	802,251
	60 - 64 yrs	5.0	47.6	37.4	10.2	16.2	731,303
	65 - 69 yrs	4.6	46.8	36.8	19.6	18.8	493,351
	70+ yrs	7.6	48.1	36.4	17.2	11.3	1,265,877
Level of Education	Pre Primary	1.2	23.4	29.6	22.3	29.0	2,399,708
	Primary	2.1	38.8	24.0	17.4	31.5	13,461,444
	Secondary	.9	37.5	27.4	18.7	32.3	3,572,185
	Higher	2.3	41.1	20.1	7.8	43.9	9,993,632
	Non Standard	5.4	12.5	26.9	30.3	30.2	85,269
	DK	1.1	.0	100.0	.0	.0	64,066
	NS	4.0	41.1	28.1	14.8	33.2	5,923,749
	Total	2.3	39.3	24.5	14.3	35.3	35,500,052

3.10 Source of electricity

For the development and maintenance of ICT infrastructure it is important to have other infrastructure like electricity, water, road, rail, and air transport systems in place. In particular electricity is viewed as a key driver of the ICTs and therefore the survey sought to establish to what extent it affects penetration of ICT in the country.

Information on distribution of the source of electricity by province, Sex, Age and Level of education is presented in Table 3.7. Connection through the grid was the main source of electricity with 27.9 per cent of households connected to it while 12.7 per cent of the homes were connected to other types of electricity sources. A slightly higher proportion of male were connected to electricity compared to their female counterparts. A look at the table suggests that connection to electricity is highest at age group 30-34 years. Slightly less than half of the households surveyed reported as not being connected to any type of electricity supply.

Table 3.7: Percentage Distribution of Source of Electricity by Province, Sex, Age and Level of Education

		Source of Electricity							Total
		Grid	Generator	Solar	Wind	Other	None	Missing	

Province	Nairobi	54.7	1.3	.4	.0	.7	41.1	1.8	1,002,682
	Central	36.3	.6	4.7	.0	34.1	24.3	.0	1,242,522
	Coast	26.8	.6	1.4	.0	.1	70.8	.3	773,561
	Eastern	17.2	.5	7.3	.0	14.3	60.8	.0	947,927
	North Eastern	15.8	.8	2.8	.0	.0	80.6	.0	236,775
	Nyanza	15.8	2.5	3.5	.1	14.3	63.7	.1	1,190,945
	Rift Valley	30.2	1.5	4.2	.1	14.1	49.6	.3	2,543,120
	Western	11.4	.5	1.6	.1	2.9	83.4	.0	906,971
Sex of Household Head	Male	27.5	1.3	3.9	.0	11.7	55.6	.0	6,267,217
	Female	27.2	1.0	2.6	.1	14.3	54.8	.0	2,311,992
	NS	42.6	.0	2.4	.0	22.4	21.1	11.4	265,294
Rural/Urban	Rural	13.8	1.3	4.8	.1	15.3	64.5	.2	5,750,812
	Urban	54.1	1.0	1.1	.0	7.9	35.4	.6	3,093,692
Age	15 - 19 yrs	30.8	.0	2.0	.0	11.2	56.0	.0	47,590
	20 - 24 yrs	39.3	.3	2.7	.0	14.8	42.8	.0	416,493
	25 - 29 yrs	33.4	.6	1.1	.0	11.9	53.0	.0	855,349
	30 - 34 yrs	42.9	.8	3.2	.0	9.4	43.8	.0	1,273,961
	35 - 39 yrs	24.6	1.6	3.4	.0	12.0	58.4	.0	1,083,849
	40 - 44 yrs	27.3	1.7	4.5	.2	9.6	56.8	.0	917,863
	45 - 49 yrs	34.4	1.5	2.3	.2	12.5	49.0	.0	856,485
	50 - 54 yrs	25.8	1.2	5.5	.0	13.8	53.7	.0	829,426
	55 - 59 yrs	19.1	1.1	4.0	.0	12.8	63.1	.0	524,705
	60 - 64 yrs	15.1	2.0	3.9	.3	15.2	63.5	.0	525,509
	65 - 69 yrs	12.9	3.0	4.5	.0	12.2	67.5	.0	363,925
	70+ yrs	10.3	.8	4.6	.0	16.3	67.9	.0	886,841
Level of Education	Pre Primary	12.6	.5	2.7	.0	3.0	81.2	.0	183,025
	Primary	17.4	1.4	3.4	.1	15.2	62.6	.0	4,386,994
	Secondary	37.0	1.2	4.2	.1	10.7	46.8	.0	2,588,174
	Higher	61.2	1.6	3.8	.0	4.2	29.2	.0	845,420
	DK	13.6	1.7	5.9	.0	29.0	49.7	.0	71,827
	NS	25.3	.1	1.5	.0	15.0	54.1	3.9	769,064
Total		27.9	1.2	3.5	.0	12.7	54.3	.3	8,844,504

Nairobi province had the highest connections to grid with 54.7 per cent of homes connected while Western had the least connections with only 11.4 households connected. Only 13.8 per cent of rural households reported being connected to the grid while 54.1 per cent of urban households had their premises connected through grid. A wide disparity was observed between urban and rural households not connected to any form of electricity. Whereas 2 in every 3 urban homes were connected to one form of electricity source, only 1 in every 3 rural homes was connected.

CHAPTER 4: ACCESS, USAGE AND OWNERSHIP OF ICT FACILITIES BY HOUSEHOLDS AND INDIVIDUALS

4.1 Introduction

This chapter discusses the survey findings on access, usage and ownership of radios, televisions, computers, mobile phones, fixed line telephones, and internet facilities. Globally, the Information and Communication Technologies (ICT) sector has been identified as pivotal in raising labour productivity and enhancing a country's competitiveness.

Computers and other ICT gadgets have become part of the households today and are no longer perceived as luxury. Households without the ICT facilities have resorted to seeking the ICT service from such places like a nearby cyber cafés and friends' houses. In general, household ownership of personal computers and mobile phones and internet access are closely linked and dependent on household incomes. Convergence of technologies in the ICT sector has also made it easier for access of ICT services like the internet.

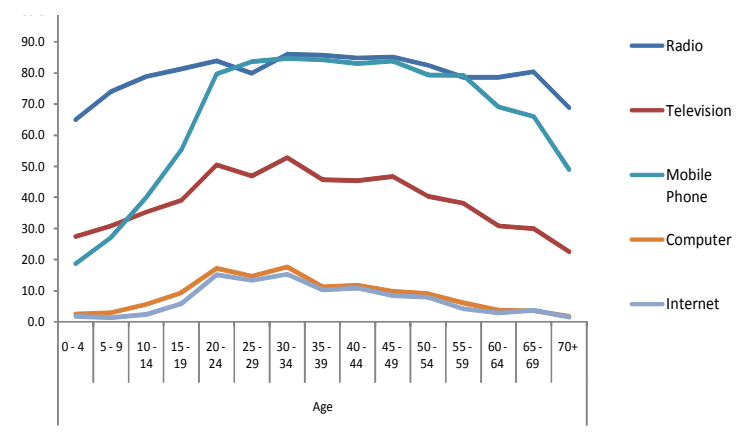
Access, usage and ownership of ICT are key in linking communities, facilitating businesses and empowering communities socially and economically. It is therefore imperative that every effort is made to bridge the digital divide between those who have information and those who need the information. Enhancement of access to information and communications services in rural, remote and underserved areas is key to accelerating development.

The results of the survey show that in most cases there is correlation between access and usage on one hand and sex, education, and age on the other. Among the notable features is that use of ICT was more widespread among the younger people (20 – 34years).

4.2 Access

Broadly, access to ICT can be looked at as possession or availability (e.g., through home, office, school or public location) of ICT equipment; the ability to pay for ICT products and services and the skills to use ICT effectively. The survey results point to a wide gap between the access of the newer technologies such as the Internet and that for traditional technologies such as telephony and radio.

Figure 4.1: Proportion of Population with Access to Some Selected ICT Equipments (3+)



In general, access to ICT facilities seems to increase with age and peaks at the ages between 20 to 39 years then declines as age advances (Figure 4.1). Table 4.1 presents distribution of population with access to ICT facilities. The survey results indicate that radio had the widest reach at 79.5 per cent of the population reported having access to a radio terminal. Penetration of mobile telephone was second with 59.8 per cent of the population connected while in the third place was television where for every five people; two had access to this type of facility.

Penetration of other facilities was apparently marginal with computers, internet, pay TV, and fixed line only having proportions of 9.1, 7.2, 4.3 and 3.1 percents respectively. Age groups 30 – 34 led in access to all the ICT equipments except for the pay TV where those aged 20 – 24 took the lead. There was a notable inequality in access to ICT facilities between the rural and urban population. For instance, 66.1 and 21.1 per cent of urban population reported access to TV and computers compared to 29.2 and 4.3 per cent of their rural counterparts.

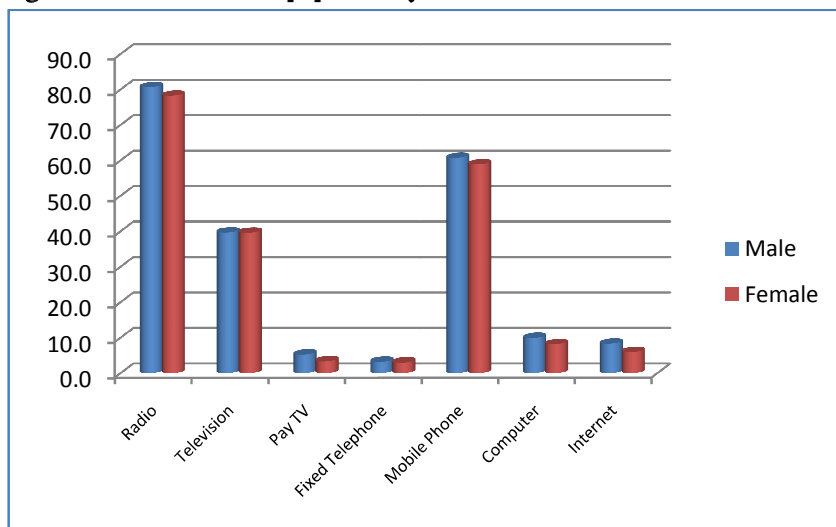
Table 4.1: Percentage Distribution of Population with Access to ICT Equipment 3+)by province, sex and age

	Radio	Television	Pay TV	Fixed Teleph	Mobile Phone	Computer	Internet	Total
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					one				
Province	Nairobi	80.4	78.2	13.2	11.9	76.2	32.7	28.3	3,024,059
	Central	89.5	46.5	2.2	1.4	73.9	9.3	7.1	4,116,526
	Coast	70.6	36.9	8.1	6.2	50.6	10.3	8.4	3,287,436
	Eastern	83.2	34.3	2.9	2.0	64.1	6.6	4.9	4,026,361
	North Eastern	67.4	13.6	1.7	1.2	41.1	3.7	3.6	1,230,592
	Nyanza	75.8	29.3	4.2	1.8	57.3	7.8	5.8	4,635,763
	Rift Valley	79.1	41.1	3.6	2.3	58.0	6.1	4.7	10,223,028
	Western	80.9	27.8	.9	1.2	49.5	3.0	1.5	4,045,792
Rural/Urban	Rural	78.0	29.2	2.7	1.8	55.0	4.3	3.4	24,752,407
	Urban	83.1	66.1	8.4	6.4	71.9	21.1	16.6	9,837,150
Sex	Male	80.7	39.7	5.3	3.2	60.7	9.9	8.3	17,088,070
	Female	78.3	39.6	3.4	3.0	58.9	8.2	6.0	17,480,497
	NS	73.6	44.2	36.5	36.5	64.3	36.5	21.2	20,990
Age	0 - 4 yrs	64.9	27.5	1.5	1.1	18.7	2.5	1.8	1,844,771
	5 - 9 yrs	73.9	31.0	1.6	1.5	27.2	3.0	1.4	5,143,790
	10 - 14 yrs	78.8	35.3	2.7	2.1	40.0	5.6	2.5	5,058,236
	15 - 19 yrs	81.2	39.1	5.5	1.8	55.2	9.3	5.8	3,923,056
	20 - 24 yrs	83.9	50.4	8.1	4.3	79.6	17.2	15.1	3,485,354
	25 - 29 yrs	79.9	46.9	6.4	3.8	83.7	14.8	13.4	2,975,766
	30 - 34 yrs	86.0	52.8	7.8	6.0	84.7	17.7	15.3	2,675,990
	35 - 39 yrs	85.6	45.7	4.8	5.2	84.2	11.3	10.3	2,078,368
	40 - 44 yrs	84.8	45.4	5.2	5.1	83.1	11.7	10.8	1,523,355
	45 - 49 yrs	85.1	46.7	4.0	3.2	83.8	9.8	8.5	1,428,842
	50 - 54 yrs	82.4	40.4	3.3	5.2	79.3	9.1	7.9	1,159,248
	55 - 59 yrs	78.5	38.1	3.2	4.1	79.3	6.1	4.2	802,251
	60 - 64 yrs	78.6	30.9	2.3	2.8	69.1	3.8	2.9	731,303
	65 - 69 yrs	80.3	30.1	3.1	3.6	66.0	3.6	3.8	493,351
	70+ yrs	68.8	22.6	2.0	1.9	49.0	1.7	1.5	1,265,877
Level of Education	Pre Primary	69.9	32.1	1.7	1.4	24.3	3.2	1.8	2,399,708
	Primary	79.1	33.5	2.9	2.1	46.4	3.9	2.2	13,461,444
	Secondary	87.8	54.8	7.3	3.3	76.9	17.2	11.7	3,572,185
	Higher	86.6	52.2	7.2	5.7	87.5	17.8	15.9	9,993,632
	Non Standard	90.5	51.8	14.4	13.4	81.2	29.3	21.6	85,269
	DK	89.1	42.7	3.1	4.2	65.5	3.1	3.1	64,066
	NS	64.4	23.9	1.3	1.4	44.9	2.2	2.1	5,013,254
Total		79.5	39.7	4.3	3.1	59.8	9.1	7.2	34,589,557

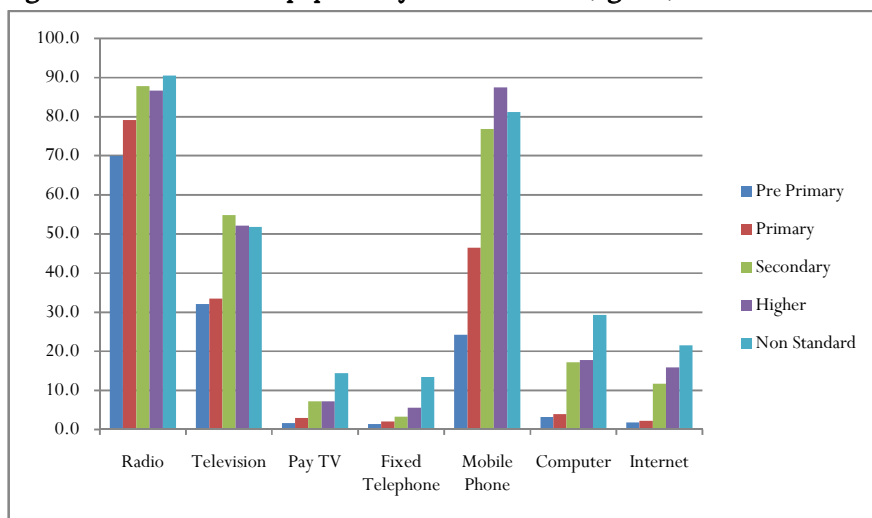
Figure 4.2 depicts a comparison of access to ICT equipments between female and male. The figure reveals that males have a higher proportion of its population having access to ICT compared to female. For example, while 80.7 per cent and 60.7 per cent of male had access to radio and mobile telephones respectively, 78.3 per cent and 58.9 per cent of their female counterparts had access to radio and mobile telephones representing a differential of 2.4 and 1.8 percentage points respectively.

Figure 4.2: Access of ICT Equipments by Sex



A look at accessibility of ICT equipment by education level reached reveal that the proportion of persons with higher education and having access to ICT were substantially higher than the other categories for all ICT equipments (Figure 4.3). For instance, while 17.8 and 11.7 per cent of persons with higher education had access to computers and internet, 1.8 and 2.2 per cent of persons with pre-primary and primary education had accesses to computers respectively.

Figure 4.3: Access to ICT Equipment by Education Level (Age 3+)



4.3 Distance Travelled to Access ICT Facilities

Information on the average distances covered to access telephone, internet, TV and postal services is presented on Table 4.2. The table shows people from different provinces travelled varied distances to access the facilities. Surprisingly, Nairobi does not seem to have closer facilities than other provinces with its average distance for telephone and internet access being higher than the national average while distances for TV and postal service just around the national average. Distances covered to access the ICT facilities also depend on whether one is in urban and rural setup, with those in the latter travelling longer distances.

Table 4.2: Average distance travelled to Access Telephone, Internet, Television and Postal Services by Province, Sex, Age and Level of Education (3+)

		Distance Travelled to access telephone(Km)	Distance Travelled to access Internet(Km)	Distance Travelled to access Television(Km)	Distance Travelled to access Postal Services(Km)	Total
Province	Nairobi	3.4	2.8	2.2	1.3	153,618
	Central	2.6	2.0	2.2	2.1	118,092
	Coast	3.7	2.9	1.2	2.1	327,772
	Eastern	4.5	2.5	2.3	.6	321,386
	North Eastern	2.3	.	2.4	7.0	18,473
	Nyanza	2.2	2.9	2.6	1.0	271,062
	Rift Valley	2.5	1.6	2.2	1.7	806,699
	Western	1.2	1.8	1.6	.5	208,469
Rural/Urban	Rural	2.4	2.5	2.1	1.7	1,455,573
	Urban	2.7	2.5	2.0	1.1	769,998
Sex of Household Head	Male	2.7	2.5	2.2	1.2	1,313,679
	Female	2.2	2.4	1.8	1.8	910,266
	NS	.	.	1.0	.	1,625
Age	0 - 4 yrs	.	1.5	1.7	.	50,073
	5 - 9 yrs	1.0	3.0	1.8	1.1	223,281
	10 - 14 yrs	2.6	3.0	2.1	2.2	286,057
	15 - 19 yrs	2.1	3.4	2.6	2.7	264,946
	20 - 24 yrs	2.0	1.9	1.7	.2	345,249
	25 - 29 yrs	2.3	2.5	2.4	1.1	191,634
	30 - 34 yrs	2.8	2.0	1.4	1.6	266,805
	35 - 39 yrs	3.2	2.6	2.1	1.2	188,556
	40 - 44 yrs	2.8	1.7	2.1	2.4	108,410
	45 - 49 yrs	2.5	3.0	2.4	1.5	91,631
	50 - 54 yrs	4.0	4.2	2.9	1.6	86,400
	55 - 59 yrs	1.7	3.0	1.6	1.4	33,731
	60 - 64 yrs	3.1	3.6	2.8	1.5	25,570
	65 - 69 yrs	1.5	.	1.4	.3	19,100
	70+ yrs	1.1	5.0	2.2	2.7	44,125
Total		2.5	2.5	2.0	1.4	2,225,571

Eastern province reported the longest distances of 4.5 kilometres on average for telephone services while people from North Eastern have to cover 7 kilometres to access postal services. Western province reported the shortest distances of 1.2 kilometres and 0.5 kilometres for telephone and postal services respectively. For internet access, people from Rift Valley reported the shortest average distance of 1.6 kilometres while their counterparts in Coast and Nyanza reported equal distance travelled of 2.9 kilometres. Except for distance covered to access internet, where rural and urban folks travel equal distances (2.5 kilometres), and urban

reported closer ICT services compared to rural in all other cases. Nationally, Kenyans travel longer distances to access telephone (2.5 kilometres) and internet (2.5 kilometres) compared to accessing TVs and postal services where on average they travel 2.0 kilometres and 1.4 kilometres respectively.

4.4 Use of Computers

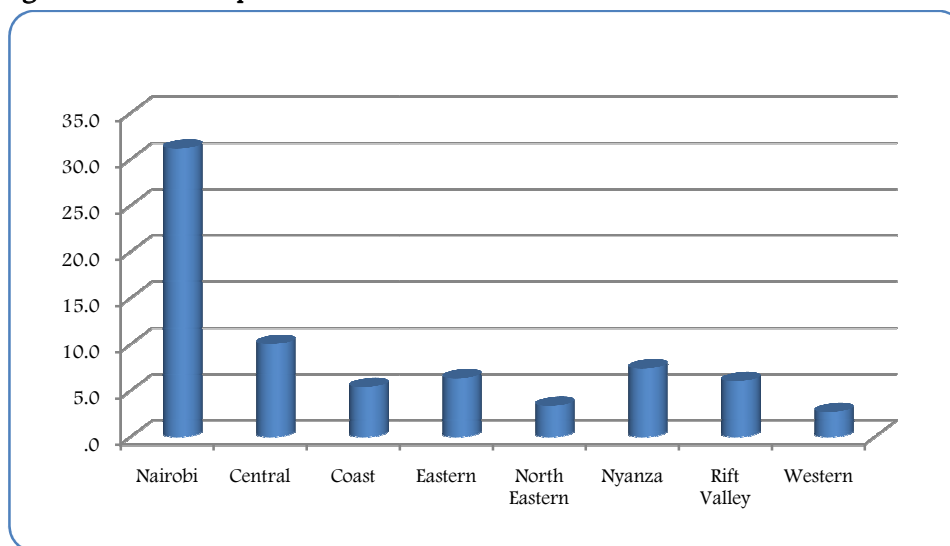
Details on distribution of usage of computers during the 12 months period prior to the survey are given in Table 4.3. The table shows that only 8.4 per cent of the population used computers during the reference period. The use of computers increase with age but peaks at 20-24 years then gradually decline. Slightly less than a third of the persons who had used computers during the reference period reported to have accessed them at the cyber cafes while somewhat less than a quarter had accessed at their homes. Those who reported to have used computers at offices/work place and educational centres accounted for 20.7 and 15.0 per cent respectively. The number of persons who reported to have used computers from community centre and friend's house accounted for 2.1 and 1.7 percents respectively. For urban population, one in every five persons reported having used a computer within 12 months preceding the survey while for rural, only one in every twenty five persons reported use of computers within the same period.

Table 4.3: Percentage Distribution of Population who used computer in the last 12 months by place of Access (3+)

		Use of computer in last 12 months	Total	Own House	Friends House	Office/Work Place	Cybercafé	Community Centre	Educational centre	Mobile Phone	Other	Total
Province	Nairobi	31.2	3,024,059	35.7	3.1	27.5	29.9	1.6	15.6	9.5	1.2	942,241
	Central	10	4,116,526	20.8	1.1	20.2	23.9	1.1	17.1	4.3	0.4	412,525
	Coast	5.4	3,287,436	9.4	1.9	9.3	19.4	0.1	7.9	2.4	0.2	176,800
	Eastern	6.3	4,026,361	6.4	1.1	10.4	19.6	0	11.9	0.3	2.2	254,141
	North Eastern	3.3	1,230,592	0	0	6.1	37.2	0	14.5	9.2	0	41,215
	Nyanza	7.4	4,635,763	25.1	0.3	20	37.3	3.3	17	9.8	0	342,236
	Rift Valley	6	10,223,028	19.4	1.3	20	32.1	2.3	15.8	2.5	0.5	615,871
	Western	2.7	4,045,792	7.1	1	16.1	17.5	14.6	9.9	0	0	108,052
Rural/Urban	Rural	3.7	24,752,407	16.1	1.1	15.4	25	0.9	15.6	3.8	0.2	917,465
	Urban	20.1	9,837,150	26.3	2	23.1	30.1	2.7	14.7	6.6	1	1,975,616
Sex	Male	9.5	17,088,070	24.2	2.2	23.9	28.5	2.3	13.4	6.3	0.7	1,616,902
	Female	7.3	17,480,497	21.4	1.2	16.4	28.2	1.8	17.1	4.6	0.7	1,268,983
	NS	34.3	20,990	61.7	0	46.3	46.3	0	15.4	53.7	0	7,196
Age	0 - 4 yrs	0.7	1,844,771	4.8	0	0	0	14.5	12.8	0	0	13,651
	5 - 9 yrs	1.8	5,143,790	32.2	0	0	1.8	2.2	23.3	0.5	0	90,277
	10 - 14 yrs	4.3	5,058,236	30.1	1.1	0	3.9	3.8	21.6	1.2	0	216,390
	15 - 19 yrs	9.4	3,923,056	14.6	1.3	1.8	16.2	1.9	36.7	2.7	1	368,554
	20 - 24 yrs	18.2	3,485,354	14.4	2.1	6.8	30.7	2.8	24	6.3	1.8	633,705
	25 - 29 yrs	13.7	2,975,766	23.4	3.1	24.3	45	2.1	11.7	5	0.6	407,677
	30 - 34 yrs	16.5	2,675,990	24.7	2	41.5	41.1	0.5	2.3	7.9	0.7	441,502
	35 - 39 yrs	11.5	2,078,368	33	2.9	36.2	32.8	2.3	2	7.4	0	238,407
	40 - 44 yrs	11.4	1,523,355	22.1	0.6	40.9	33.8	2.9	4.3	9.6	0	173,275
	45 - 49 yrs	8.7	1,428,842	35.7	0.1	34.5	23.3	2.1	3.9	7.7	0	124,353
	50 - 54 yrs	8.8	1,159,248	31.3	0	50.1	16.9	0.5	1.1	7.6	1.1	102,364
	55 - 59 yrs	4.7	802,251	39.4	0	26.4	13.5	0	2.2	4.9	0	37,819
	60 - 64 yrs	3	731,303	47.7	0	8.3	21.6	0	0	12.2	0	21,968
	65 - 69 yrs	2.2	493,351	27.8	0	13	12.3	0	0	1.3	0	11,065
	70+ yrs	1	1,265,877	13.3	0	4.1	0.9	0	5.4	5.4	0	12,074
Level of Education	Pre Primary	1.3	2,399,708	10.3	0	0	0	6.3	26.6	1.5	0	31,354
	Primary	3.1	13,461,444	22.9	0.6	2.7	4.9	2.6	17.5	0.7	0	412,627
	Secondary	17.7	3,572,185	13.4	1.4	7.6	18.4	1.9	26.3	2.2	1.6	630,606
	Higher	17.3	9,993,632	27.3	2.1	30.5	38.2	1.9	10.1	8	0.7	1,724,921
	Non Standard	20	85,269	55.9	12.5	36.3	26.9	12.5	21.7	34.2	0	17,062
	DK	0.8	64,066	0	0	0	0	0	0	0	0	530
	NS	1.5	5,013,254	7.5	0	8.9	32	0.9	11.8	3.9	0	75,980
Total		8.4	34,589,557	23.1	1.7	20.7	28.5	2.1	15	5.7	0.7	2,893,081

Regionally, as expected Nairobi has the highest usage of computers with 31.2 per cent of the population reporting to have used computers in the 12 months preceding the survey followed with Central and Nyanza with 10.0 percent 7.4 percent respectively as shown in Figure 4.4. Western reported the lowest usage with a proportion of 2.7 per cent. The proportion of men who had used computers was 9.5 per cent slightly higher than 7.3 per cent of women.

Figure 4.4: Use of computer in the last 12 months



4.5 Use of Internet

Table 4.4 presents details on frequency of use of internet in the six months preceding the survey. Nationally, 6.3 per cent of the population reported to have engaged in internet activities during this period. Nairobi had the highest proportion of internet users at 25.9 per cent followed by Central and Nyanza with 6.7 and 5.5 per cent respectively. Western and Coast provinces had the lowest level of use of the internet with 1.4 and 3.4 per cent of their populations respectively reporting use of internet.

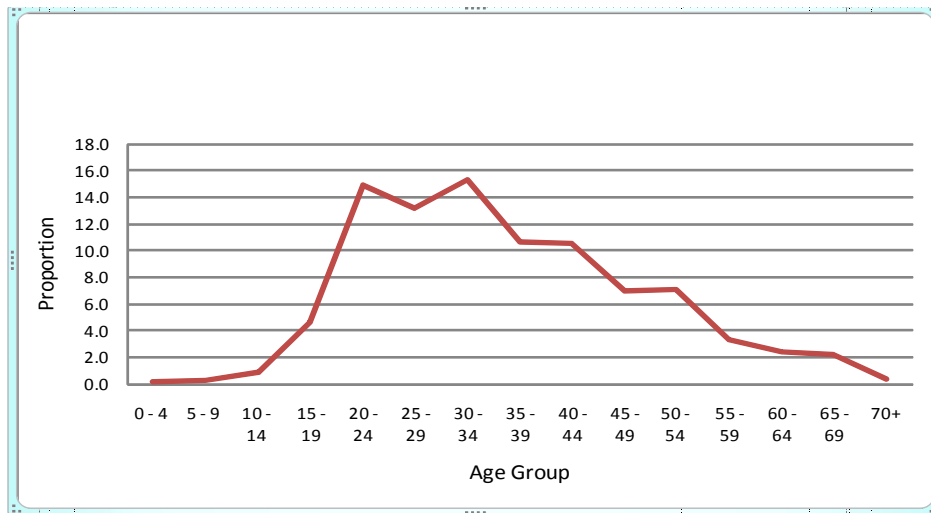
Only 3.2 per cent of the population reported daily use while 1.8 per cent reported having used internet at least once every week. A higher proportion of males (7.5 per cent) compared to females (5.2 percent) used internet. The data shows that frequency of use rose with level of education with proportions of population rising from 0.2 per cent for pre-primary, 1.0 for those with primary education, 10.7 per cent of those with secondary education and 15.8 per cent higher education.

Table 4.4: Percentage Distribution of Population with internet activities in the last 6 months by frequency of use (3+)

		Engage in internet activities in last 6 months	At least once a day	At least once a week	At least once a month	Once every 3 months	Once every 6 months	Once every year	Total
Province	Nairobi	25.9	16.9	6.2	1.4	0.0	0.4	0.3	3,024,059
	Central	6.7	3.4	2.1	0.6	0.1	0.0	0.1	4,116,526
	Coast	3.4	1.4	1.4	0.4	0.2	0.0	0.0	3,287,436
	Eastern	4.2	0.2	1.7	0.6	0.5	0.5	0.4	4,026,361
	North Eastern	3.7	1.1	1.3	1.1	0.1	0.0	0.0	1,230,592
	Nyanza	5.5	3.6	1.3	0.3	0.1	0.1	0.1	4,635,763
	Rift Valley	4.8	1.7	1.3	1.4	0.0	0.0	0.2	10,223,028
	Western	1.4	0.8	0.4	0.0	0.0	0.0	0.0	4,045,792
Sex	Male	7.5	3.9	2.0	1.0	0.2	0.2	0.1	17,088,070
	Female	5.2	2.4	1.6	0.6	0.1	0.0	0.2	17,480,497
	NS	21.2	15.9	5.3	0.0	0.0	0.0	0.0	20,990
Age	0 - 4 yrs	0.2	0.1	0.2	0.0	0.0	0.0	0.0	1,844,771
	5 - 9 yrs	0.3	0.2	0.1	0.0	0.0	0.0	0.0	5,143,790
	10 - 14 yrs	0.9	0.4	0.4	0.1	0.0	0.0	0.0	5,058,236
	15 - 19 yrs	4.6	1.6	1.8	0.3	0.2	0.3	0.3	3,923,056
	20 - 24 yrs	14.9	6.6	4.3	2.6	0.2	0.4	0.2	3,485,354
	25 - 29 yrs	13.2	6.8	3.9	1.3	0.3	0.2	0.2	2,975,766
	30 - 34 yrs	15.3	8.8	2.2	3.6	0.3	0.0	0.0	2,675,990
	35 - 39 yrs	10.6	6.1	2.3	0.7	0.0	0.1	1.1	2,078,368
	40 - 44 yrs	10.6	5.7	2.7	0.5	0.1	0.5	0.7	1,523,355
	45 - 49 yrs	7.0	3.9	2.0	0.4	0.4	0.0	0.0	1,428,842
	50 - 54 yrs	7.1	2.6	3.8	0.6	0.0	0.0	0.0	1,159,248
	55 - 59 yrs	3.3	2.3	0.4	0.2	0.0	0.0	0.1	802,251
	60 - 64 yrs	2.3	1.0	1.1	0.2	0.1	0.0	0.0	731,303
	65 - 69 yrs	2.2	0.8	1.2	0.2	0.0	0.0	0.1	493,351
	70+ yrs	0.4	0.1	0.2	0.1	0.0	0.0	0.0	1,265,877
Level of Education	Pre Primary	0.2	0.1	0.1	0.0	0.0	0.0	0.0	2,399,708
	Primary	1.0	0.2	0.4	0.4	0.0	0.0	0.0	13,461,444
	Secondary	10.7	3.7	4.2	1.2	0.3	0.6	0.4	3,572,185
	Higher	15.8	9.0	3.7	1.7	0.3	0.2	0.4	9,993,632
	Non Standard	20.2	19.8	0.4	0.0	0.0	0.0	0.0	85,269
	DK	0.8	0.5	0.0	0.0	0.0	0.0	0.0	64,066
	NS	1.2	0.3	0.7	0.3	0.0	0.0	0.0	5,013,254
Total		6.3	3.2	1.8	0.8	0.1	0.1	0.2	34,589,557

Figure 4.5 shows the proportion of population that used internet in the six months preceding the survey by various age cohorts. The figure indicates that use of internet rises with age but peaks at around the ages 20 to 34 but then declines with increase in age. Specifically, those aged 30-34 years had the highest proportion of internet users with 15.3 per cent reporting having used it during the six months. Age group 20-24 was second with 14.9 per cent having engaged in internet activities while 25-29 years was third with 13.2 per cent.

Figure 4.5: Use of Internet by Age in the Six Months Preceding the Survey



Details on place of internet access for the users during twelve months prior to the survey are presented in Table 4.5. Cybercafés were the most popular place with 52.8 per cent of users indicating to have accessed internet services there. Mobile phone, work place and own house were the other reliable sources with 33.9, 27.7 and 24.1 per cent of users accessing internet through them respectively.

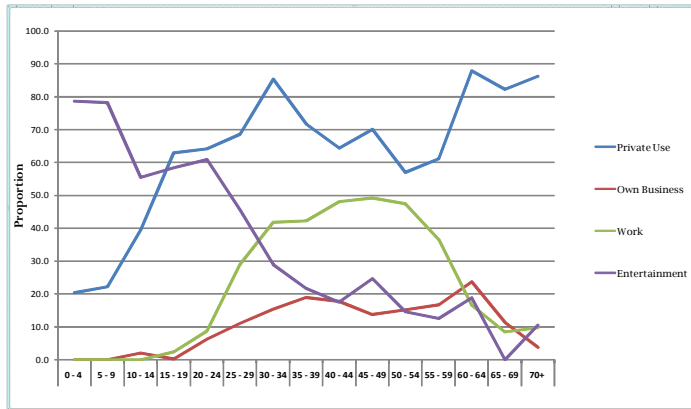
A look at Table 4.5 reveals age is a factor in determining one's main source of internet services. Persons aged 14 years and below appear to have access to internet mainly from their homes while those aged 15 to 39 years reported cybercafés as their preferred place of internet access. Between ages 40 to 54 years, most persons access internet at their work place while for those aged 55 years and above mainly access internet at their homes. Although mobile phone was the second mostly used form of access to internet, none of the age groups reported it as the mode of access.

Table 4.5: Percentage Distribution of Population with Access to Internet in the last 12 months by place of Use (3+)

		Own House	Friends House	Office/Work Place	Cybercafé	Community Centre	Educational centre	Mobile Phone	Other	Total
Province	Nairobi	37.1	3.7	33.6	44.4	.0	10.7	27.8	.6	781,911
	Central	28.2	3.1	32.3	47.1	.0	9.6	27.2	1.4	274,776
	Coast	19.8	9.3	13.3	55.2	.0	3.9	26.3	.0	113,139
	Eastern	4.7	1.7	15.8	64.4	.3	18.3	34.8	6.2	167,109
	North Eastern	.0	.0	3.0	55.4	.0	15.9	65.4	.0	45,498
	Nyanza	22.8	3.6	32.3	63.6	4.2	16.2	29.3	.9	255,621
	Rift Valley	12.5	2.0	23.5	57.5	1.9	17.3	49.0	.0	491,733
	Western	15.2	.0	24.1	64.9	.0	7.1	26.2	.0	56,305
Rural/Urban	Rural	15.3	3.1	20.5	51.1	1.6	15.2	43.3	2.1	658,632
	Urban	27.8	3.3	30.8	53.5	.7	12.0	29.8	.5	1,527,460
Sex	Male	22.2	3.8	31.5	52.4	1.4	11.7	36.7	1.3	1,274,880
	Female	26.4	2.4	22.3	53.3	.3	14.8	29.8	.5	906,771
	NS	100.0	.0	50.0	50.0	.0	.0	50.0	.0	4,441
Age	0 - 4 yrs	20.4	.0	.0	.0	.0	.0	.0	.0	3,180
	5 - 9 yrs	49.8	.0	.0	.0	.0	13.5	25.6	17.1	13,327
	10 - 14 yrs	45.5	4.3	.0	10.1	.0	37.2	22.2	.0	43,038
	15 - 19 yrs	15.5	6.5	.0	53.4	.0	32.5	30.8	.0	181,666
	20 - 24 yrs	20.2	3.3	7.8	57.3	2.0	25.3	46.4	1.4	518,101
	25 - 29 yrs	24.4	5.1	25.5	57.5	1.3	12.4	34.7	.3	393,249
	30 - 34 yrs	17.0	1.6	46.6	65.7	.0	3.8	40.2	.3	410,645
	35 - 39 yrs	29.4	2.9	39.6	51.2	.8	.0	17.6	.8	221,060
	40 - 44 yrs	30.2	1.0	46.9	43.9	.0	2.5	21.8	3.3	160,813
	45 - 49 yrs	42.9	.2	46.9	32.8	.7	4.4	24.5	.0	99,618
	50 - 54 yrs	22.0	3.3	60.9	33.1	4.0	2.3	22.7	.0	82,131
	55 - 59 yrs	45.7	.0	34.1	35.1	.0	.0	14.5	.0	26,543
	60 - 64 yrs	42.2	.0	13.8	26.0	.0	.0	28.1	5.2	17,126
	65 - 69 yrs	36.7	13.8	22.3	12.6	.0	.0	31.3	8.2	10,764
	70+ yrs	62.2	.0	6.0	18.2	.0	.0	17.5	.0	4,830
Level of Education	Pre Primary	34.9	.0	.0	.0	.0	.0	34.9	.0	3,889
	Primary	21.1	1.4	.0	14.7	.0	16.5	43.1	1.7	137,732
	Secondary	15.6	5.4	10.7	54.0	.4	19.0	35.9	.7	383,171
	Higher	26.3	2.8	35.0	55.5	1.2	11.3	33.5	1.0	1,580,952
	Non Standard	50.9	12.4	23.5	79.4	.0	21.5	48.5	.0	17,237
	DK	57.0	.0	.0	.0	.0	.0	.0	.0	530
	NS	18.7	1.9	12.2	57.0	.8	8.0	8.2	.0	62,583
Total		24.1	3.2	27.7	52.8	1.0	12.9	33.9	1.0	2,186,092

Figure 4.6 depicts how proportions of the population with access to internet vary with rise in age. The figure shows that while proportion of internet users for private purposes increase with rise in age, proportion of users for entertainment motives declines. Use of internet for work related activities rise with age and peaks at 45-49 years then gradually declines as age advances. Users of internet for own business shows similar patterns but peaks at the age 60-64 years.

Figure 4.6: Percentage Distribution of Population with Access to Internet by Purpose of Use



Details on distribution of population with access to internet by purpose of use in the last 6 months are presented in Table 4.6. Two out of three internet users indicated private use as one of their purposes while entertainment and work related activities were affirmed as other key uses by 27.8 per cent of the internet clientele. Entertainment was mainly associated with those aged 3 to 24 years while use of internet for work was prevalent for ages 30 to 54 years.

Table 4.6: Percentage Distribution of Population with Access to Internet use by Purpose of Use (3+)

		Private Use	Own Business	Work	Entertainment	Health	Other	Total
Province	Nairobi	72.8	16.1	34.2	38.2	3.1	12.5	781,911
	Central	59.6	15.3	26.0	44.5	7.2	10.2	274,776
	Coast	70.2	11.8	22.6	42.9	4.2	6.0	113,139
	Eastern	67.0	.7	15.5	38.1	4.5	14.8	167,109
	North Eastern	42.0	4.4	5.6	60.7	.0	6.6	45,498
	Nyanza	68.5	4.7	33.9	55.1	3.1	7.8	255,621
	Rift Valley	73.1	7.6	23.5	31.4	2.2	6.6	491,733
	Western	58.8	22.8	23.6	37.3	2.3	5.5	56,305
Rural/Urban	Rural	65.8	7.1	19.5	38.9	2.8	8.8	658,632
	Urban	70.5	13.1	31.4	40.6	3.8	10.3	1,527,460
Sex	Male	68.9	12.5	31.2	42.0	3.4	9.9	1,274,880
	Female	69.4	9.5	23.1	37.5	3.6	9.8	906,771
	NS	75.0	25.0	25.0	25.0	.0	.0	4,441
Age	0 - 4 yrs	20.4	.0	.0	78.7	.0	.0	3,180
	5 - 9 yrs	22.2	.0	.0	78.2	.0	12.2	13,327
	10 - 14 yrs	39.6	2.1	.0	55.4	.0	13.5	43,038
	15 - 19 yrs	63.0	.2	2.4	58.4	3.5	20.6	181,666
	20 - 24 yrs	64.1	6.3	8.8	60.9	3.2	13.0	518,101
	25 - 29 yrs	68.6	11.0	29.0	45.6	4.7	13.5	393,249
	30 - 34 yrs	85.4	15.4	41.9	28.9	2.1	4.7	410,645
	35 - 39 yrs	71.8	18.9	42.3	21.7	.7	4.7	221,060
	40 - 44 yrs	64.4	17.7	48.1	17.6	4.0	5.4	160,813
	45 - 49 yrs	70.1	13.8	49.2	24.7	13.5	.6	99,618
	50 - 54 yrs	57.0	15.1	47.5	14.6	3.4	7.4	82,131
	55 - 59 yrs	61.2	16.6	36.6	12.6	2.1	7.7	26,543
	60 - 64 yrs	87.9	23.7	16.6	18.8	3.5	5.2	17,126
	65 - 69 yrs	82.3	11.3	8.4	.0	6.8	8.2	10,764
	70+ yrs	86.3	3.8	9.8	10.5	3.8	29.7	4,830
Level of Education	Pre Primary	34.9	.0	.0	82.5	.0	.0	3,889
	Primary	28.4	4.5	1.3	60.2	.0	6.6	137,732
	Secondary	63.3	6.6	7.8	51.0	3.0	12.4	383,171
	Higher	74.6	13.0	35.8	35.9	3.9	9.3	1,580,952
	Non Standard	36.5	33.9	19.5	70.7	.0	42.0	17,237
	DK	57.0	57.0	57.0	57.0	57.0	.0	530
	NS	68.4	6.4	10.1	23.4	3.6	8.3	62,583
Total		69.1	11.3	27.8	40.1	3.5	9.8	2,186,092

Details on internet activities that the users engaged in are presented in Table 4.7. Close to three out of five users used internet for communication while one out of five users engaged in research activities. The data suggests that Kenyans are yet to take full advantage of transacting business on the internet; for example only 2.1 per cent of the users reported having engaged in internet banking. In addition, only 4.4 per cent of users engaged in purchasing or ordering goods and services though 12.1 per cent looked for information about goods and services from the internet.

Table 4.7: Percentage Distribution of Population with Access to Internet use by internet activities in last 6 months (3+)

		Communi cating	Information about goods and services	Information from Government organization	Reading/dow nloading materials	Playing Computer games	Watching movies/T V	Information related to health/health services	Purchasing or ordering goods and services	Internet banking	Research	Other	Total
Province	Nairobi	65.5	16.4	13.3	12.9	10.1	9.3	5.5	6.8	4.3	29.6	10.0	781,911
	Central	63.9	19.6	11.2	25.5	24.3	12.4	8.8	8.9	2.3	24.7	10.0	274,776
	Coast	59.7	11.1	7.0	5.0	9.1	5.8	5.3	.8	2.9	27.5	10.0	113,139
	Eastern	42.3	8.6	5.3	5.4	16.9	12.4	2.2	3.8	.0	11.5	10.0	167,109
	North Eastern	59.9	7.4	15.5	23.2	24.8	21.5	1.6	.0	.0	9.9	10.0	45,498
	Nyanza	53.8	2.7	25.0	16.4	8.6	13.8	8.7	.0	.6	21.5	10.0	255,621
	Rift Valley	50.3	6.9	4.7	6.7	14.6	5.2	2.4	.7	.0	10.2	10.0	491,733
	Western	48.7	21.6	15.8	15.1	9.7	9.2	9.3	13.9	.0	24.4	10.0	56,305
Rural/Urban	Rural	50.6	6.8	10.0	12.4	17.0	8.4	4.1	.9	.9	17.6	10.0	658,632
	Urban	61.0	14.4	12.4	13.0	12.0	10.1	5.9	5.9	2.6	23.4	10.0	1,527,460
Sex	Male	58.0	13.4	12.5	14.2	16.8	11.2	4.1	4.7	2.2	23.2	10.0	1,274,880
	Female	57.6	10.3	10.4	10.6	8.9	7.4	7.1	3.8	1.8	19.3	10.0	906,771
	NS	100.0	25.0	25.0	50.0	.0	.0	.0	25.0	.0	50.0	10.0	4,441
Age	0 - 4 yrs	20.4	.0	.0	.0	58.3	.0	.0	.0	.0	.0	10.0	3,180
	5 - 9 yrs	27.1	.0	.0	.0	28.0	1.4	.0	.0	.0	.0	10.0	13,327
	10 - 14 yrs	27.3	.0	.0	5.8	41.3	18.6	.0	.0	.0	2.7	10.0	43,038
	15 - 19 yrs	46.4	1.0	1.7	13.3	22.6	12.7	2.1	1.5	.5	22.2	10.0	181,666
	20 - 24 yrs	48.5	6.2	4.3	15.5	24.9	17.5	3.5	.5	.5	23.5	10.0	518,101
	25 - 29 yrs	57.6	13.3	13.0	12.5	12.0	9.0	6.1	6.8	2.4	23.6	10.0	393,249
	30 - 34 yrs	70.2	11.2	8.5	9.4	9.2	7.0	3.8	4.8	2.6	18.6	10.0	410,645
	35 - 39 yrs	66.0	17.8	18.5	16.1	2.1	5.4	8.8	7.6	2.0	21.2	10.0	221,060
	40 - 44 yrs	64.4	36.8	27.2	13.1	.6	4.0	11.5	11.5	4.1	26.1	10.0	160,813
	45 - 49 yrs	66.4	11.9	26.9	14.0	8.5	3.9	14.6	4.8	1.7	25.0	10.0	99,618
	50 - 54 yrs	65.2	14.9	32.4	11.0	2.1	1.2	2.3	2.6	4.9	19.6	10.0	82,131
	55 - 59 yrs	46.0	33.3	13.7	.5	.0	.0	1.7	3.6	9.5	13.7	10.0	26,543
	60 - 64 yrs	44.9	3.7	3.4	16.1	1.8	.0	3.2	6.5	.8	30.1	10.0	17,126
	65 - 69 yrs	50.5	8.1	1.3	15.2	.0	.0	.0	1.3	18.6	6.8	10.0	10,764
	70+ yrs	97.8	3.8	11.4	7.6	.0	.0	3.8	.0	7.6	16.0	10.0	4,830
Level of Education	Pre Primary	.0	.0	.0	.0	47.6	.0	.0	.0	.0	.0	10.0	3,889
	Primary	18.6	.0	2.3	6.0	51.4	8.6	.0	.0	.1	2.4	10.0	137,732
	Secondary	48.0	4.9	4.5	13.3	21.4	15.9	1.9	1.0	.8	17.4	10.0	383,171
	Higher	64.0	15.3	14.2	13.3	8.5	8.3	6.8	5.9	2.5	24.8	10.0	1,580,952
	Non Standard	60.9	8.8	10.7	28.3	.0	23.1	6.8	.0	.0	29.9	10.0	17,237
	DK	43.0	.0	43.0	43.0	43.0	43.0	43.0	.0	43.0	43.0	10.0	530
	NS	52.8	3.5	12.8	9.2	8.0	3.3	.2	.0	3.1	8.5	10.0	62,583
Total		57.9	12.1	11.6	12.8	13.5	9.6	5.4	4.4	2.1	21.6	10.0	2,186,092

Table 4.8 presents details of calls made during the seven days before the survey. On average mobile users made 21 calls during the last seven days prior to the date of interview which lasted a total of 54.8 minutes and cost about Kenya Shilling 4 per minute. Regionally, people from Nairobi led in terms of the frequency with each person using a mobile having made 34 calls. People in urban reported more usage of mobile phone compared to their counterparts in the rural areas. The data shows that on average people in rural made 15 calls in the seven days while those in urban made 30 calls. The calls in the urban lasted longer (2.9 minutes) compared to rural which on average lasted for 2.2 minutes.

Table 4.8: Mean Number of Times, mean amount spent and length of mobile in the last seven days (3+)

		Use of Mobile Phone in last 12 months	Number of Times	length of usage (Mins)	Cost (Kshs.)	Total
Province	Nairobi	73.0	33.6	109.4	366.9	3,024,059
	Central	65.7	22.5	29.9	213.3	4,116,526
	Coast	40.5	28.5	59.7	274.2	3,287,436
	Eastern	62.3	13.9	35.1	123.2	4,026,361
	North Eastern	30.6	22.3	68.1	334.5	1,230,592
	Nyanza	50.3	22.6	52.7	267.6	4,635,763
	Rift Valley	49.4	17.0	55.5	179.8	10,223,028
	Western	40.7	14.5	38.0	187.9	4,045,792
Rural/Urban	Rural	46.7	15.2	33.6	152.5	24,752,407
	Urban	67.1	30.3	87.6	336.6	9,837,150
Sex	Male	53.6	24.5	67.0	271.3	17,088,070
	Female	51.4	17.5	42.0	173.7	17,480,497
	NS	46.3	13.0	149.3	922.8	20,990
Age	0 - 4 yrs	9.2	2.3	273.1	29.9	1,844,771
	5 - 9 yrs	13.7	1.0	1.8	4.0	5,143,790
	10 - 14 yrs	24.4	2.2	5.4	13.8	5,058,236
	15 - 19 yrs	44.2	9.5	20.0	77.2	3,923,056
	20 - 24 yrs	75.7	20.5	51.3	172.2	3,485,354
	25 - 29 yrs	80.5	25.7	55.0	254.8	2,975,766
	30 - 34 yrs	83.5	30.0	65.6	330.7	2,675,990
	35 - 39 yrs	83.1	26.3	67.0	298.3	2,078,368
	40 - 44 yrs	80.9	28.0	63.8	313.1	1,523,355
	45 - 49 yrs	82.9	26.5	68.9	296.4	1,428,842
	50 - 54 yrs	78.0	27.3	76.4	305.0	1,159,248
	55 - 59 yrs	76.9	22.6	72.0	247.9	802,251
	60 - 64 yrs	67.6	21.7	65.9	260.1	731,303
	65 - 69 yrs	64.8	15.0	47.1	191.3	493,351
	70+ yrs	45.1	10.2	28.0	156.6	1,265,877
Level of Education	Pre Primary	11.8	1.5	2.0	11.9	2,399,708
	Primary	34.9	10.1	35.4	97.4	13,461,444
	Secondary	69.7	20.1	53.0	187.1	3,572,185
	Higher	85.6	28.9	69.7	317.2	9,993,632
	Non Standard	76.5	55.6	17.7	152.5	85,269
	DK	55.3	26.5	42.3	171.0	64,066
	NS	40.4	12.8	40.5	140.8	5,013,254
Total		52.5	21.0	54.8	223.6	34,589,557

4.6 Ownership

Table 4.9 presents information on ownership of basic household ICT equipments and internet connectivity in the country. Ownership and internet connectivity varied with age and region. Nationally, mobile phone ownership was reported by the highest percentage of the population at 32.9 per cent while ownership of radio and television had 23.4 and 10.6 per cent respectively. Internet connectivity and ownership of computers was reported by substantially small proportions of 2.4 and 1.8 per cent of population respectively.

As expected, ownership of these facilities had a relationship with the level of one's education, with proportions of those with higher level of education being bigger than all other categories for all the equipments and internet connectivity. There was a notable disparity on ownership between male and female; with 33.9 per cent of male owning radios compared to 13.1 per cent for female. Likewise 15.2 per cent of male owned TVs against 6.1 per cent of the female counterparts. However, ownership of mobile phones was almost balanced with 35.7 per cent of males compared to 30.1 per cent of female.

Across the regions, Nairobi led in ownership of all the equipments followed by Central in all cases while Rift Valley was third in most of the items. North Eastern was last in all instances except for internet connectivity where Eastern was the last. North Eastern had higher internet connectivity than Coast, Eastern and Western provinces despite having lower proportion of computer ownership. This is attributable to convergence of the technologies where many of the internet users in North Eastern connect through their mobile phones (as reported on table 4.5 compared with their counterparts in the other provinces). Along the different age groups, ownership of radio and TV was highest for the ages 50 to 54 while ownership of mobile phones, computers and internet connectivity was highest for ages 30 to 34.

Table 4.9: Percentage Distribution of Population Who own basic household equipment (3+)

		Radio	Television	Mobile Phone	Computer	Internet Connectivity	Total
Province	Nairobi	31.2	27.3	58.7	8.9	10.5	3,024,059
	Central	30.3	14.1	43.7	1.8	2.3	4,116,526
	Coast	19.2	8.3	27.9	.9	.9	3,287,436
	Eastern	21.7	7.4	31.4	.3	.6	4,026,361
	North Eastern	14.9	2.5	19.3	.2	2.2	1,230,592
	Nyanza	21.3	7.1	26.4	1.5	2.0	4,635,763
	Rift Valley	23.5	10.6	31.2	1.5	2.2	10,223,028
	Western	20.0	6.2	24.5	.4	.4	4,045,792
Rural/Urban	Rural	20.9	6.1	25.8	.7	1.2	24,752,407
	Urban	29.5	22.0	51.0	4.6	5.4	9,837,150
Sex	Male	33.9	15.2	35.7	2.4	3.2	17,088,070
	Female	13.1	6.1	30.2	1.2	1.6	17,480,497
	NS	31.3	31.2	40.9	25.9	10.6	20,990
Age	0 - 4 yrs	2.2	1.0	.6	.3	.2	1,844,771
	5 - 9 yrs	1.8	.7	.8	.2	.1	5,143,790
	10 - 14 yrs	1.9	.5	2.2	.1	.2	5,058,236
	15 - 19 yrs	6.8	2.2	13.8	.4	.9	3,923,056
	20 - 24 yrs	18.9	7.8	51.9	2.5	5.5	3,485,354
	25 - 29 yrs	31.9	16.0	63.0	2.5	5.1	2,975,766
	30 - 34 yrs	46.3	26.6	67.9	4.8	6.6	2,675,990
	35 - 39 yrs	45.5	21.3	64.9	3.8	3.0	2,078,368
	40 - 44 yrs	53.4	25.5	63.5	4.2	4.9	1,523,355
	45 - 49 yrs	50.8	25.6	65.2	4.0	3.6	1,428,842
	50 - 54 yrs	58.2	27.0	57.6	4.1	3.3	1,159,248
	55 - 59 yrs	52.3	21.6	57.0	2.5	2.0	802,251
	60 - 64 yrs	51.8	17.6	44.3	2.0	1.5	731,303
	65 - 69 yrs	52.3	15.8	41.6	1.8	1.4	493,351
	70+ yrs	41.1	12.1	22.8	.8	.5	1,265,877
Level of Education	Pre Primary	3.6	1.9	1.4	.6	.3	2,399,708
	Primary	11.6	3.4	13.6	.3	.5	13,461,444
	Secondary	25.0	13.3	44.5	1.1	2.7	3,572,185
	Higher	45.5	24.4	69.2	5.1	6.5	9,993,632
	Non Standard	48.2	18.5	50.8	10.6	12.2	85,269
	DK	34.2	9.2	51.8	.8	.8	64,066
	NS	18.5	4.5	18.9	.3	.3	5,013,254
Total		23.4	10.6	32.9	1.8	2.4	34,589,557

Table 4.10 presents details on internet connectivity and average expenditure on the same. The highest proportion 4.7 percent, used fixed line type of connectivity while the mean cost per month spent on internet was KShs. 917.5

Table 4.10: Percentage Distribution of Population Who own internet connectivity and average expenditure on internet by type of connectivity (3+)

		Fixed line	Satellite(VSAT)	Mobile Phone	Mobile Modern	Other	Mean Amount spent on Internet (Per Month)	Total
Province	Nairobi	7.9	2.2	.3	.0	.0	1,355.0	318,664
	Central	.0	.0	.0	.0	.0	929.7	96,649
	Coast	.8	.0	.0	.0	.0	488.1	30,003
	Eastern	8.3	.0	.0	.0	.0	181.5	26,072
	North Eastern	.0	.0	.0	.0	.0	373.5	27,306
	Nyanza	9.7	1.4	.0	.0	.0	1,061.0	93,734
	Rift Valley	1.4	1.4	.0	.3	.0	437.5	228,605
	Western	.0	.0	.0	.0	.0	742.8	16,613
Rural/Urban	Rural	.7	1.3	.0	.2	.0	524.8	308,453
	Urban	7.1	1.4	.2	.0	.0	1,139.4	529,193
Sex	Male	5.4	1.7	.0	.0	.0	995.1	547,197
	Female	3.5	.7	.3	.2	.0	763.0	288,229
	NS	.0	.0	.0	.0	.0	1,000.0	2,220
Age	0 - 4 yrs	.0	.0	.0	.0	.0	.	3,248
	5 - 9 yrs	.0	.0	.0	.0	.0	188.3	5,483
	10 - 14 yrs	2.4	.0	.0	.0	.0	237.6	7,799
	15 - 19 yrs	7.6	2.5	2.5	.0	.0	636.7	34,131
	20 - 24 yrs	1.8	1.7	.0	.0	.0	410.5	190,911
	25 - 29 yrs	3.4	1.2	.0	.4	.0	864.1	152,663
	30 - 34 yrs	.7	.1	.0	.0	.0	741.4	176,479
	35 - 39 yrs	5.7	4.5	.0	.0	.0	1,361.4	61,879
	40 - 44 yrs	11.3	.4	.0	.0	.0	1,151.7	74,460
	45 - 49 yrs	14.9	.8	.0	.0	.0	1,412.2	52,012
	50 - 54 yrs	4.5	5.2	.0	.0	.0	2,137.4	38,730
	55 - 59 yrs	10.2	.0	.0	.0	.0	1,392.6	15,937
	60 - 64 yrs	17.8	.0	.0	.0	.0	3,314.7	10,880
	65 - 69 yrs	3.9	.0	.0	.0	.0	644.0	6,901
	70+ yrs	29.3	.0	.0	.0	.0	2,767.6	6,133
Level of Education	Pre Primary	.0	.0	.0	.0	.0	200.0	8,106
	Primary	.3	.0	.0	.0	.0	240.7	62,471
	Secondary	3.6	4.3	.9	.0	.0	670.5	95,159
	Higher	5.1	1.2	.0	.1	.0	1,006.6	647,439
	Non Standard	.0	.0	.0	.0	.0	661.6	10,443
	DK	.0	.0	.0	.0	.0	1,000.0	530
	NS	20.9	.0	.0	.0	.0	1,919.6	13,497
Total		4.7	1.4	.1	.1	.0	917.5	837,646

4.7 Postal Services

Nairobi reported the highest proportion of its population having access to private letter boxes with 22.6 per cent followed by Central province which reported 18.8 per cent as having access (Table 4.11). Interestingly, 85.8 per cent of people from Central province indicated having not sent any letters during the 12 months preceding the survey despite the province having reported the second highest proportion of population with access to private letter boxes. North Eastern had the highest proportion of persons who sent letters with 42.0 per cent indicating having sent between 1 to 10 letters annually. In all the

provinces, only a small percentage of population send more than ten letters per year. Nationally, the proportion of male with access to private letter boxes is slightly higher than that of female.

Table 4.11: Access to Private Letter Box and Number of Letters send per year by Province, Sex, Age and Level of Education (3+)

		Access to Private letter Box	Total	Number of Letters send per year:					Total
				0	1 - 10	11 - 20	More than 20	Missing	
Province	Nairobi	22.6	3,024,059	51.3	32.4	3.8	3.0	9.6	683,440
	Central	18.8	4,116,526	85.8	9.7	1.2	1.1	2.2	771,980
	Coast	5.8	3,287,436	48.3	29.5	4.8	2.5	14.8	190,227
	Eastern	2.1	4,026,361	36.1	31.4	.4	1.0	31.0	86,021
	North Eastern	7.6	1,230,592	45.5	42.0	2.0	.0	10.5	94,115
	Nyanza	9.2	4,635,763	68.5	21.2	2.3	2.7	5.2	428,066
	Rift Valley	5.0	10,223,028	52.5	28.7	6.2	.5	12.1	512,309
	Western	7.4	4,045,792	71.9	23.3	4.4	.0	.4	297,603
Rural/Urban	Rural	6.0	24,752,407	69.2	18.5	2.9	1.2	8.3	1,493,246
	Urban	16.0	9,837,150	58.7	28.7	3.8	2.0	6.9	1,570,515
Sex of Household Head	Male	9.0	17,088,070	59.2	27.7	4.8	1.8	6.5	1,539,413
	Female	8.7	17,480,497	68.5	19.7	1.8	1.3	8.7	1,520,076
	NS	20.3	20,990	74.0	.0	.0	26.0	.0	4,271
Age	0 - 4 yrs	4.5	1,844,771	75.2	.8	.0	.0	24.0	83,902
	5 - 9 yrs	5.7	5,143,790	82.5	4.5	.0	.0	12.9	292,765
	10 - 14 yrs	4.9	5,058,236	91.3	4.7	.3	.0	3.6	247,530
	15 - 19 yrs	7.0	3,923,056	77.5	13.1	.6	.3	8.6	274,831
	20 - 24 yrs	10.1	3,485,354	53.9	30.7	3.1	.8	11.4	352,492
	25 - 29 yrs	10.1	2,975,766	62.7	24.8	2.5	1.3	8.6	299,516
	30 - 34 yrs	11.8	2,675,990	46.5	35.5	10.6	3.2	4.2	315,224
	35 - 39 yrs	13.7	2,078,368	54.0	33.7	4.4	3.2	4.7	284,304
	40 - 44 yrs	12.0	1,523,355	57.9	33.0	4.1	2.3	2.7	182,628
	45 - 49 yrs	14.4	1,428,842	47.2	33.8	4.7	2.8	11.5	205,535
	50 - 54 yrs	13.9	1,159,248	58.3	32.8	3.8	3.4	1.7	161,644
	55 - 59 yrs	11.5	802,251	56.7	32.3	4.7	1.7	4.5	92,430
	60 - 64 yrs	12.6	731,303	63.5	28.2	3.8	1.8	2.7	92,027
	65 - 69 yrs	13.6	493,351	55.1	35.0	2.4	3.8	3.7	66,939
	70+ yrs	8.8	1,265,877	79.6	11.1	1.4	.4	7.5	111,992
Level of Education	Pre Primary	6.0	2,399,708	84.9	.7	.0	.0	14.4	144,088
	Primary	5.9	13,461,444	80.3	11.3	.7	.7	7.1	794,087
	Secondary	12.5	3,572,185	65.7	24.7	3.5	.5	5.7	446,558
	Higher	14.2	9,993,632	52.9	34.1	5.3	2.9	4.8	1,415,527
	Non Standard	11.3	85,269	79.6	.0	.0	.0	20.4	9,629
	DK	31.9	64,066	71.8	18.2	.0	.0	10.0	20,453
	NS	4.7	5,013,254	55.9	16.7	2.4	.2	24.7	233,419
Total		8.9	34,589,557	63.8	23.7	3.3	1.6	7.6	3,063,761

4.8 Letters Sent

Details on destinations of letters sent are presented in Table 4.12. On the whole, only 5 per cent of the population sent letters in the 12 months prior to the survey. Only 3.2 per cent of rural population compared to 8.7 per cent of urban population sent letters. At least 1 in

every 20 people from urban reported having sent a letter while 1 in 29 people from rural had sent at least one letter.

Table 4.12: Proportion of Letters send Abroad by Province, Sex, Age and Level of Education (3+)

		Locally	Elsewhere in Kenya	Overseas	Total
Province	Nairobi	4.2	3.3	1.5	3,024,059
	Central	3.0	1.4	.2	4,116,526
	Coast	2.4	.7	.4	3,287,436
	Eastern	3.6	3.2	.2	4,026,361
	North Eastern	3.3	1.4	.1	1,230,592
	Nyanza	3.3	2.8	.3	4,635,763
	Rift Valley	1.2	1.7	.4	10,223,028
	Western	1.8	.5	.1	4,045,792
Rural/Urban	Rural	1.7	1.3	.2	24,752,407
	Urban	4.6	3.4	.7	9,837,150
Sex of Household Head	Male	3.0	2.4	.5	17,088,070
	Female	2.0	1.3	.2	17,480,497
	NS	12.5	5.8	.0	20,990
Age	0 - 4 yrs	.0	.0	.0	1,844,771
	5 - 9 yrs	.1	.1	.0	5,143,790
	10 - 14 yrs	.5	.3	.0	5,058,236
	15 - 19 yrs	1.5	1.4	.1	3,923,056
	20 - 24 yrs	4.2	3.4	.5	3,485,354
	25 - 29 yrs	3.3	2.3	.4	2,975,766
	30 - 34 yrs	4.1	3.4	1.5	2,675,990
	35 - 39 yrs	5.7	4.2	.8	2,078,368
	40 - 44 yrs	4.6	4.1	.3	1,523,355
	45 - 49 yrs	5.5	2.9	.6	1,428,842
	50 - 54 yrs	5.6	4.0	.7	1,159,248
	55 - 59 yrs	3.8	2.1	.6	802,251
	60 - 64 yrs	2.4	2.6	1.1	731,303
	65 - 69 yrs	5.7	2.4	.4	493,351
	70+ yrs	1.6	1.2	.3	1,265,877
Level of Education	Pre Primary	.0	.1	.0	2,399,708
	Primary	1.0	.7	.1	13,461,444
	Secondary	4.1	3.4	.4	3,572,185
	Higher	5.2	3.7	1.0	9,993,632
	Non Standard	8.8	1.2	.0	85,269
	DK	5.9	.1	.1	64,066
	NS	1.0	1.2	.1	5,013,254
Total		2.5	1.9	.4	34,589,557

4.9 Letters received

Three in every four persons across all ages reported not receiving any letter annually. Many of those who reported to have received between 1 to 10 letters were mainly aged between 20 to 69 years while those who receive more than twenty letters were mainly between 30 and 69 years old. The table also discloses that the level of education was a factor in mailing with 18.3 per cent of persons with higher education having received the highest number of letters followed by those with secondary education with a proportion of 13.4 per cent.

Table 4.13: Percentage Distribution of Letters Received per year by Province, Sex, Age and Level of Education (3+)

		Letters received per year					Total
		0	1 - 10	11 - 20	More than 20	Missing	
Province	Nairobi	74.1	11.1	3.0	2.7	9.2	3,024,059
	Central	80.6	8.0	2.1	1.9	7.3	4,116,526
	Coast	54.3	4.8	1.0	.8	39.1	3,287,436
	Eastern	82.8	7.2	.6	.2	9.3	4,026,361
	North Eastern	84.7	5.1	.4	.4	9.4	1,230,592
	Nyanza	79.4	8.2	.8	.4	11.2	4,635,763
	Rift Valley	74.3	4.9	1.5	.5	18.8	10,223,028
	Western	89.4	4.3	.6	.1	5.7	4,045,792
Rural/Urban	Rural	80.6	4.7	.9	.4	13.5	24,752,407
	Urban	67.8	10.7	2.4	1.9	17.2	9,837,150
Sex of Household Head	Male	76.0	7.7	1.6	.8	13.9	17,088,070
	Female	77.9	5.2	1.0	.7	15.1	17,480,497
	NS	55.8	2.4	5.3	10.6	25.9	20,990
Age	0 - 4 yrs	76.7	.1	.0	.0	23.2	1,844,771
	5 - 9 yrs	79.8	.4	.0	.0	19.9	5,143,790
	10 - 14 yrs	82.2	1.2	.0	.0	16.5	5,058,236
	15 - 19 yrs	81.4	4.1	.1	.2	14.2	3,923,056
	20 - 24 yrs	75.8	9.9	.8	.5	13.0	3,485,354
	25 - 29 yrs	77.5	8.0	1.4	.7	12.4	2,975,766
	30 - 34 yrs	73.8	10.3	2.5	1.8	11.5	2,675,990
	35 - 39 yrs	70.5	12.5	2.4	2.0	12.5	2,078,368
	40 - 44 yrs	70.9	13.9	2.9	2.0	10.3	1,523,355
	45 - 49 yrs	64.8	13.6	8.3	1.6	11.7	1,428,842
	50 - 54 yrs	71.2	12.9	2.5	3.2	10.1	1,159,248
	55 - 59 yrs	75.7	11.8	3.2	1.1	8.2	802,251
	60 - 64 yrs	76.3	9.1	3.4	1.1	10.1	731,303
	65 - 69 yrs	73.1	13.1	1.2	3.5	9.1	493,351
	70+ yrs	78.8	6.2	1.1	.7	13.2	1,265,877
Level of Education	Pre Primary	77.5	.3	.0	.0	22.1	2,399,708
	Primary	81.1	2.7	.3	.2	15.8	13,461,444
	Secondary	73.9	11.2	1.1	1.1	12.6	3,572,185
	Higher	69.9	12.9	3.5	1.9	11.7	9,993,632
	Non Standard	54.4	14.3	5.2	2.8	23.3	85,269
	DK	77.4	7.2	4.0	.0	11.3	64,066
	NS	82.1	3.1	.4	.2	14.3	5,013,254
Total		76.9	6.4	1.3	.8	14.5	34,589,557

CHAPTER 5: HOUSEHOLD CONSUMPTION OF SERVICES

5.0 Introduction

The consumption patterns of households determine the relative importance (weight) of household monetary expenditure attached to each category of goods and services. Table 5.1 shows the percentage distribution of consumption of services in the last 12 months by province, urban/rural dimension, sex, age and level of education in multiple response scenarios.

Table 5.1: Percentage Distribution of Consumption of Services in the last 12 months by Province, Sex, Age and Level of Education

		Household Consumption of the following Services						
		Health	Education	Entertainment	Transportation	Communication	Other services	Total
Province	Nairobi	71.5	52.8	41.8	84.5	74.0	11.5	1,002,682
	Central	72.8	56.4	42.5	79.7	82.8	19.6	1,242,522
	Coast	81.3	65.5	29.3	64.3	60.0	.4	773,561
	Eastern	82.1	69.2	27.5	82.0	68.9	5.3	947,927
	North Eastern	71.7	53.5	12.3	60.2	49.0	5.7	236,775
	Nyanza	83.3	68.3	31.1	68.8	67.6	12.7	1,190,945
	Rift Valley	79.6	67.3	20.5	79.5	78.5	2.4	2,543,120
	Western	87.4	74.6	11.7	69.1	73.4	.1	906,971
Rural/Urban	Rural	81.3	68.3	20.1	73.6	70.6	6.7	5,750,812
	Urban	75.5	57.9	42.3	80.5	77.9	8.2	3,093,692
Sex of Household Head	Male	79.5	67.5	29.5	77.5	75.7	8.0	6,267,217
	female	77.6	59.2	24.4	69.8	64.4	5.3	2,311,992
	NS	87.7	45.3	17.1	94.9	89.4	6.4	265,294
Age	15 - 19 yrs	60.2	48.8	44.3	75.9	57.0	14.4	47,590
	20 - 24 yrs	63.6	29.4	38.2	77.0	80.2	3.3	416,493
	25 - 29 yrs	74.9	42.8	35.2	75.0	79.0	5.3	855,349
	30 - 34 yrs	83.9	70.1	33.2	81.3	79.5	7.2	1,273,961
	35 - 39 yrs	80.2	79.8	27.3	76.3	73.0	6.7	1,083,849
	40 - 44 yrs	81.6	76.9	30.6	76.4	76.4	10.4	917,863
	45 - 49 yrs	81.3	79.2	29.1	80.9	79.0	8.3	856,485
	50 - 54 yrs	77.2	72.2	29.1	78.5	70.8	6.1	829,426
	55 - 59 yrs	76.6	70.3	23.4	72.7	72.2	10.4	524,705
	60 - 64 yrs	76.0	57.9	21.4	69.1	68.3	7.4	525,509
	65 - 69 yrs	80.5	60.9	20.1	71.0	65.0	7.3	363,925
	70+ yrs	81.9	51.4	15.4	63.8	51.4	6.2	886,841
Level of Education	Pre Primary	85.0	80.8	14.1	85.9	77.5	.2	183,025
	Primary	78.0	67.0	21.0	70.8	69.8	5.9	4,386,994
	Secondary	79.5	67.8	34.4	79.7	77.7	9.7	2,588,174
	Higher	81.9	70.8	60.8	90.3	86.0	11.0	845,420
	DK	78.3	54.7	27.0	58.7	54.0	5.8	71,827
Total		79.0	67.9	29.4	75.9	74.1	7.5	8,075,440

5.1 Proportions in consumption of services

Central province recorded the highest percentage of consumption of communication services (82.8 per cent), while North Eastern recorded the lowest (49.0 per cent). Male headed household consumed relatively higher proportion of communication (75.7 per cent) compared to female headed households with 64.4 per cent. Analysis by age group reveals that the consumption is more widespread in the 20-24 age bracket at 80.2 per cent. The survey also reveals that the consumption of communication services is positively correlated with the level of education attained and also tends to be positively skewed towards the urban areas.

Only 29.4 per cent of respondents indicated they consumed entertainment services during the reference period. This could be attributed to the fact that entertainment is considered a luxury.

5.2 Frequency of Consumption

The trend observed in proportion of consumption of communication services was replicated in the pattern of the frequency of usage during the 12 months reference period (Table 5.2). Nationally, this stood at 8.9 months.

Table 5.2: Average Duration (in Months) for Consumption of Services in the last 12 months by Province, Sex, Age and Level of Education

		Household Consumption of the following Services						
		Health	Education	Entertainment	Transportation	Communication	Other services	Total
Province	Nairobi	3.8	6.2	5.1	10.2	9.8	1.6	1,002,682
	Central	3.3	6.5	3.8	8.3	10.1	3.3	1,242,522
	Coast	2.9	7.2	2.5	6.1	7.7	.0	773,561
	Eastern	3.2	6.3	2.3	7.1	7.6	.2	947,927
	North Eastern	3.6	5.7	2.2	4.3	6.7	1.2	236,775
	Nyanza	4.6	6.9	4.2	7.7	8.6	.4	1,190,945
	Rift Valley	3.5	6.0	2.6	7.7	9.8	.5	2,543,120
	Western	3.0	6.4	.8	4.1	6.4	.1	906,971
Rural/Urban	Rural	3.6	6.5	2.3	6.8	8.3	.8	5,750,812
	Urban	3.4	6.1	4.5	8.6	9.8	1.1	3,093,692
Sex of Household Head	Male	3.5	6.6	3.2	7.6	9.1	1.0	6,267,217
	female	3.3	5.9	2.6	6.7	7.9	.6	2,311,992
	NS	4.6	7.1	3.4	7.6	10.8	1.0	265,294
Age	15 - 19 yrs	2.9	5.1	3.6	7.6	7.1	1.5	47,590
	20 - 24 yrs	2.8	3.2	4.1	7.2	9.5	.6	416,493
	25 - 29 yrs	2.9	4.7	3.8	8.6	9.6	.4	855,349
	30 - 34 yrs	3.8	6.7	3.8	8.1	9.9	.9	1,273,961
	35 - 39 yrs	3.5	7.2	2.9	7.5	8.8	.8	1,083,849
	40 - 44 yrs	3.4	7.3	3.3	7.2	8.8	1.2	917,863
	45 - 49 yrs	3.3	7.2	2.9	7.9	9.1	1.0	856,485
	50 - 54 yrs	3.3	7.2	3.0	7.8	8.5	.9	829,426
	55 - 59 yrs	3.4	6.3	2.2	6.4	8.1	1.0	524,705
	60 - 64 yrs	3.3	5.8	2.3	6.7	8.1	1.0	525,509
	65 - 69 yrs	4.4	6.1	2.4	6.9	8.4	.9	363,925
	70+ yrs	4.1	5.3	2.0	5.6	6.6	.9	886,841
Level of Education	Pre Primary	2.8	7.6	2.6	9.1	9.3	.2	183,025
	Primary	3.4	6.4	2.3	6.5	8.2	.6	4,386,994
	Secondary	3.5	6.6	3.4	7.8	9.3	1.1	2,588,174
	Higher	4.1	6.8	6.5	10.0	10.4	1.8	845,420
	DK	3.7	7.9	4.1	7.2	8.7	.7	71,827
Total		3.5	6.5	3.1	7.4	8.9	.9	8,075,440

5.3 Average Consumption of Services

For the five major categories of services (health, education, entertainment, transport and communication), the average consumption of services was highest in health which stood at KSh 1,651.9 per household in 12 months. The highest average household expenditure on communication was reported in Nyanza (KSh 1,729.5) while the least (KSh 598.1) was reported in Nairobi province as shown in Table 5.3. The average consumption of communication services in rural areas was found to be nearly half of the urban setting.

Table 5.3: Average Consumption (in Kshs.) for Consumption of Services in the last 12 months by Province, Sex, Age and Level of Education

		Household Consumption of the following Services						
		Health	Education	Entertainment	Transportation	Communication	Other services	Total
Province	Nairobi	5,280.3	1,726.9	8,363.6	2,257.1	598.1	562.4	1,002,682
	Central	975.9	89.9	650.6	1,075.0	1,594.6	541.2	1,242,522
	Coast	1,019.0	198.2	670.1	1,191.1	1,219.2	2.2	773,561
	Eastern	924.9	163.1	274.5	614.7	725.3	16.6	947,927
	North Eastern	1,459.1	170.4	294.8	1,610.7	1,076.3	353.7	236,775
	Nyanza	1,160.6	380.9	478.6	1,452.4	1,729.5	437.9	1,190,945
	Rift Valley	1,596.0	1,303.0	1,185.9	939.2	979.1	48.0	2,543,120
	Western	938.5	203.8	260.3	487.8	951.4	.1	906,971
Rural/Urban	Rural	1,136.7	208.3	582.8	694.9	847.7	118.8	5,750,812
	Urban	2,447.9	1,642.1	2,438.7	1,918.4	1,602.9	369.5	3,093,692
Sex of Household Head	Male	1,627.7	861.3	1,459.8	1,193.5	1,207.7	225.0	6,267,217
	female	1,542.9	161.5	496.1	829.2	865.2	94.3	2,311,992
	NS	457.9	190.9	801.4	1,705.7	968.7	15.1	265,294
Age	15 - 19 yrs	350.7	.0	221.1	365.2	504.0	112.1	47,590
	20 - 24 yrs	1,219.9	9,108.2	3,457.3	1,016.5	653.5	38.3	416,493
	25 - 29 yrs	1,061.2	41.5	1,785.2	808.7	794.6	89.1	855,349
	30 - 34 yrs	2,185.0	80.7	1,606.2	1,300.4	1,554.3	159.2	1,273,961
	35 - 39 yrs	1,117.3	703.6	859.7	1,449.1	1,375.1	269.1	1,083,849
	40 - 44 yrs	1,521.5	342.1	770.3	1,432.0	1,484.3	300.7	917,863
	45 - 49 yrs	2,237.6	481.5	1,623.6	1,210.0	1,263.2	209.0	856,485
	50 - 54 yrs	1,457.9	297.4	1,313.2	1,276.8	912.0	195.7	829,426
	55 - 59 yrs	1,956.6	409.4	838.9	749.0	1,060.8	331.4	524,705
	60 - 64 yrs	1,413.8	570.0	379.2	942.5	1,029.6	178.8	525,509
	65 - 69 yrs	966.2	145.2	540.3	655.7	811.1	119.2	363,925
	70+ yrs	1,848.0	114.5	354.1	567.5	578.9	116.6	886,841
Level of Education	Pre Primary	818.8	59.1	495.0	460.3	622.9	1.5	183,025
	Primary	1,051.9	146.0	399.7	561.0	705.3	79.1	4,386,994
	Secondary	1,142.3	395.9	1,426.0	1,437.8	1,500.5	242.2	2,588,174
	Higher	6,749.8	5,267.3	5,676.4	3,307.4	2,494.5	913.6	845,420
	DK	1,056.5	1,112.4	820.4	1,131.0	605.8	9.4	71,827
Total		1,651.9	708.9	1,238.2	1,137.3	1,158.6	199.6	8,075,440

CHAPTER 6: CONCLUSION

The survey results reveal that radio is an indispensable tool for delivering development information with about 80 per cent of the households having access to radio as a means of communication. Television sets are not as common in Kenya with 60 per cent of the respondents indicating having access to TV. This low access level could be attributed to lack of electricity connections in households which nationally stood at 42.1 percent.

The access and usage of computers and internet in Kenya was estimated at 8.4 per cent and 6.3 per cent, respectively. These low levels of penetration may be associated with a number of factors, among them high cost of computers, poverty levels and lack of electricity connections in the households. These factors are reflected in the trends of access points, where the highest proportion (28.5 per cent) accessed computers through cyber cafes.

Investments and policy objectives in ICT sector have enhanced mobile and internet access across the country. The study shows that about 60 per cent of the respondents have access to mobile phones. However, only 32.9 per cent of the population owns the facility. Ownership of mobiles was found to vary substantially by age groups of the respondent.

Postal service is the oldest mode of communication that is widely spread across the country. Current, 8.9 per cent of the respondents have access to private letter boxes. However, 63.8 per cent of the respondent with access to private letter boxes indicated that they sent no letter. Similarly, 76.9 per cent of the population indicated that they had not received any letter within one month prior to the survey.

The survey revealed that 5.3 per cent of the household members attending ICT related course are in primary school level, 4.5 per cent in the secondary school while 4.2 per cent are tertiary level. Nearly one in every four households reported that the school that their children attend has access to telephone facilities. However, only one in every ten households reported the same for internet connectivity.