

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

ACKNOWLEDGEMENT

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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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).

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.

1.1 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.

1.2 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.

1.3 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.

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

$$n = \frac{z^2 pqd}{e^2} \dots\dots\dots (1)$$

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:

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

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_h = 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 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.

2.4 Training and Data Collection

2.4.1 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.

2.4.2 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.

2.4.3 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 Interviews

	Sampled households	Occupied households	Interviewed households	Household response rate
Nairobi	990	977	678	69
Central	1,140	1,127	976	87
Coast	855	832	725	87
Eastern	1,185	1,115	952	85
North Eastern	450	443	419	95
Nyanza	1,155	1,073	917	86
Rift Valley	1,530	1,396	1,308	94
Western	990	956	828	87
Total	8,295	7,919	6,803	86

2.5 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.

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	50.7	4,324,897
Coast	48.9	51.1	3,546,840
Eastern	50.5	49.5	4,257,177
North Eastern	53.7	46.3	1,341,656
Nyanza	48.7	51.3	4,951,894
Rift Valley	49.7	50.3	10,971,877
Western	49.1	50.9	4,244,907
Place of Residence			
Rural	50.0	50.0	26,257,987
Urban	48.7	51.3	10,680,878
Age			
0 - 4 yrs	51.1	48.9	4,214,323
5 - 9 yrs	48.5	51.5	5,139,627
10 - 14 yrs	54.0	46.0	5,058,472
15 - 19 yrs	51.9	48.1	3,922,314
20 - 24 yrs	45.8	54.2	3,481,259
25 - 29 yrs	41.0	59.0	2,972,159
30 - 34 yrs	50.5	49.5	2,674,732
35 - 39 yrs	47.9	52.1	2,078,368
40 - 44 yrs	51.4	48.6	1,522,959
45 - 49 yrs	47.2	52.8	1,428,640
50 - 54 yrs	57.2	42.8	1,158,931
55 - 59 yrs	49.7	50.3	799,906
60 - 64 yrs	50.7	49.3	731,303
65 - 69 yrs	47.3	52.7	491,664
70+ yrs	49.7	50.3	1,264,207
Level of Education			
Pre Primary	49.2	50.8	1,438,721
Primary	50.0	50.0	18,854,736
Secondary	53.0	47.0	6,274,394
Higher	56.4	43.6	1,718,180
None	45.1	54.9	8,408,775
Less than 3 yrs	34.1	65.9	178,166
Non Standard	62.3	37.7	42,817
DK	56.9	43.1	23,075
Total	49.6	50.4	36,938,865

Table 3.2: Percentage Distribution of the level of education reached

	Level of Education								Total
	None	Less than 3 yrs	Pre Primary	Primary	Secondary	Higher	Non Standard	DK	
Province									
Nairobi	8.6	1.3	6.2	40.8	26.3	16.7	0.1	0.0	3,299,618
Central	12.2	0.3	3.3	53.7	25.0	5.3	0.1	0.1	4,324,897
Coast	25.4	0.1	4.8	58.6	8.6	2.1	0.4	0.1	3,546,840
Eastern	28.2	0.2	3.6	51.1	14.6	2.1	0.1	0.1	4,257,177
North Eastern	56.8	0.0	4.0	30.4	7.4	1.1	0.3	0.0	1,341,656
Nyanza	19.9	0.5	3.4	54.2	16.5	5.1	0.2	0.1	4,951,894
Rift Valley	23.7	0.7	4.4	51.9	15.7	3.6	0.0	0.1	10,971,877
Western	27.1	0.2	1.6	50.5	18.0	2.6	0.1	0.0	4,244,907
Place of Residence									
Rural	19.4	0.2	2.4	37.6	9.7	1.8	0.1	0.1	26,257,987
Urban	3.4	0.3	1.5	13.5	7.3	2.9	0.0	0.0	10,680,878
Sex									
Male	20.7	0.3	3.9	51.5	18.1	5.3	0.1	0.1	18,323,456
Female	24.8	0.6	3.9	50.6	15.8	4.0	0.1	0.1	18,615,409
Age									
0 - 4 yrs	45.4	4.2	14.5	26.1	9.8	0.0	0.0	0.0	4,214,323
5 - 9 yrs	40.4	0.0	13.2	46.2	0.3	0.0	0.0	0.0	5,139,627
10 - 14 yrs	10.2	0.0	0.6	86.4	2.7	0.0	0.0	0.0	5,058,472
15 - 19 yrs	8.0	0.0	0.6	58.4	32.9	0.0	0.1	0.0	3,922,314
20 - 24 yrs	9.6	0.0	0.3	49.0	30.6	10.2	0.3	0.0	3,481,259
25 - 29 yrs	9.3	0.0	0.4	52.0	25.4	12.6	0.2	0.0	2,972,159
30 - 34 yrs	12.5	0.0	0.2	47.2	28.4	11.5	0.1	0.0	2,674,732
35 - 39 yrs	10.6	0.0	0.4	51.7	27.3	9.8	0.1	0.1	2,078,368
40 - 44 yrs	16.0	0.0	0.4	47.6	24.5	11.4	0.2	0.1	1,522,959
45 - 49 yrs	15.8	0.0	0.6	52.5	23.3	7.7	0.2	0.0	1,428,640
50 - 54 yrs	28.9	0.0	0.5	41.6	22.1	6.7	0.1	0.1	1,158,931
55 - 59 yrs	33.8	0.0	0.3	42.6	17.3	5.1	0.3	0.6	799,906
60 - 64 yrs	46.4	0.0	0.4	39.0	8.5	5.2	0.1	0.4	731,303
65 - 69 yrs	43.1	0.0	0.6	42.5	10.6	3.2	0.1	0.0	491,664
70+ yrs	63.2	0.0	2.5	27.0	4.7	1.8	0.2	0.6	1,264,207
Total	22.8	0.5	3.9	51.0	17.0	4.7	0.1	0.1	36,938,865

Primary school was reported by 51.0 per cent of the population as the highest level of education reached while secondary were reported by 17.0 per cent. Only a negligible (0.1 per cent) of the population was reported to have undergone through a non-standard system of education.. Nairobi had the largest proportion of the highly educated people with 16.7 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 7.4 per cent and 1.1 per cent of North Eastern's population had reached secondary and higher¹ level of education respectively.

¹ Post-secondary, Colleges, University

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 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 (8.6 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	3.2	1,002,682
Central	66.9	31.4	1.7	29.0	54.8	12.7	3.5	1,242,522
Coast	72.1	23.7	4.2	20.8	37.5	27.7	13.9	773,561
Eastern	70.9	27.1	2.0	18.5	48.2	25.4	7.9	947,927
North Eastern	68.7	27.9	3.4	9.7	30.2	41.1	19.0	236,775
Nyanza	65.7	34.0	0.3	24.2	48.3	22.3	5.2	1,190,945
Rift Valley	73.2	20.7	6.1	20.6	37.8	28.5	13.1	2,543,120
Western	69.9	29.7	0.4	16.5	43.9	32.7	6.9	906,971
Place of Residence								
Rural	70.3	26.1	3.6	18.1	40.9	29.7	11.3	5,750,812
Urban	72.0	26.2	1.8	32.0	51.3	13.0	3.6	3,093,692
Age								
15 - 19 yrs	59.6	40.4	0.0	68.3	24.1	3.0	4.6	47,590
20 - 24 yrs	78.8	21.2	0.0	65.1	33.6	1.3	0.0	417,652
25 - 29 yrs	71.9	28.1	0.0	39.2	53.8	6.8	0.2	853,270
30 - 34 yrs	83.4	16.6	0.0	13.6	62.4	22.7	1.3	1,275,144
35 - 39 yrs	77.0	23.0	0.0	12.1	50.0	32.9	5.0	1,083,849
40 - 44 yrs	76.0	24.0	0.0	12.7	45.6	34.0	7.6	916,681
45 - 49 yrs	73.8	26.2	0.0	16.6	36.8	37.9	8.7	856,485
50 - 54 yrs	75.5	24.5	0.0	18.7	39.8	29.4	12.2	829,426
55 - 59 yrs	69.1	30.9	0.0	22.9	34.3	29.5	13.3	524,705
60 - 64 yrs	64.7	35.3	0.0	23.9	46.3	23.8	5.9	525,509
65 - 69 yrs	61.4	38.6	0.0	30.2	38.8	24.6	6.4	363,925
70+ yrs	58.3	41.7	0.0	35.5	41.0	17.2	6.2	886,841
Level of Education								
Pre Primary	61.2	38.8	0.0	18.1	49.9	19.4	12.6	42,385
Primary	75.6	24.4	0.0	22.9	46.6	24.7	5.8	3,889,986
Secondary	81.6	18.4	0.0	22.8	49.5	23.8	3.9	1,978,136
Higher	83.8	16.2	0.0	23.6	54.9	17.7	3.8	791,486
None	54.2	45.8	0.0	26.5	36.6	28.4	8.5	1,853,483
Non Standard	75.1	24.9	0.0	21.3	51.3	12.2	15.2	12,156
DK	72.1	27.9	0.0	5.9	46.4	47.7	0.0	13,446
NS	0.0	0.0	100.0	0.0	0.0	0.0	100.0	263,426
Total	70.9	26.1	3.0	22.9	44.6	23.9	8.6	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 97.4 per cent of its population being literate. Second was Central province which reported 91.0 per cent while Nyanza was third with a proportion of 86.8 per cent. North Eastern province had the least percentage of literate population at 39.8 per cent. A comparison between urban and rural reveal a notable disparity in literacy levels, whereas 94.7 per cent of urban population reported being literate, rural's literacy level was 81.1 percent; 13.6 percentage points lower.

Table 3.4: Percentage Distribution of the level of Literacy (15+)

	Literacy			Total
	Yes	No	DK	
Province				
Nairobi	97.4	2.4	0.2	2,216,758
Central	91.0	8.4	0.6	2,885,008
Coast	79.8	19.8	0.4	2,079,732
Eastern	83.1	16.4	0.5	2,582,866
North Eastern	39.8	57.4	2.8	662,823
Nyanza	86.8	13.0	0.2	2,694,410
Rift Valley	85.3	14.2	0.5	6,186,683
Western	85.2	14.5	0.3	2,280,834
Place of Residence				
Rural	81.1	18.4	0.5	14,885,995
Urban	94.7	4.9	0.4	6,703,119
Sex				
Male	89.7	10.0	0.3	10,487,703
Female	81.2	18.2	0.6	11,101,410
Age				
15 - 19 yrs	95.7	4.0	0.3	2,984,985
20 - 24 yrs	93.3	6.1	0.6	3,481,259
25 - 29 yrs	94.3	5.5	0.2	2,972,159
30 - 34 yrs	93.0	6.8	0.2	2,674,732
35 - 39 yrs	92.3	7.6	0.2	2,078,368
40 - 44 yrs	87.0	12.5	0.5	1,522,959
45 - 49 yrs	86.9	12.8	0.4	1,428,640
50 - 54 yrs	73.8	25.8	0.3	1,158,931
55 - 59 yrs	69.5	29.9	0.6	799,906
60 - 64 yrs	56.1	42.6	1.3	731,303
65 - 69 yrs	56.5	43.1	0.5	491,664
70+ yrs	34.8	63.2	1.9	1,264,207
Level of Education				
Pre Primary	93.8	0.0	6.2	116,356
Primary	99.8	0.0	0.2	10,343,485
Secondary	99.8	0.0	0.2	5,549,437
Higher	100.0	0.0	0.0	1,717,191
None	17.6	80.8	1.6	3,798,906
Non Standard	100.0	0.0	0.0	40,662
DK	100.0	0.0	0.0	23,075
Total	85.3	14.2	0.5	21,589,113

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 11.8, 2.1 and 1.0 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 46.0 per cent. Of those who had reached higher level of education 14.5 per cent were fulltime students, 14.4 per cent were self-employed while unemployed constituted 20.1 per cent.

Table 3.5: Percentage Distribution of the Employment status (15+)

	Employed	Unemployed	Self Employed	Fulltime student	Incapacitated	Retired	Other	Missing	Total
Province									
Nairobi	37.5	32.0	18.1	9.3	0.0	1.4	1.7	0.0	2,216,758
Central	23.6	17.4	42.4	10.4	2.9	2.3	0.9	0.0	2,885,008
Coast	18.0	48.3	20.1	8.8	0.2	2.4	2.1	0.1	2,079,732
Eastern	19.0	30.6	34.2	12.5	0.3	2.2	1.1	0.0	2,582,866
North Eastern	9.2	61.9	14.5	8.5	1.1	1.2	3.7	0.0	662,823
Nyanza	15.5	21.2	37.0	15.7	2.0	2.7	5.9	0.0	2,694,410
Rift Valley	20.1	43.1	16.7	10.9	0.4	1.8	6.9	0.0	6,186,683
Western	13.8	21.4	42.5	16.8	1.1	2.9	1.6	0.0	2,280,834
Place of Residence									
Rural	15.6	34.2	29.4	13.1	1.1	2.5	4.2	0.0	14,885,995
Urban	31.2	30.8	24.5	8.9	0.7	1.5	2.5	0.0	6,703,119
Sex									
Male	29.0	24.5	27.1	13.3	0.6	2.5	2.9	0.0	10,487,703
Female	12.4	41.3	28.5	10.4	1.3	1.8	4.3	0.0	11,101,410
Age									
15 - 19 yrs	4.6	31.7	3.1	58.3	0.3	0.0	2.0	0.0	2,984,985
20 - 24 yrs	16.3	46.7	14.2	17.9	0.3	0.1	4.4	0.0	3,481,259
25 - 29 yrs	29.2	39.5	25.0	3.2	0.3	0.0	2.8	0.0	2,972,159
30 - 34 yrs	31.7	28.7	31.6	0.9	0.3	0.0	6.8	0.0	2,674,732
35 - 39 yrs	29.3	28.0	40.0	0.1	0.2	0.2	2.2	0.0	2,078,368
40 - 44 yrs	29.3	26.3	39.4	0.4	0.1	0.5	4.1	0.0	1,522,959
45 - 49 yrs	25.8	23.8	45.4	0.0	0.2	0.8	3.9	0.1	1,428,640
50 - 54 yrs	26.8	24.1	43.2	0.2	0.3	2.0	3.3	0.0	1,158,931
55 - 59 yrs	12.9	28.6	45.9	0.3	1.4	6.6	4.3	0.0	799,906
60 - 64 yrs	7.9	31.1	42.1	0.0	1.7	14.7	2.5	0.0	731,303
65 - 69 yrs	4.3	28.2	45.3	0.0	2.3	17.5	2.5	0.0	491,664
70+ yrs	6.2	34.4	28.7	4.4	9.8	13.3	3.1	0.0	1,264,207
Level of Education									
Pre Primary	6.3	25.0	38.0	22.5	1.5	3.1	3.7	0.0	116,356
Primary	19.4	33.8	30.8	10.7	0.5	1.6	3.2	0.0	10,343,485
Secondary	21.6	28.0	25.6	18.7	0.2	1.3	4.5	0.0	5,549,437
Higher	46.0	20.1	14.4	14.5	0.3	3.3	1.5	0.0	1,717,191
None	10.5	44.9	29.0	3.1	3.6	4.4	4.4	0.1	3,798,906
Non Standard	32.2	31.2	15.1	20.0	0.0	1.5	0.0	0.0	40,662
DK	15.6	23.4	38.8	0.0	0.0	0.0	22.2	0.0	23,075
Total	20.5	33.1	27.9	11.8	1.0	2.1	3.6	0.0	21,589,113

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 3.9 per cent of its population as having disabilities which was the highest in the country. Nyanza province was ranked second with 3.6 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 35.1 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 Disability (2+)

	Having Disability	Population with Disability				Total
		Physical	Visual	Hearing	Other	
Province						
Nairobi	3.9	45.7	28.1	2.1	44.1	3,024,059
Central	2.0	55.2	28.4	11.1	31.3	4,111,046
Coast	2.3	27.0	22.1	19.3	41.3	3,293,639
Eastern	1.8	26.6	18.0	23.3	40.0	4,017,958
North Eastern	2.2	47.6	24.7	14.0	15.1	1,228,945
Nyanza	3.6	39.1	25.8	19.6	24.8	4,629,954
Rift Valley	1.6	39.6	22.8	7.2	44.4	10,217,921
Western	2.2	39.5	20.6	28.0	25.2	4,045,792
Place of Residence						
Rural	2.2	42.4	26.4	18.2	26.7	24,730,955
Urban	2.5	34.2	19.0	6.7	53.6	9,838,358
Sex						
Male	2.4	36.2	24.6	14.8	36.6	17,082,230
Female	2.2	43.9	23.5	14.4	33.4	17,487,083
Age						
0 - 4 yrs	1.0	27.3	37.4	0.0	42.1	1,844,771
5 - 9 yrs	1.3	32.7	20.2	25.4	28.1	5,139,627
10 - 14 yrs	1.7	26.4	19.3	21.6	44.2	5,058,472
15 - 19 yrs	1.8	20.8	17.7	26.3	44.3	3,922,314
20 - 24 yrs	2.3	46.7	25.9	8.6	44.7	3,481,259
25 - 29 yrs	2.6	48.1	26.6	11.2	43.7	2,972,159
30 - 34 yrs	2.7	35.7	7.5	13.7	50.2	2,674,732
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	1,522,959
45 - 49 yrs	2.0	40.7	22.3	19.4	30.4	1,428,640
50 - 54 yrs	2.1	60.7	30.9	5.8	6.2	1,158,931
55 - 59 yrs	3.4	74.5	24.6	6.0	17.8	799,906
60 - 64 yrs	5.0	47.0	37.0	10.0	17.2	731,303
65 - 69 yrs	4.6	46.8	36.8	19.6	18.8	491,664
70+ yrs	7.6	48.3	36.6	17.3	10.9	1,264,207
Level of Education						
Pre Primary	1.4	49.3	26.3	0.0	30.9	1,307,291
Primary	2.0	39.7	25.4	16.7	32.7	17,819,366
Secondary	1.7	31.4	21.5	9.5	54.0	5,863,398
Higher	1.9	47.4	15.3	0.0	37.4	1,718,180
None	3.8	41.6	24.3	16.4	31.4	7,795,186
Non Standard	0.0	.	.	.	.	42,817
DK	0.0	.	.	.	.	23,075
Total	2.3	39.9	24.1	14.6	35.1	34,569,313

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 25.7 per cent of households connected to it while 15.3 per cent of the homes were connected to other types of electricity sources. A slightly higher proportion of male headed households 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

	Main source of Electricity for the household						Total
	Grid	Generator	Sola	Wind	Other	None	
Province							
Nairobi	92.8	1.3	0.0	0.0	3.9	2.0	1,002,682
Central	36.9	0.7	4.8	0.0	34.9	22.7	1,242,522
Coast	26.7	0.6	1.4	0.0	0.1	71.2	773,561
Eastern	17.7	0.5	7.4	0.0	14.7	59.7	947,927
North Eastern	16.8	0.9	2.1	0.0	0.0	80.3	236,775
Nyanza	15.2	2.2	3.7	0.1	15.3	63.5	1,190,945
Rift Valley	29.1	1.0	4.9	0.1	17.4	47.4	2,543,120
Western	11.2	0.6	1.7	0.2	3.0	83.4	906,971
Place of Residence							
Rural	12.6	1.0	5.2	0.1	16.9	64.2	5,750,812
Urban	57.7	0.9	1.4	0.0	11.4	28.6	3,093,692
Sex							
Male	25.2	1.2	4.6	0.1	14.3	54.6	2,312,118
Female	24.3	0.5	3.0	0.1	16.7	55.3	263,426
NS	48.1	0.0	2.7	0.0	25.3	23.8	47,590
Age							
15 - 19 yrs	27.6	0.0	2.7	0.0	15.2	54.5	417,652
20 - 24 yrs	39.2	0.4	3.5	0.0	19.1	37.8	853,270
25 - 29 yrs	37.6	0.6	1.3	0.0	16.6	43.9	1,275,144
30 - 34 yrs	41.7	1.0	3.6	0.0	11.7	41.9	1,083,849
35 - 39 yrs	20.0	0.9	4.2	0.0	15.2	59.8	916,681
40 - 44 yrs	23.2	1.0	5.3	0.2	11.7	58.6	856,485
45 - 49 yrs	31.3	1.2	2.3	0.2	14.6	50.5	829,426
50 - 54 yrs	21.0	1.3	6.8	0.0	17.3	53.6	524,705
55 - 59 yrs	17.1	0.9	4.5	0.0	14.2	63.3	525,509
60 - 64 yrs	15.0	0.9	4.1	0.3	17.1	62.6	363,925
65 - 69 yrs	12.4	3.2	4.8	0.0	13.1	66.4	886,841
70+ yrs	9.1	0.7	4.9	0.0	17.6	67.7	42,385
Level of Education							
Pre Primary	8.4	0.0	8.5	0.0	6.4	76.7	42,385
Primary	19.6	1.0	4.3	0.1	17.4	57.7	3,889,986
Secondary	40.3	1.1	5.6	0.1	12.7	40.2	1,978,136
Higher	63.0	2.3	5.1	0.0	6.1	23.5	791,486
None	9.0	0.6	1.9	0.0	15.2	73.3	1,853,483
Non standard	56.0	0.0	28.5	0.0	0.0	15.5	12,156
DK	10.7	0.0	0.0	0.0	65.6	23.7	13,446
NS	47.8	0.0	2.7	0.0	25.3	24.2	263,426
Total	25.7	1.0	4.1	0.1	15.3	53.8	8,844,504

Nairobi province had the highest connections to grid with 92.8 per cent of homes connected while Western had the least connections with only 11.2 households connected. Only 12.6 per cent of rural households reported being connected to the grid while 57.7 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.

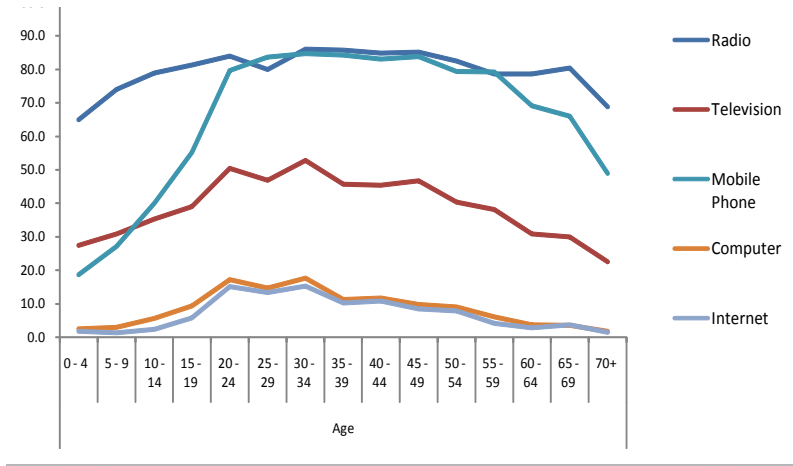
Access, usage and ownership of ICT are key in linking communities, facilitating businesses and empowering communities socially and economically. It is therefore imperative that every effort is made to bridge the digital divide between those who have information and those who need the information. Enhancement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

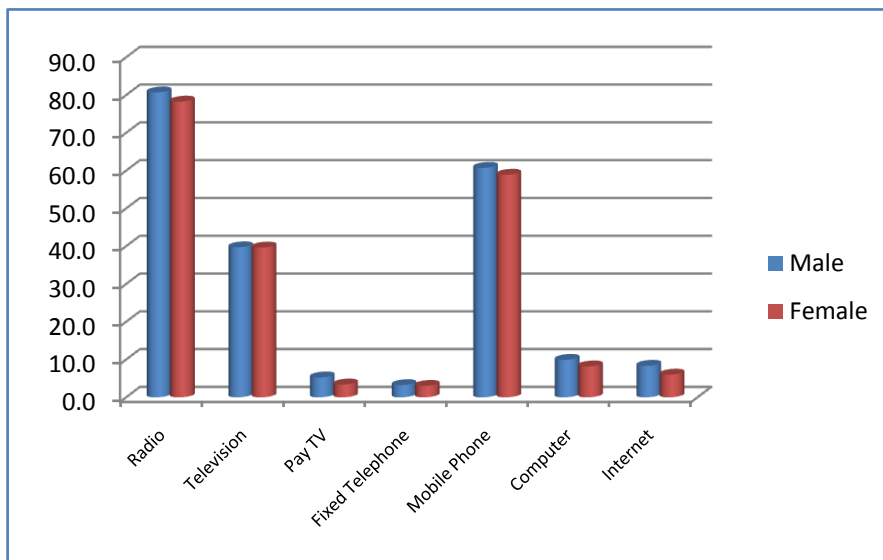
Penetration of other facilities was apparently marginal with computers, internet, pay TV, and fixed line only having proportions of 9.1, 7.2, 4.3 and 3.1 per cent respectively. Age groups 30 – 34 led in access to all the ICT equipments except for the pay TV where those aged 20 – 24 took the lead. There 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+)

	Radio	Television	Pay TV	Fixed Telephone	Mobile Phone	Computer	Internet	Total
Province								
Nairobi	80.4	78.2	13.2	11.9	76.2	32.7	28.3	3,024,059
Central	89.6	46.5	2.3	1.4	74.0	9.3	7.1	4,111,046
Coast	70.6	36.9	8.1	6.3	50.7	10.3	8.4	3,293,639
Eastern	83.1	34.4	2.9	2.0	64.2	6.6	4.9	4,017,958
North Eastern	67.5	13.6	1.7	1.2	41.1	3.8	3.6	1,228,945
Nyanza	75.7	29.4	4.2	1.8	57.3	7.8	5.8	4,629,954
Rift Valley	79.2	41.1	3.6	2.3	58.0	6.1	4.7	10,217,921
Western	80.9	27.8	.9	1.2	49.5	3.0	1.5	4,045,792
Place of Residence								
Rural	78.1	29.2	2.7	1.9	55.0	4.3	3.4	24,730,955
Urban	83.1	66.1	8.4	6.4	71.9	21.1	16.6	9,838,358
Sex								
Male	80.7	39.7	5.3	3.3	60.8	10.0	8.4	17,082,230
Female	78.3	39.7	3.4	3.0	58.9	8.2	6.0	17,487,083
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	5,139,627
10 - 14 yrs	78.8	35.3	2.7	2.1	40.0	5.6	2.5	5,058,472
15 - 19 yrs	81.2	39.1	5.5	1.9	55.3	9.3	5.8	3,922,314
20 - 24 yrs	83.9	50.5	8.1	4.3	79.7	17.2	15.1	3,481,259
25 - 29 yrs	79.9	46.9	6.4	3.8	83.8	14.8	13.4	2,972,159
30 - 34 yrs	86.0	52.8	7.8	6.0	84.7	17.7	15.3	2,674,732
35 - 39 yrs	85.6	45.7	4.8	5.2	84.2	11.2	10.3	2,078,368
40 - 44 yrs	84.8	45.4	5.2	5.1	83.1	11.7	10.8	1,522,959
45 - 49 yrs	85.2	46.8	4.0	3.2	83.8	9.8	8.5	1,428,640
50 - 54 yrs	82.5	40.4	3.3	5.2	79.3	9.1	7.9	1,158,931
55 - 59 yrs	78.7	38.2	3.2	4.1	79.4	6.1	4.2	799,906
60 - 64 yrs	78.6	30.9	2.3	2.8	69.1	3.8	2.9	731,303
65 - 69 yrs	80.2	30.2	3.1	3.6	66.2	3.6	3.8	491,664
70+ yrs	68.9	22.6	2.1	1.9	48.9	1.7	1.5	1,264,207
Level of Education								
Pre Primary	75.1	44.7	3.1	1.3	29.2	4.9	2.8	1,307,291
Primary	82.0	36.9	3.3	2.2	60.2	4.5	2.9	17,819,366
Secondary	87.6	56.3	8.1	4.7	83.7	18.1	13.3	5,863,398
Higher	89.6	82.5	16.4	16.1	97.0	60.3	57.7	1,718,180
None	66.0	23.2	1.2	1.4	37.9	1.9	1.7	7,795,186
Non Standard	95.9	73.0	25.9	19.0	83.4	46.7	31.2	42,817
DK	90.1	16.2	7.7	1.3	78.7	7.7	7.7	23,075
Total	79.5	39.7	4.3	3.1	59.8	9.1	7.2	34,569,313

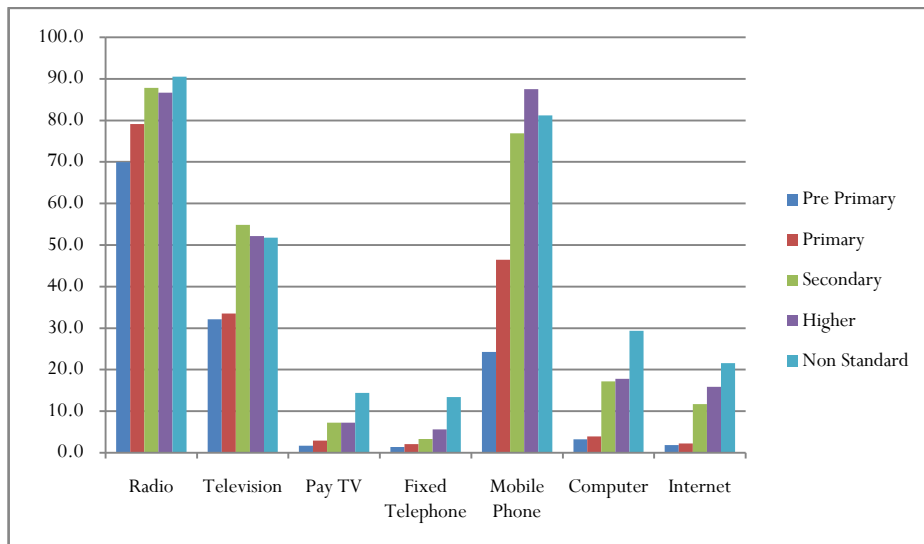
Figure 4.2 depicts a comparison of access to ICT equipments between female and male. The figure reveals that males have a higher proportion of its population having access to ICT compared to female. For example, while 80.7 per cent and 60.8 per cent of male had access to radio and mobile telephones respectively, 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 60.3 and 57.7 per cent of persons with higher education had access to computers and internet, 4.9 and 2.8 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	0.6	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	0.5	208,469
Place of Residence					
Rural	2.4	2.5	2.1	1.7	1,455,573
Urban	2.7	2.5	2.0	1.1	769,998
Sex					
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	0.2	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	0.3	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

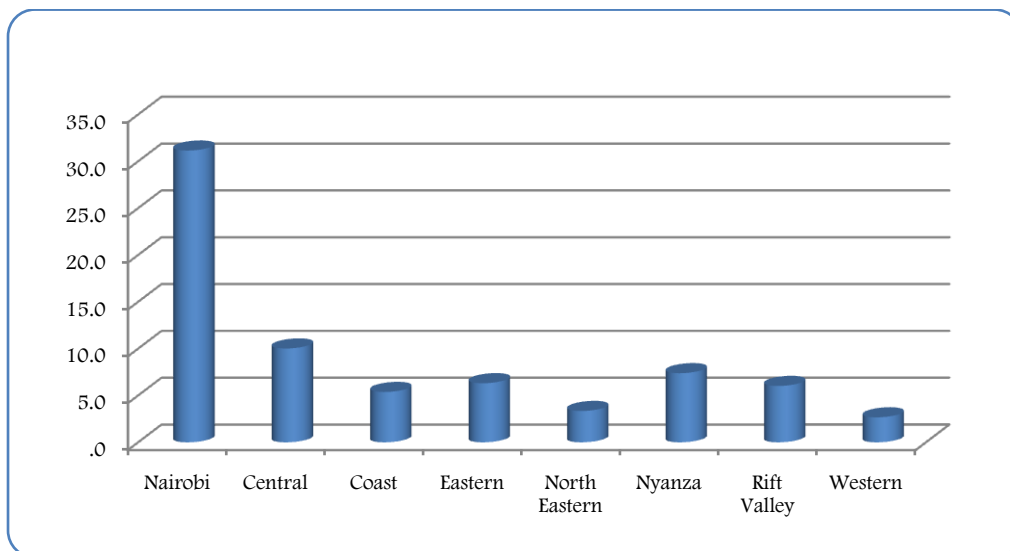
Details on distribution of usage of computers during the 12 months period prior to the survey are given in Table 4.3. The table shows that only 8.4 per cent of the population used computers during the reference period. The use of computers increase with age but peaks at 20-24 years then gradually decline. 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 20.6 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 use computer in the last 12 months by place of Access (3+)

	Use of Computers	Total	Place of Computer use in last 12 Months									Total
			Own House	Friends House	Office/Work Place	Office/Work Place	Cybercafe	Community Centre	Educational centre	Mobile Phone	Other	
Province												
Nairobi	31.2	3,024,059	35.7	3.1	27.5	27.5	29.9	1.6	15.6	9.5	1.2	942,241
Central	10.0	4,111,046	20.8	1.1	20.2	20.2	23.9	1.1	17.1	4.3	.4	412,525
Coast	5.4	3,293,639	9.4	1.9	9.3	9.3	19.3	.1	7.8	2.4	.2	177,632
Eastern	6.3	4,017,958	6.4	1.1	10.4	10.4	19.6	.0	11.9	.3	2.2	254,141
North Eastern	3.4	1,228,945	.0	.0	6.1	6.1	37.2	.0	14.5	9.2	.0	41,215
Nyanza	7.4	4,629,954	25.1	.3	20.0	20.0	37.3	3.3	17.0	9.8	.0	342,236
Rift Valley	6.0	10,217,921	19.4	1.3	20.0	20.0	32.1	2.3	15.8	2.5	.5	615,871
Western	2.7	4,045,792	7.1	1.0	16.1	16.1	17.5	14.6	9.9	.0	.0	108,052
Place of Residence												
Rural	3.7	24,730,955	16.1	1.1	15.4	15.4	25.0	.9	15.6	3.8	.2	917,465
Urban	20.1	9,838,358	26.3	2.0	23.1	23.1	30.1	2.7	14.7	6.6	1.0	1,976,448
Sex												
Male	9.5	17,082,230	24.4	2.2	24.0	24.0	28.7	2.3	13.3	6.5	.7	1,622,442
Female	7.3	17,487,083	21.4	1.2	16.4	16.4	28.2	1.8	17.1	4.7	.7	1,271,471
Age												
0 - 4 yrs	.7	1,844,771	4.8	.0	.0	.0	.0	14.5	12.8	.0	.0	13,651
5 - 9 yrs	1.8	5,139,627	32.2	.0	.0	.0	1.8	2.2	23.3	.5	.0	90,277
10 - 14 yrs	4.3	5,058,472	30.1	1.1	.0	.0	3.9	3.8	21.6	1.2	.0	216,390
15 - 19 yrs	9.4	3,922,314	14.6	1.3	1.8	1.8	16.2	1.9	36.7	2.7	1.0	368,554
20 - 24 yrs	18.2	3,481,259	14.3	2.1	6.8	6.8	30.7	2.8	23.9	6.3	1.8	634,537
25 - 29 yrs	13.7	2,972,159	23.4	3.1	24.3	24.3	45.0	2.1	11.7	5.0	.6	407,677
30 - 34 yrs	16.5	2,674,732	24.7	2.0	41.5	41.5	41.1	.5	2.3	7.9	.7	441,502
35 - 39 yrs	11.5	2,078,368	33.0	2.9	36.2	36.2	32.8	2.3	2.0	7.4	.0	238,407
40 - 44 yrs	11.4	1,522,959	22.1	.6	40.9	40.9	33.8	2.9	4.3	9.6	.0	173,275
45 - 49 yrs	8.7	1,428,640	35.7	.1	34.5	34.5	23.3	2.1	3.9	7.7	.0	124,353
50 - 54 yrs	8.8	1,158,931	31.3	.0	50.1	50.1	16.9	.5	1.1	7.6	1.1	102,364
55 - 59 yrs	4.7	799,906	39.4	.0	26.4	26.4	13.5	.0	2.2	4.9	.0	37,819
60 - 64 yrs	3.0	731,303	47.7	.0	8.3	8.3	21.6	.0	.0	12.2	.0	21,968
65 - 69 yrs	2.3	491,664	27.8	.0	13.0	13.0	12.3	.0	.0	1.3	.0	11,065
70+ yrs	1.0	1,264,207	13.3	.0	4.1	4.1	.9	.0	5.4	5.4	.0	12,074
Level of Education												
Pre Primary	2.7	1,307,291	14.9	6.0	6.0	6.0	6.0	6.0	22.0	7.3	.0	35,324
Primary	3.8	17,819,366	19.6	1.7	6.5	6.5	10.3	1.5	14.0	1.8	.0	674,725
Secondary	17.1	5,863,398	16.5	1.7	16.8	16.8	31.3	1.9	17.7	4.2	1.6	1,005,225
Higher	63.0	1,718,180	32.4	1.8	34.3	34.3	38.0	2.3	13.0	9.4	.5	1,081,657
None	1.1	7,795,186	7.2	.0	8.4	8.4	28.7	5.4	12.7	3.5	.0	84,625
Non Standard	28.2	42,817	61.5	.0	30.7	30.7	10.7	.0	30.7	30.7	.0	12,054
DK	1.3	23,075	.0	.0	.0	.0	.0	.0	.0	.0	.0	302
Total	8.4	34,569,313	23.1	1.7	20.6	20.6	28.5	2.1	15.0	5.7	.7	2,893,913

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 3.5 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 0.8 per cent for pre-primary, 2.0 for those with primary education, 12.4 per cent of those with secondary education and 59.5 per cent higher education.

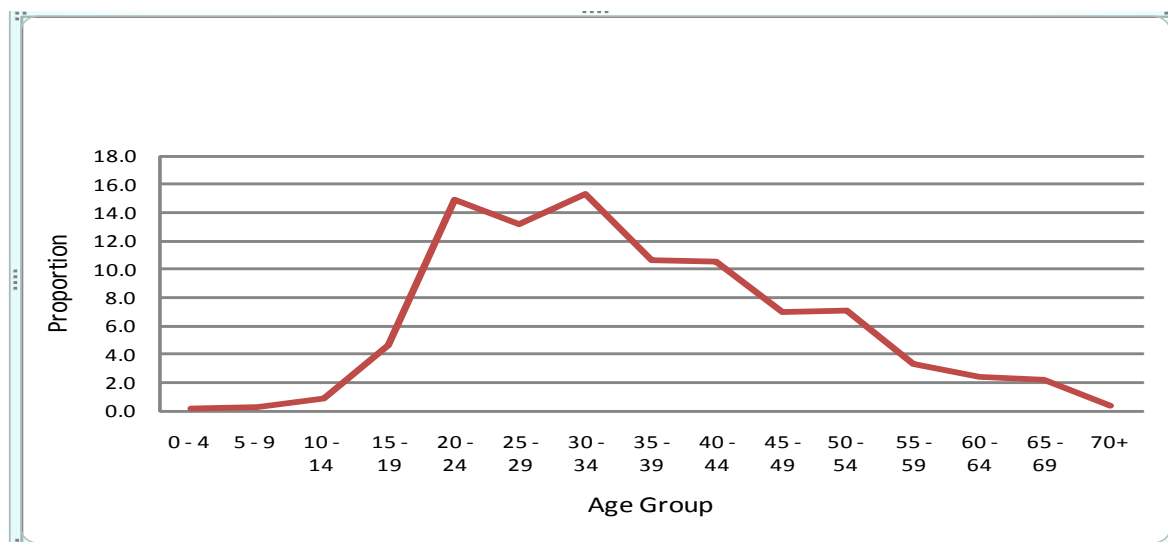
Table 4.4: Percentage Distribution of Population with internet activities in the last 6 months by frequency of use (3+)

	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	.4	.3	3,024,059
Central	6.7	3.4	2.1	.6	.1	.0	.1	4,111,046
Coast	3.5	1.4	1.4	.4	.2	.0	.0	3,293,639
Eastern	4.2	.2	1.7	.6	.5	.5	.4	4,017,958
North Eastern	3.7	1.1	1.3	1.1	.1	.0	.0	1,228,945
Nyanza	5.5	3.6	1.3	.3	.1	.1	.1	4,629,954
Rift Valley	4.8	1.7	1.3	1.4	.0	.0	.2	10,217,921
Western	1.4	.8	.4	.0	.0	.0	.0	4,045,792
Place of Residence								
Rural	2.7	.9	.8	.7	.1	.0	.0	24,730,955
Urban	15.5	8.8	4.1	1.1	.3	.3	.5	9,838,358
Sex								
Male	7.5	3.9	2.0	1.0	.2	.2	.1	17,082,230
Female	5.2	2.4	1.6	.6	.1	.0	.2	17,487,083
Age								
0 - 4 yrs	.2	.1	.2	.0	.0	.0	.0	1,844,771
5 - 9 yrs	.3	.2	.1	.0	.0	.0	.0	5,139,627
10 - 14 yrs	.9	.4	.4	.1	.0	.0	.0	5,058,472
15 - 19 yrs	4.6	1.6	1.8	.3	.2	.3	.3	3,922,314
20 - 24 yrs	14.9	6.6	4.4	2.6	.2	.4	.2	3,481,259
25 - 29 yrs	13.2	6.8	3.9	1.3	.3	.2	.2	2,972,159
30 - 34 yrs	15.4	8.8	2.2	3.6	.3	.0	.0	2,674,732
35 - 39 yrs	10.6	6.1	2.3	.7	.0	.1	1.1	2,078,368
40 - 44 yrs	10.6	5.7	2.7	.5	.1	.5	.7	1,522,959
45 - 49 yrs	7.0	3.9	2.0	.4	.4	.0	.0	1,428,640
50 - 54 yrs	7.1	2.6	3.8	.6	.0	.0	.0	1,158,931
55 - 59 yrs	3.3	2.3	.4	.2	.0	.0	.1	799,906
60 - 64 yrs	2.3	1.0	1.1	.2	.1	.0	.0	731,303
65 - 69 yrs	2.2	.8	1.2	.2	.0	.0	.1	491,664
70+ yrs	.4	.1	.2	.1	.0	.0	.0	1,264,207
Level of Education								
Pre Primary	.8	.4	.4	.0	.0	.0	.0	1,307,291
Primary	2.0	.7	.6	.4	.0	.1	.0	17,819,366
Secondary	12.4	4.6	3.9	2.3	.4	.3	.6	5,863,398
Higher	59.5	38.5	14.1	3.2	.5	.5	1.2	1,718,180
None	.8	.2	.4	.2	.0	.0	.0	7,795,186
Non Standard	28.6	28.6	.0	.0	.0	.0	.0	42,817
DK	1.3	1.3	.0	.0	.0	.0	.0	23,075
Total	6.3	3.2	1.8	.8	.1	.1	.2	34,569,313

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 15.4 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 52.7 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.

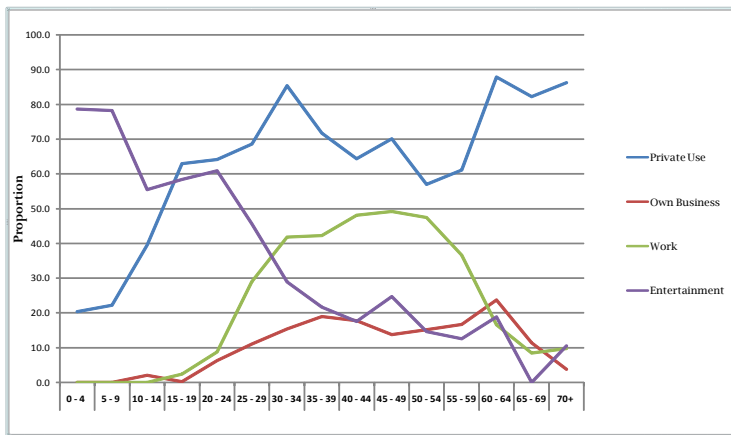
A look at Table 4.5 reveals age is a factor in determining one's main source of internet services. Persons aged 14 years and below appear to have access to internet mainly from their homes while those aged 15 to 39 years reported cybercafés as their preferred place of internet access. Between ages 40 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	Cyber cafe	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	19.7	9.2	13.2	54.8	.0	3.9	26.1	.0	113,971
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
Place of Residence									
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	53.4	.7	12.0	29.8	.5	1,528,292
Sex									
Male	22.4	3.8	31.5	52.3	1.4	11.6	36.7	1.3	1,279,043
Female	26.5	2.3	22.3	53.3	.3	14.7	29.9	.5	907,881
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	57.2	2.0	25.2	46.4	1.4	518,934
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	16.9	21.1	.0	21.1	.0	38.9	34.5	.0	10,133
Primary	21.3	4.0	14.5	38.4	.1	11.8	36.0	.9	352,999
Secondary	16.8	3.2	20.5	60.7	.4	11.7	40.5	1.2	728,612
Higher	30.4	2.8	38.5	51.6	1.7	14.0	29.9	.8	1,022,952
None	14.2	2.0	13.4	59.7	.8	8.4	8.6	.0	59,698
Non Standard	60.6	.0	30.3	84.9	.0	30.3	30.3	.0	12,229
DK	100.0	.0	.0	.0	.0	.0	.0	.0	302
Total	24.1	3.2	27.7	52.7	1.0	12.9	33.9	1.0	2,186,924

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	69.7	11.7	22.4	42.6	4.2	5.9	113,971
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
Place of Residence							
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	1,528,292
Sex							
Male	68.9	12.6	31.2	41.9	3.4	9.9	1,279,043
Female	69.4	9.5	23.0	37.6	3.6	9.7	907,881
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	64.0	6.3	8.7	60.8	3.2	13.0	518,934
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	73.4	21.1	.0	54.4	.0	1.9	10,133
Primary	50.2	9.1	15.2	43.5	.7	7.9	352,999
Secondary	72.8	14.2	17.5	40.1	2.6	8.2	728,612
Higher	73.7	9.9	40.9	39.3	5.1	11.2	1,022,952
None	66.9	6.7	11.2	24.6	3.8	8.7	59,698
Non Standard	10.6	30.3	15.1	71.1	.0	59.1	12,229
DK	100.0	100.0	100.0	100.0	100.0	.0	302
Total	69.1	11.3	27.8	40.1	3.5	9.8	2,186,924

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+)

	Communicating	Information about goods and services	Information from Government organization	Reading/downloading materials	Playing Computer games	Watching movies/TV	Information related to health/health services	Purchasing or ordering goods and services	Internet banking	Research	Total
Province											
Nairobi	65.5	16.4	13.3	12.9	10.1	9.3	5.5	6.8	4.3	29.6	781,911
Central	63.9	19.6	11.2	25.5	24.3	12.4	8.8	8.9	2.3	24.7	274,776
Coast	59.2	11.0	6.9	5.0	9.1	5.8	5.2	.8	2.9	27.3	113,971
Eastern	42.3	8.6	5.3	5.4	16.9	12.4	2.2	3.8	.0	11.5	167,109
North Eastern	59.9	7.4	15.5	23.2	24.8	21.5	1.6	.0	.0	9.9	45,498
Nyanza	53.8	2.7	25.0	16.4	8.6	13.8	8.7	.0	.6	21.5	255,621
Rift Valley	50.3	6.9	4.7	6.7	14.6	5.2	2.4	.7	.0	10.2	491,733
Western	48.7	21.6	15.8	15.1	9.7	9.2	9.3	13.9	.0	24.4	56,305
Place of Residence											
Rural	50.6	6.8	10.0	12.4	17.0	8.4	4.1	.9	.9	17.6	658,632
Urban	61.0	14.4	12.4	13.0	12.0	10.1	5.9	5.9	2.6	23.3	1,528,292
Sex											
Male	58.1	13.4	12.5	14.3	16.8	11.1	4.1	4.8	2.2	23.2	1,279,043
Female	57.6	10.3	10.4	10.7	8.9	7.4	7.1	3.8	1.8	19.4	907,881
Age											
0 - 4 yrs	20.4	.0	.0	.0	58.3	.0	.0	.0	.0	.0	3,180
5 - 9 yrs	27.1	.0	.0	.0	28.0	1.4	.0	.0	.0	.0	13,327
10 - 14 yrs	27.3	.0	.0	5.8	41.3	18.6	.0	.0	.0	2.7	43,038
15 - 19 yrs	46.4	1.0	1.7	13.3	22.6	12.7	2.1	1.5	.5	22.2	181,666
20 - 24 yrs	48.4	6.2	4.3	15.5	24.9	17.5	3.5	.5	.5	23.4	518,934
25 - 29 yrs	57.6	13.3	13.0	12.5	12.0	9.0	6.1	6.8	2.4	23.6	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	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	221,060
40 - 44 yrs	64.4	36.8	27.2	13.1	.6	4.0	11.5	11.5	4.1	26.1	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	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	82,131
55 - 59 yrs	46.0	33.3	13.7	.5	.0	.0	1.7	3.6	9.5	13.7	26,543
60 - 64 yrs	44.9	3.7	3.4	16.1	1.8	.0	3.2	6.5	.8	30.1	17,126
65 - 69 yrs	50.5	8.1	1.3	15.2	.0	.0	.0	1.3	18.6	6.8	10,764
70+ yrs	97.8	3.8	11.4	7.6	.0	.0	3.8	.0	7.6	16.0	4,830

Level of Education											
Pre Primary	22.9	.0	.0	1.9	57.2	21.1	.0	.0	.0	21.1	10,133
Primary	42.2	7.6	6.8	8.7	24.3	7.7	3.0	1.9	1.2	15.0	352,999
Secondary	65.2	12.6	8.2	13.8	16.1	10.2	2.7	7.2	.8	16.4	728,612
Higher	58.9	14.1	15.8	13.6	7.9	10.0	8.5	3.7	3.2	28.4	1,022,952
None	50.5	4.3	13.4	9.7	8.4	3.4	.2	.0	3.3	8.9	59,698
Non Standard	56.0	.0	15.1	30.3	.0	15.1	.0	.0	.0	15.1	12,229
DK	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	302
Total	57.9	12.1	11.6	12.8	13.5	9.6	5.4	4.4	2.1	21.6	2,186,924

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 54.9 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 spend and length of mobile in the last seven days (3+)

	Use of Mobile Phone in last 12 months	Number of Times	length of use (Mins)	Cost (Kshs.)	Total
Province					
Nairobi	73.0	33.6	109.4	366.9	3,024,059
Central	65.8	22.5	29.9	213.3	4,111,046
Coast	40.5	28.6	59.7	274.3	3,293,639
Eastern	62.4	13.9	35.2	123.3	4,017,958
North Eastern	30.7	22.3	68.2	334.6	1,228,945
Nyanza	50.3	22.6	52.8	267.8	4,629,954
Rift Valley	49.4	17.0	55.6	180.0	10,217,921
Western	40.7	14.5	38.0	187.9	4,045,792
Place of Residence					
Rural	46.7	15.3	33.7	152.6	24,730,955
Urban	67.1	30.3	87.6	336.6	9,838,358
Sex					
Male	53.6	24.5	67.1	272.3	17,082,230
Female	51.4	17.5	42.0	173.8	17,487,083
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	5,139,627
10 - 14 yrs	24.4	2.2	5.4	13.8	5,058,472
15 - 19 yrs	44.3	9.5	20.0	77.5	3,922,314
20 - 24 yrs	75.7	20.5	51.3	172.3	3,481,259
25 - 29 yrs	80.5	25.7	55.1	255.0	2,972,159
30 - 34 yrs	83.5	30.1	65.7	330.9	2,674,732
35 - 39 yrs	83.1	26.3	67.0	298.4	2,078,368
40 - 44 yrs	80.9	28.1	63.8	313.2	1,522,959
45 - 49 yrs	82.9	26.5	68.9	296.4	1,428,640
50 - 54 yrs	78.0	27.3	76.5	305.0	1,158,931
55 - 59 yrs	77.0	22.6	72.0	247.9	799,906
60 - 64 yrs	67.6	21.7	65.9	260.1	731,303
65 - 69 yrs	64.6	15.1	47.4	192.2	491,664
70+ yrs	45.2	10.2	28.1	157.0	1,264,207
Level of Education					
Pre Primary	18.6	8.2	16.3	73.9	1,307,291
Primary	51.7	16.1	38.8	173.7	17,819,366
Secondary	78.1	25.7	59.4	249.0	5,863,398
Higher	95.8	47.9	124.9	554.9	1,718,180
None	31.2	11.3	60.3	123.1	7,795,186
Non Standard	73.9	101.2	13.7	147.4	42,817
DK	47.5	11.7	22.8	146.7	23,075
Total	52.5	21.0	54.9	223.7	34,569,313

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 33.0 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 stood at 35.7 and 30.1 per cent for males and females respectively.

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	2.4	4,111,046
Coast	19.3	8.3	27.9	.9	.9	3,293,639
Eastern	21.8	7.4	31.4	.3	.6	4,017,958
North Eastern	14.9	2.5	19.3	.2	2.2	1,228,945
Nyanza	21.3	7.1	26.4	1.5	2.0	4,629,954
Rift Valley	23.5	10.6	31.2	1.5	2.2	10,217,921
Western	20.0	6.2	24.5	.4	.4	4,045,792
Place of Residence						
Rural	20.9	6.1	25.8	.7	1.2	24,730,955
Urban	29.5	22.0	51.0	4.6	5.4	9,838,358
Sex						
Male	33.9	15.2	35.7	2.4	3.2	17,082,230
Female	13.1	6.1	30.2	1.2	1.6	17,487,083
Age						
0 - 4 yrs	2.2	1.0	.6	.3	.2	1,844,771
5 - 9 yrs	1.8	.7	.8	.2	.1	5,139,627
10 - 14 yrs	1.9	.5	2.2	.1	.2	5,058,472
15 - 19 yrs	6.9	2.2	13.8	.4	.9	3,922,314
20 - 24 yrs	18.9	7.8	52.0	2.5	5.5	3,481,259
25 - 29 yrs	32.0	16.0	63.1	2.5	5.1	2,972,159
30 - 34 yrs	46.3	26.6	67.8	4.8	6.6	2,674,732
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	1,522,959
45 - 49 yrs	50.8	25.6	65.2	4.0	3.6	1,428,640
50 - 54 yrs	58.2	27.0	57.6	4.1	3.3	1,158,931
55 - 59 yrs	52.5	21.7	57.2	2.5	2.0	799,906
60 - 64 yrs	51.8	17.6	44.3	2.0	1.5	731,303
65 - 69 yrs	52.2	15.9	41.7	1.8	1.4	491,664
70+ yrs	41.1	12.2	22.7	.8	.5	1,264,207
Level of Education						
Pre Primary	6.1	4.0	4.3	1.2	.6	1,307,291
Primary	22.1	8.1	29.1	.5	.8	17,819,366
Secondary	35.1	20.4	60.5	2.3	4.5	5,863,398
Higher	51.6	42.2	89.3	20.4	22.9	1,718,180
None	14.0	3.1	13.4	.2	.2	7,795,186
Non Standard	41.6	25.3	51.6	15.6	21.2	42,817
DK	55.9	10.2	52.1	2.3	1.3	23,075
Total	23.4	10.6	33.0	1.8	2.4	34,569,313

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 spend 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
Place of Residence							
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	549,417
Female	3.5	.7	.3	.2	.0	763.0	288,229
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	2.3	.0	.0	.0	.0	480.2	8,294
Primary	1.8	2.5	.0	.4	.0	1,000.3	147,343
Secondary	1.4	2.4	.3	.0	.0	499.5	266,431
Higher	8.1	.4	.0	.0	.0	1,159.3	392,976
None	9.1	.0	.0	.0	.0	2,313.8	13,213
Non Standard	.0	.0	.0	.0	.0	1,000.0	9,086
DK	.0	.0	.0	.0	.0	1,000.0	302
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	4,111,046	85.8	9.7	1.2	1.1	2.2	771,980
Coast	5.8	3,293,639	48.6	29.4	4.8	2.5	14.8	191,059
Eastern	2.1	4,017,958	36.1	31.4	.4	1.0	31.0	86,021
North Eastern	7.7	1,228,945	45.5	42.0	2.0	.0	10.5	94,115
Nyanza	9.2	4,629,954	68.5	21.2	2.3	2.7	5.2	428,066
Rift Valley	5.0	10,217,921	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
Place of Residence								
Rural	6.0	24,730,955	69.2	18.5	2.9	1.2	8.3	1,493,246
Urban	16.0	9,838,358	58.7	28.6	3.8	2.0	6.9	1,571,347
Sex								
Male	9.0	17,082,230	59.2	27.7	4.8	1.9	6.5	1,542,620
Female	8.7	17,487,083	68.5	19.7	1.8	1.3	8.7	1,521,973
Age								
0 - 4 yrs	4.5	1,844,771	75.2	.8	.0	.0	24.0	83,902
5 - 9 yrs	5.7	5,139,627	82.5	4.5	.0	.0	12.9	292,765
10 - 14 yrs	4.9	5,058,472	91.3	4.7	.3	.0	3.6	247,530
15 - 19 yrs	7.0	3,922,314	77.5	13.1	.6	.3	8.6	274,831
20 - 24 yrs	10.1	3,481,259	54.0	30.7	3.1	.8	11.4	353,324
25 - 29 yrs	10.1	2,972,159	62.7	24.8	2.5	1.3	8.6	299,516
30 - 34 yrs	11.8	2,674,732	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	1,522,959	57.9	33.0	4.1	2.3	2.7	182,628
45 - 49 yrs	14.4	1,428,640	47.2	33.8	4.7	2.8	11.5	205,535
50 - 54 yrs	13.9	1,158,931	58.3	32.8	3.8	3.4	1.7	161,644
55 - 59 yrs	11.6	799,906	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	491,664	55.1	35.0	2.4	3.8	3.7	66,939
70+ yrs	8.9	1,264,207	79.6	11.1	1.4	.4	7.5	111,992
Level of Education								
Pre Primary	7.2	1,307,291	82.2	.0	.0	.0	17.8	94,120
Primary	7.1	17,819,366	74.5	17.5	1.5	.7	5.8	1,263,032
Secondary	13.6	5,863,398	59.1	28.1	5.8	1.5	5.5	796,438
Higher	33.0	1,718,180	43.1	42.1	5.7	4.9	4.2	566,679
None	4.3	7,795,186	64.3	12.5	1.2	.1	21.8	335,703
Non Standard	8.7	42,817	69.5	.0	.0	.0	30.5	3,731
DK	21.2	23,075	89.3	10.7	.0	.0	.0	4,888
Total	8.9	34,569,313	63.8	23.7	3.3	1.6	7.6	3,064,593

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	4,111,046
Coast	2.4	.7	.4	3,293,639
Eastern	3.6	3.2	.2	4,017,958
North Eastern	3.3	1.4	.1	1,228,945
Nyanza	3.3	2.8	.3	4,629,954
Rift Valley	1.2	1.7	.4	10,217,921
Western	1.8	.5	.1	4,045,792
Place of Residence				
Rural	1.7	1.3	.2	24,730,955
Urban	4.6	3.4	.7	9,838,358
Sex				
Male	3.0	2.4	.5	17,082,230
Female	2.0	1.3	.2	17,487,083
Age				
0 - 4 yrs	.0	.0	.0	1,844,771
5 - 9 yrs	.1	.1	.0	5,139,627
10 - 14 yrs	.5	.3	.0	5,058,472
15 - 19 yrs	1.5	1.4	.1	3,922,314
20 - 24 yrs	4.2	3.4	.5	3,481,259
25 - 29 yrs	3.3	2.3	.4	2,972,159
30 - 34 yrs	4.1	3.4	1.5	2,674,732
35 - 39 yrs	5.7	4.2	.8	2,078,368
40 - 44 yrs	4.6	4.1	.3	1,522,959
45 - 49 yrs	5.5	2.9	.6	1,428,640
50 - 54 yrs	5.6	4.0	.7	1,158,931
55 - 59 yrs	3.8	2.1	.6	799,906
60 - 64 yrs	2.4	2.6	1.1	731,303
65 - 69 yrs	5.7	2.4	.4	491,664
70+ yrs	1.6	1.2	.3	1,264,207
Level of Education				
Pre Primary	.1	.6	.1	1,307,291
Primary	1.7	1.3	.1	17,819,366
Secondary	4.7	3.4	.6	5,863,398
Higher	13.3	9.1	3.8	1,718,180
None	.7	.8	.1	7,795,186
Non Standard	1.8	2.4	.0	42,817
DK	1.3	.0	.0	23,075
Total	2.5	1.9	.4	34,569,313

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 43.6 per cent of persons with higher education having received the highest number of letters followed by those with secondary education with a proportion of 15.3 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	80.7	8.0	2.1	1.9	7.2	4,111,046
Coast	54.3	4.8	1.0	.8	39.1	3,293,639
Eastern	82.8	7.2	.6	.2	9.3	4,017,958
North Eastern	84.7	5.1	.4	.4	9.4	1,228,945
Nyanza	79.4	8.2	.8	.4	11.2	4,629,954
Rift Valley	74.3	4.9	1.5	.5	18.8	10,217,921
Western	89.4	4.3	.6	.1	5.7	4,045,792
Place of Residence						
Rural	80.6	4.7	.9	.4	13.5	24,730,955
Urban	67.8	10.7	2.4	1.9	17.2	9,838,358
Sex						
Male	76.0	7.7	1.6	.8	13.9	17,082,230
Female	77.9	5.2	1.0	.7	15.2	17,487,083
Age						
0 - 4 yrs	76.7	.1	.0	.0	23.2	1,844,771
5 - 9 yrs	79.8	.4	.0	.0	19.9	5,139,627
10 - 14 yrs	82.2	1.2	.0	.0	16.5	5,058,472
15 - 19 yrs	81.4	4.1	.1	.2	14.2	3,922,314
20 - 24 yrs	75.9	9.9	.8	.5	13.0	3,481,259
25 - 29 yrs	77.5	8.0	1.4	.7	12.3	2,972,159
30 - 34 yrs	73.8	10.3	2.5	1.8	11.5	2,674,732
35 - 39 yrs	70.6	12.5	2.4	2.0	12.5	2,078,368
40 - 44 yrs	70.9	13.9	2.9	2.0	10.3	1,522,959
45 - 49 yrs	64.8	13.6	8.3	1.6	11.7	1,428,640
50 - 54 yrs	71.2	12.9	2.6	3.2	10.1	1,158,931
55 - 59 yrs	75.8	11.9	3.2	1.1	8.1	799,906
60 - 64 yrs	76.3	9.1	3.4	1.1	10.1	731,303
65 - 69 yrs	73.0	13.2	1.2	3.5	9.1	491,664
70+ yrs	78.8	6.2	1.1	.7	13.2	1,264,207
Level of Education						
Pre Primary	76.3	1.1	.2	.0	22.4	1,307,291
Primary	79.6	4.5	1.0	.5	14.4	17,819,366
Secondary	70.8	11.7	2.3	1.3	13.9	5,863,398
Higher	47.1	31.0	7.0	5.6	9.3	1,718,180
None	82.4	2.2	.2	.1	15.1	7,795,186
Non Standard	41.7	9.8	10.4	.0	38.1	42,817
DK	72.5	6.7	.0	.0	20.8	23,075
Total	76.9	6.4	1.3	.8	14.5	34,569,313

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						Total
	Health	Education	Entertainment	Transportation	Communication	Other services	
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
Place of Residence							
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							
Male	79.5	67.5	29.6	77.6	75.7	8.0	6,268,960
female	77.6	59.2	24.4	69.8	64.5	5.3	2,312,118
NS	88.5	44.6	16.7	94.5	89.0	6.4	263,426
Age							
15 - 19 yrs	60.2	48.8	44.3	75.9	57.0	14.4	47,590
20 - 24 yrs	63.6	29.5	38.3	76.8	80.1	3.3	417,652
25 - 29 yrs	74.8	42.8	35.2	75.1	79.2	5.3	853,270
30 - 34 yrs	83.8	70.1	33.2	81.3	79.4	7.2	1,275,144
35 - 39 yrs	80.2	79.8	27.3	76.3	73.0	6.7	1,083,849
40 - 44 yrs	81.7	76.9	30.6	76.4	76.5	10.4	916,681
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	83.5	68.2	26.0	88.5	78.2	1.6	42,385
Primary	77.7	66.4	24.4	73.6	74.7	5.8	3,889,986
Secondary	80.0	66.8	36.8	83.8	82.1	12.0	1,978,136
Higher	81.5	69.0	61.4	90.5	86.3	11.4	791,486
None	79.5	59.8	12.6	64.1	52.5	3.5	1,853,483
Non Standard	92.9	42.7	71.5	60.9	82.3	15.2	12,156
DK	54.5	75.5	21.5	56.0	59.5	13.8	13,446
NS	88.5	44.6	16.7	94.5	89.0	6.4	263,426
Total	79.3	64.7	27.8	76.0	73.2	7.2	8,844,504

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 64.5 per cent. Analysis by age group reveals that the consumption is more widespread in the 20-24 age bracket at 80.1 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 27.8 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 8.8 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
Place of Residence							
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							
Male	3.5	6.6	3.2	7.6	9.1	1.0	6,268,960
female	3.3	5.9	2.6	6.7	7.9	.6	2,312,118
NS	4.6	7.0	3.3	7.6	10.8	1.0	263,426
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	4.2	7.2	9.5	.6	417,652
25 - 29 yrs	2.9	4.7	3.8	8.6	9.6	.4	853,270
30 - 34 yrs	3.8	6.7	3.8	8.1	9.9	.9	1,275,144
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	916,681
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	3.8	6.8	3.6	8.5	9.7	.5	42,385
Primary	3.3	6.4	2.5	7.1	8.9	.7	3,889,986
Secondary	3.5	6.5	3.5	7.9	9.5	1.4	1,978,136
Higher	4.2	6.8	6.7	10.0	10.3	1.9	791,486
None	3.6	6.0	1.7	6.1	6.8	.3	1,853,483
Non Standard	2.6	5.6	7.1	7.7	9.5	2.3	12,156
DK	2.6	7.8	3.5	6.6	7.7	.2	13,446
NS	4.6	7.0	3.3	7.6	10.8	1.0	263,426
Total	3.5	6.4	3.0	7.4	8.8	.9	8,844,504

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 1,568.5 per household in 12 months. The highest average household expenditure on communication was reported in Nyanza (KSh 1,160.6) 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						Total
	Health	Education	Entertainment	Transportation	Communication	Other services	
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
Place of Residence							
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							
Male	1,627.7	863.1	1,459.8	1,193.3	1,207.6	225.0	6,268,960
female	1,543.0	161.9	495.8	828.8	865.0	94.3	2,312,118
NS	459.2	141.9	804.6	1,719.3	972.2	15.2	263,426
Age							
15 - 19 yrs	350.7	.0	221.1	365.2	504.0	112.1	47,590
20 - 24 yrs	1,219.4	9,081.8	3,458.9	1,016.5	653.5	38.3	417,652
25 - 29 yrs	1,062.2	41.7	1,782.0	808.7	794.6	89.1	853,270
30 - 34 yrs	2,185.0	80.7	1,606.2	1,299.1	1,554.3	159.2	1,275,144
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	342.6	770.3	1,434.1	1,484.3	300.7	916,681
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	1,011.1	233.0	133.6	682.1	719.9	3.4	42,385
Primary	985.8	187.0	544.5	769.1	918.8	82.7	3,889,986
Secondary	1,099.4	313.9	1,788.5	1,345.9	1,460.9	290.4	1,978,136
Higher	6,893.0	5,900.6	5,397.2	3,323.5	2,520.1	1,001.6	791,486
None	1,249.2	99.5	294.7	539.9	479.9	50.5	1,853,483
Non Standard	2,218.6	2,768.5	2,294.2	976.8	498.9	.0	12,156
DK	559.5	.0	438.9	555.4	271.5	29.9	13,446
NS	459.2	141.9	804.6	1,719.3	972.2	15.2	263,426
Total	1,568.5	661.0	1,194.2	1,117.4	1,115.8	187.0	8,844,504

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.