

THE UNITED REPUBLIC OF TANZANIA

TANZANIA COMMUNICATIONS REGULATORY AUTHORITY



Report on

INTERNET AND DATA SERVICES IN TANZANIA

A Supply-Side Survey

Conducted by:

TCRA

September 2010

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(i) EXECUTIVE SUMMARY

This survey was carried out between April and June 2010 by enumerating all Application Services Licensees (ASLs) in United Republic of Tanzania. The main objective of the survey was to make the Authority and other stakeholders know the development and performance in terms of penetration and usage of internet services in Tanzania.

To achieve this objective, a census of all ASLs was carried and consequently a number of processes including descriptive analysis, estimation and extrapolation of internet users at least to have a background data from 2005 to June 2010 were conducted.

The results of the survey have shown that by June 2010, only 46 (67%) out of 68 ASLs were found operating, 20 of them (30%) were not traced and 2 (3%) were not operational. Out of 46 operational Licensees, only 38 (83%) of them provide internet services, the rest provide other services like voice, network design, data (SMS and MMS), website hosting and website designing. Majority (82%) of those who provide internet services do so through fixed wireless.¹

It was further found that, a total available internet and data capacity in Tanzania is 3,459Mbps out of which 1,475 Mbps (43%) is from satellite and 1,984 Mbps (57%) is from fibre optic.² Of the total available capacity, only 2,239 Mbps (65%) is used as at June 2010, 49% from fibre optic and 51% from satellite.

¹ See table 2, page 13

² See table3, page 14

Lastly, the number of internet users was estimated to be 4.8 millions by June 2010, out of which only 5% use internet services from cyber cafes, 55% from organizations/Institutions and 40% from households³. In terms of penetration only 11% of Tanzanians were accessing and using internet services.

Due to these findings, it is recommended that Authority should consider conducting an annually enforcement exercise so that to discover those Licensees with scarce resources who have failed to be operational and re-allocate the same to the new applicants. The Authority is also advised to consider conducting a demand side survey on internet access and usage. That kind of survey will give a more reliable estimate of internet usage in terms of geographical coverage, gender, income level and many others. In that regard, the Authority should collaborate with National Bureau of Statistics (NBS) to advise and engage the government to include ICT Access and Usage Survey as one of the National Surveys to be conducted periodically like HBS, NLFS and HDS.

It is further recommended that, by this time when the Authority is reviewing all regulations in accordance to EPOCA, should also consider to develop new regulations for internet tariffs.

Lastly, since TCRA is responsible for ICT development, should therefore deliberately consider promoting internet usage by providing technical support and financial assistance in the establishment of sustainable Community Telecentres, Public Internet Access Centres (PIAC), Internet centres in secondary schools etc. It is recommended that TCRA should develop internet

³ See figure 3, page 18

provision guidelines and exercise its power to monitor and enforce Quality of Services (QoS) so that ISPs provide valid, reliable and value-for-money services. TCRA should on the other hand provide support and advise ISP to use media, workshops and seminars to promote internet services especially in semi-urban and rural areas.⁴

⁴ Read detailed recommendation on page 25

1.0 INTRODUCTION

The Internet industry in Tanzania is believed to have experienced an exponential growth in recently years. The industry has expanded and changed rapidly since the introduction of Converged Licensing Framework (CLF) in 2005 that took advantages of advances in technology, number and types of services provided in the market and growth of Internet usage.

According to the CLF adopted by Tanzania, Internet services are now provided by Application Service licensees (ASLs). These Licensees are found almost in all places in Tanzania especially in major towns like Dar es Salaam, Arusha, Mwanza, Dodoma, Mbeya, Tanga and Zanzibar.

A recent survey conducted by Tanzania's Business Times, shows that thousands of people flock into internet cafes everyday to surf the internet and read their e-mails. Increasingly, many people in major towns are communicating through the internet. As a result of the growing demand for these services, Internet cafes have been mushrooming all over the country. Today, there are more than 300 cafes in Dar Es Salaam alone and Zanzibar has at least twenty (Shoki, 2010).

The bulk of customers in most cafes are young people, business people, office workers, students and academics. E-mail services are the most popular at internet cafes, followed by general website surfing. In addition, a reasonable number of people also go to the Internet Cafes to make cheap international telephone calls using Voice Over the Internet (VoIP) while others, which are very small group, go to the cafes for e-business transactions such as ordering cars, spares, books and building materials (Shoki, 2010)

The Internet development is critical to development of the ICT sector and to

national socio-economic development. Studies have shown that a 1-percentage point increase in the number of Internet users boosts total exports by 4.3 percentage points. It also increases exports from low-income countries to high income countries by 3.8 percentage points (Internet World Stat, 2010).

However, there is a general lack of information on the Internet service penetration, its impacts and factors that influence its development and diffusion. While most developed countries have regular Internet user surveys, in developing countries estimating number of Internet users is usually a matter of guesswork.

Tanzania Communications Regulatory Authority (TCRA) is responsible for regulating the communication sector including internet and data services. In order to carry out its tasks and duties effectively, it needs a good understanding of the developments and performance of the Internet and Data services provision in the country. The Authority is therefore required to carry out systematic studies on communication sector and inform stakeholders on the state of the development taking place in the communication sector in the country. One of the most frequently asked question is *“What is Internet Subscriber base in Tanzania”* and there were no study or survey done to answer that question. It is on this regard therefore, TCRA has conducted a supply-side-survey on development and performance in terms of penetration and usage of internet services in Tanzania.

This survey was aimed at getting baseline information that will be useful for Authority to monitor and regulate the industry by analyzing the market, assessing

the industry performance, operating characteristics and trends. Further more, the information can be used by policy makers, researchers, existing suppliers, new investors and other stakeholders interested in the Internet market. It is the intention of TCRA to update this information on a regular basis.

This study will however create a database based on the supply-side only. For a meaningful and comprehensive database, this study needs to be followed up by the demand side study.

2.0 OBJECTIVES AND METHODOLOGY

2.1 OBJECTIVES

The main objective of the survey was to make the Authority and other stakeholders to know the development and performance of internet industry in terms of penetration and usage of internet services in Tanzania. More specifically the survey aimed at

- 2.1.1 Establishing a baseline information on Internet and data services in Tanzania
- 2.1.2 Providing estimates of Internet and Data Services users in Tanzania
- 2.1.3 Understanding the performance of Internet and data transmission in terms of penetration

2.2 METHODOLOGY

2.2.1 Scope of the study

The study was aimed to cover all Application Services Licensees in Tanzania. The study was therefore designed to cover all licensees from Tanzania mainland and Tanzania Island, the distribution of which is shown in **Appendix 2**. A census of all ASLs was ideal and it was then conducted to all members.

The subject matter of study was aimed to explore type of internet services provided, bandwidth capacity, subscriber base, tariffs and employment. However, due to some limitations of data collected, tariffs and employment data are not suitable for analysis and therefore are excluded in this report.

2.2.2 Data Collection

Due to the limitation of resources, especially transport, time and human, the enumeration was undertaken in two rounds. The first round of enumeration took place in Dar es Salaam where most of the ASLs are located and the second round was then conducted concurrently in all zones.

A self administered interview method preceded by questionnaire orientation, was used to collect the data from the ASLs. This method enables whoever is filling up the questionnaire to have an ample time to find all information needed.

However, a face -to -face interview was also opted for those firms with information at hand and ready to provide that information at that time of visit.

2.2.3 Estimation method

The estimates of Internet users in this survey are based on types of subscriptions. Three type of subscriptions are considered here namely; Internet Cafes, Organizations/Institutions and Household/Individuals. In order to arrive to valid and reliable estimates, the following definitions and assumptions are adopted.

Estimate for Internet cafe or cyber café

This is a place where people can be connected to the Internet using publicly accessible computer. The main services in the cyber café which customers go for, are emails, newsgroup, web site surfing. The number of these visitors/customers of internet services in cyber cafes is unpredictable and varies from place to place.

Some cyber cafes were randomly visited in Dar es Salaam, Mwanza, Moshi, Zanzibar and Dodoma to have a picture of the number of customers who use the internet services. The evidence gathered from the visited cyber cafes shows that, on average about 360 different customers do visit the cyber cafes annually for internet services. This annual average provides an estimate of annual users of internet services in any cyber café in Tanzania as:

$$Users_{Cafe} = 360Subscribers(Cafes) \quad (1)$$

Estimates for Organization/Institutions

Organization/Institutions in this survey include all commercial or business organization, government, academic Institutions, Health institutions, Civil society organizations, NGOs, religious organizations etc. It is assumed that the average number of persons who can access and use internet in any one of these organizations/Institutions is 800.

Though the number of internet users in academic institutions like University of Dar es Salaam and others can go to over 10,000 but this is pooled down to an average of 800 by other institutions and organizations with a considerable fewer number of users.

With this assumption, the overall estimate of internet users in all organizations/institution which are connected to internet in Tanzania is given by;

$$Users_{org/inst} = 800Subscribers(Org / Inst) \quad (2)$$

Estimates for Household/Individuals

Household/individual is anyone who subscribe to an Internet Service Provider

for a household or individual use. The main assumption is that, the average number of users in a household is directly related to a household size. The average household size in Tanzania is 4 persons. Therefore 4 is taken as a factor to estimate the number of internet users as follows;

$$Users_{HH} = 4Subscribers(HH) \quad (3)$$

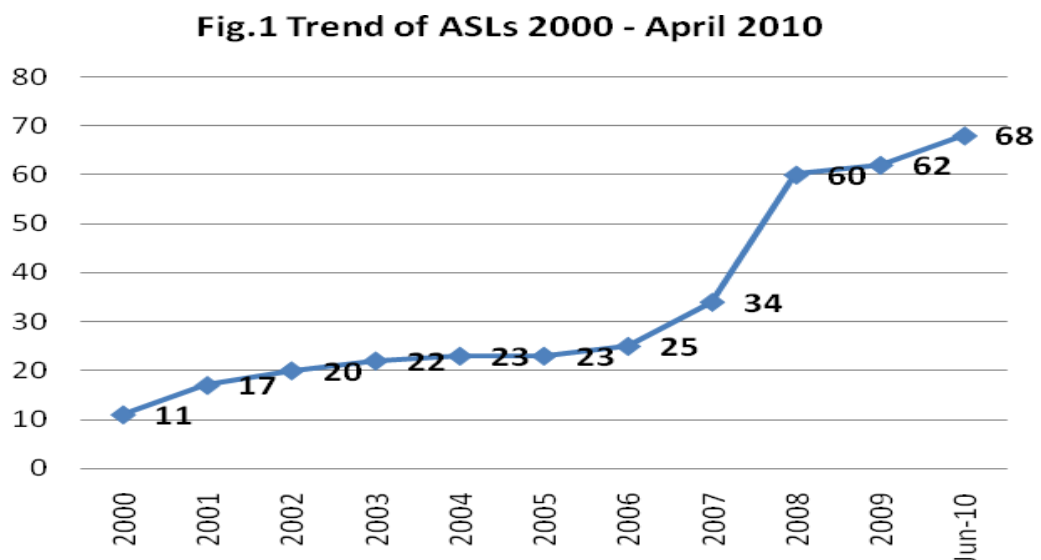
The sum of equation 1, 2 and 3 was then used to give the estimates of internet users by subscriptions type i.e. Internet cafes, Organizations/Institutions and Households/Individuals. The overall estimation of internet users is therefore given as;

$$Users_{Internet} = User_{Cafe} + Users_{Org / Inst} + Users_{HH} \quad (4)$$

3.0 SURVEY FINDINGS

3.1 Operators with Application Service License and their Status

After Converged License Framework regime was implemented in 2005, the number of Application Services Licensees has been increasing at an average of at least nine licensees in a year. Before the regime, the number was only two licensees per year. Figure1 below shows the trend as from 2000 to April 2010.



In 2000 there were only 11 Licensees, slowly with an average of two licensees per year, the number reached 23 in 2005. After the converged license framework was issued in 2005, the number shot from 23 to 68 Licensees in June 2010. It is obvious that the framework opens the door for more investors to invest in ICT application services as compared to the years before it.

The summary of status of ASLs is show in table1 below.

Table1. Summary of Status of ASLs

STATUS	No.	Percentage
Licensed Operators	68	
Operational up to June 2010	46	67%
Non operational to June 2010	2	3%
Not Traced	20	30%

Although the number of ASLs has increased to 68, only 46 (68%) licensee were found operating and 2 of them (3%) were not operational. It was not possible to trace the other 21 licensees to their physical address as given in their licenses.

The two Licensees who failed to operate are Babati Municipal in Manyara region and Jodeka Enterprises Ltd of Handeni- Tanga. They both claim of failing to compete in the market with the big operators like TTCL and other mobile internet access operators.

It was found that majority of ASLs are providing Internet Services (38 operators) compared to Public Data Services (20 operators) and other services such as voice (8 operators). Detailed information of the services provided is found in *appendix 1*.

3.2 Internet and Data Services

Majority of operators were found providing at least one type of service as summarized in table-2 below and detailed information is found in appendix 1.

Moreover, a good number of added services such as training, web designing and web updating are also provided.

Table2. Internet and Data Services Provided	
Internet Services by Access	Number of Operators
Cable Modem Internet Access	2
Fixed Wireless Internet Access	31
Mobile Wireless Internet Access	10
Satellite (VSAT) Internet Access	15
Other Broadband Internet Access	8
Data and other services	
VoIP	13
Website Design Services	20
Website hosting Services	23
E-mail Account Services	31
SMS/MMS	14
Data Transmission (Bandwidth services)	15
Provide Network Design Services	14

Among the internet services access type, Fixed Wireless is the most popular as it is provided by many operators (31) than any type of internet access. This is far followed by Satellite (VSAT) Services (15 operators) and Mobile Wireless Services (10 operators). Cable Modem Internet Access is the least (only 2 operators) provided services, signifying that the cable modem is becoming unpopular compared to other internet access services.

Apart from internet; there other services like data transmission (bandwidth services), VoIP, SMS/MMS and many others as shown in table2 above. Among them, Email account services is provided by many (31) operators as to compared to other services like web hosting services (23 operators) and web design services (20 operators).

3.3 Bandwidth Capacity.

As it shown in table 3 below, Tanzania has a total of 3,459 Mbps capacity of which 1,475 Mbps (43%) and 1984 Mbps (57%) are for satellite and fibre optic respectively. Out of these, 2,239 Mbps (65%) are in use as at June 2010.

Table3. Bandwidth Capacity

Type	Available Capacity (Mbps)	Used Capacity (Mbps)	Percentage
Satellite Down Link	777	707	91%
Satellite Up Link	698	560	80%
Fibre (Duplex)	1,984	972	49%
Total Capacity	3,459	2,239	65%

It is further revealed that Tanzania has much capacity of fibre optic bandwidth (1,984 Mbps) compared to 1,475 Mbps of satellite. However, fibre capacity is under utilized as only 65% of its bandwidth is utilized as compared to 91% of satellite capacity for downlink and 80% for uplink.

3.4 Internet Services Subscribers

The internet subscriptions in Tanzania are increasing over time. While there were a total of 251,838 subscribers in 2008, one and a half year later the number doubled. The records in June 2010 summarized in table 4 below show that there were total of 487,256 subscribers. This is an average growth

rate of 40% per annum.

Table4: Internet Subscribers			
(a) Internet Subscribers by subscription type			
	2008	2009	Apr-10
Internet Cafes	350	599	723
Organizations/Institutions	3,055	3,235	3,329
Household/Individuals	248,433	393,688	483,204
TOTAL	251,838	397,522	487,256
(b) Internet Subscribers by Access type			
Cable Subscribers	589	607	594
Fixed Wireless Subscribers	2,585	2,841	3,150
Mobile Wireless Subscribers	232,302	373,347	462,514
VSAT Subscribers	1,252	1,265	1,254
Fibre-To-Home	0	0	0
Other Broadband Subscribers	15,110	19,462	19,744
TOTAL	251,838	397,522	487,256

In terms of subscribers by subscription type, Household/individuals are majority of internet subscribers in Tanzania. They count about 99% of total subscriptions in June 2010. On the same period, Internet cafes and Organization/Institutions count only 0.1% and 0.9% respectively.

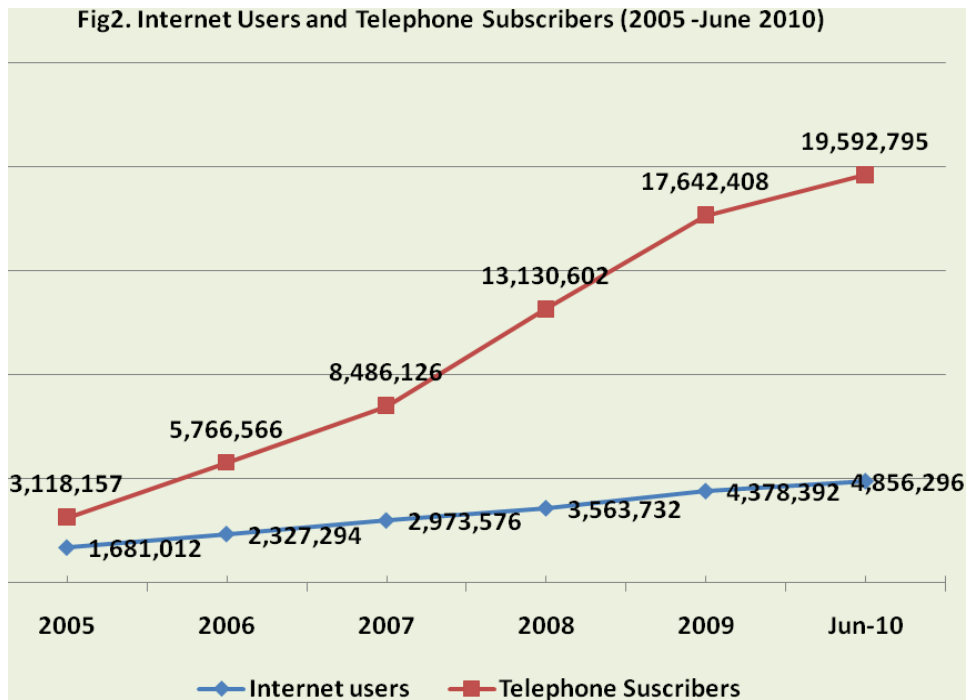
As regards to subscribers by access type, the mobile wireless is the most preferred internet access. The trend shows that over the last three years majority of subscribers opt for mobile wireless followed by other broadband (WiFi, WiMax, 3G etc) and fixed wireless. Cable is the least subscribed means of internet connection compared to the rest of the access type. Until June 2010, there were no fibre-to-home subscribers in Tanzania.

4.0 ESTIMATES OF INTERNET USERS

The estimated number of internet users in Tanzania by June 2010 stands to 4.8 millions, which is about one quarter of voice telephone subscriptions in Tanzania. The number of internet users over time from 2008 to June 2010 is displayed in table 5.

Table 5. Internet Users by Subscription type			
	2008	2009	Apr-10
Internet Cafes	126,000	215,640	260,280
Organizations/Institutions	2,444,000	2,588,000	2,663,200
Household/Individuals	993,732	1,574,752	1,932,816
TOTAL	3,563,732	4,378,392	4,856,296

The internet usage is now becoming a popular means of communication option next to voice telephone for many people in Tanzania. This is shown by a significant growth of internet users as compared to other traditional means of communications such as post office. Figure 2 below shows the trend of internet users and voice telephone subscription from 2005 to June 2010. Note that the numbers of internet users from 2005 to 2007 are extrapolation based on estimates of 2008 to June 2010.



Though internet communication is next to voice telephone, however, the difference in growth between the two is still notably big. While the number of subscribers for voice telephone from 2005 to June 2010 was growing by an average rate of 46% per annum, the number of internet users was distantly growing at an average rate of 24% per annum.

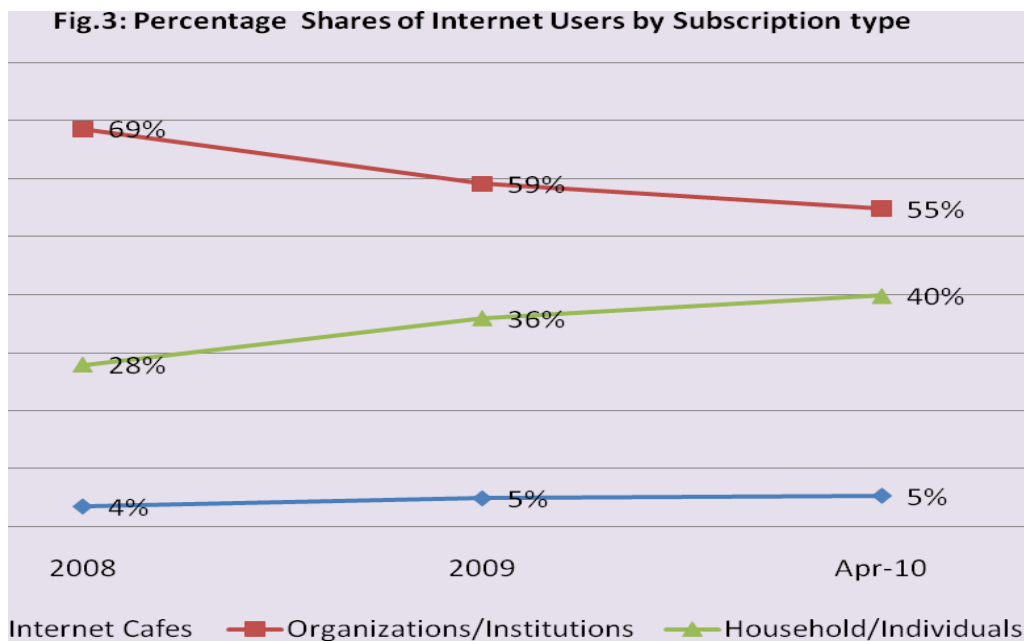
As it is seen from the figure above however, both internet users and voice telephone subscriptions show an upward smooth movement, though there is a remarkable distant difference in growth from 2008 towards June 2010.

4.1 Internet Users by Subscription Type

Figure 3 depict the percentage of internet users overtime in the three common places, i.e. Cyber cafes, Organizations/Institutions and Households.

As it is shown in the figure 3, more than half (61%) of internet users are from organizations/institutions. The users in households or individual counts 35% of the total while there were only 5% of the internet cafes users.

The organizations/institutions have many internet users due to the fact that the internet services has recently become one of the important working tool in offices, widely used for office communication, for administration, for business and etc. However, the number of internet users in Cyber cafes is growing very fast as compared to the two. It counts an average of 46% growth rate per annum while users in organizations and households/individual grow at an average rate of 4% and 41% respectively.



As it is seen in figure 3 above, the internet users in the cyber cafes and households are increasing over time. Unlike the two, internet users in organizations/institutions are decreasing overtime, from the highest (69%) in 2008 to 55% in June 2010.

A reason for the decreasing number of internet users in organizations/institutions as compared to cyber cafes and households can perhaps be attributed to the fact that, most organizations especially the private ones for the sake of reducing internet associate costs are now preferring to provide a modem or wireless gargets to individual employees. So in that sense the number of organizations subscribing for internet services has been reducing and hence the users. In turn, the number of individual subscribers have been increasing as it is vividly shown by figure 3.

Although internet usage by household/individuals is growing very fast compared to organizations/institutions, there is still a low usage of internet by households/individuals over the period as shown in the figure. However there is every sign that the increasing usage of mobile handset for internet services provided through mobile network, may in a near future bring an abrupt change. It can perhaps be expected that internet services usage in households/individuals as an access place to out number that of organizations/institutions. The only limiting factor for that to happen could be level of literacy of majority of people especially those living in semi-urban and rural areas.

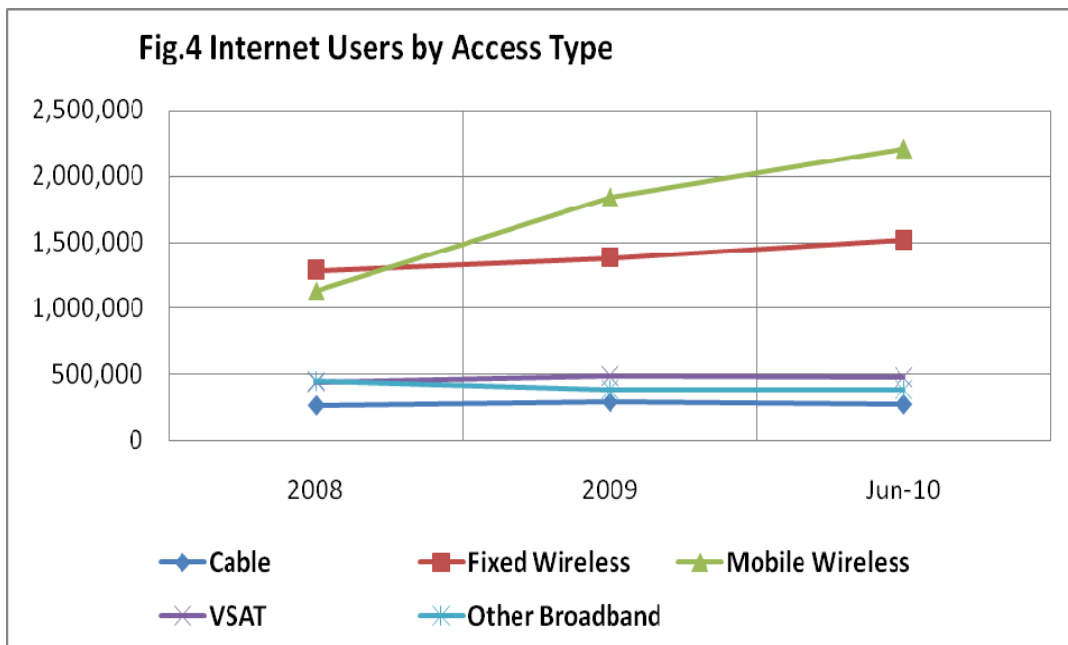
4.2 Internet Users by Access type

In this survey internet access/connection types were categorized into 5 different types namely Cable modem, Fixed Wireless, Mobile Wireless, VSAT and Other broadband (3Gs, WiFi and WiMax). Internet users by these types of connections are displayed in table 6 below.

2.2 Internet Users per Access type

	2008	2009	Apr-10
Cable	261,808	285,948	269,536
Fixed Wireless	1,284,748	1,380,684	1,514,580
Mobile Wireless	1,125,380	1,839,288	2,206,480
VSAT	441,760	488,524	477,524
Other Broadband	450,036	383,948	388,176
TOTAL	3,563,732	4,378,392	4,856,296

Mobile Wireless was leading by having more users for the year 2009 (42%) and in June 2010 with 45%. Fixed Wireless was leading in 2008 with 36% of all users. Apart from having more users in 2009 and June 2010, as it shown in figure 4 below, the Mobile wireless users have also been experiencing an upward increase unlike the other four access type which some have shown a steady and modest increase over the period and others up and down movement.

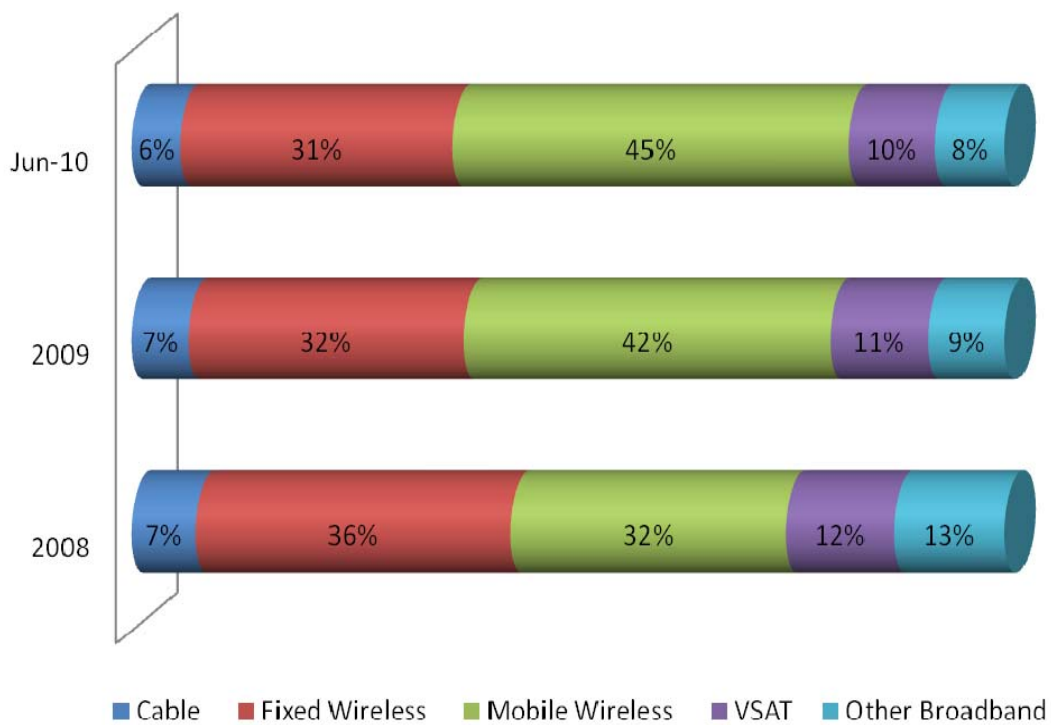


This upward increase of the mobile wireless users is accelerated at an

average rate of 42% per year. Although the Fixed wireless is the second popular used access type, especially by organizations/Institutions is lowly increasing at an average rate of 9%, followed by VSAT, the third ranking in usage and growing gradually at an average of 4% per year.

The shares of internet users in percentage over the period under study are shown in figure 5 below. Mobile wireless has more shares of users on average over the period followed by fixed wireless and then VSAT. Cable modem has fewer shares compared to the rest.

Fig. 5: Percentage Shares of Internet Users by Access type



It is not by chance that Mobile Wireless is having more users than any other access type. This is simply because of its portability and mobility that bring conveniences to users unlike other immobile connections type. The use of mobile phone handset for internet services provided by most of mobile

networks is another reason that has contributed to mobile wireless to have the majority of internet service users. By optimizing the usage of the already build infrastructure, the traditional mobile operators have strategically entered in the internet market and other value added services and as a result have increased the mobile wireless users.

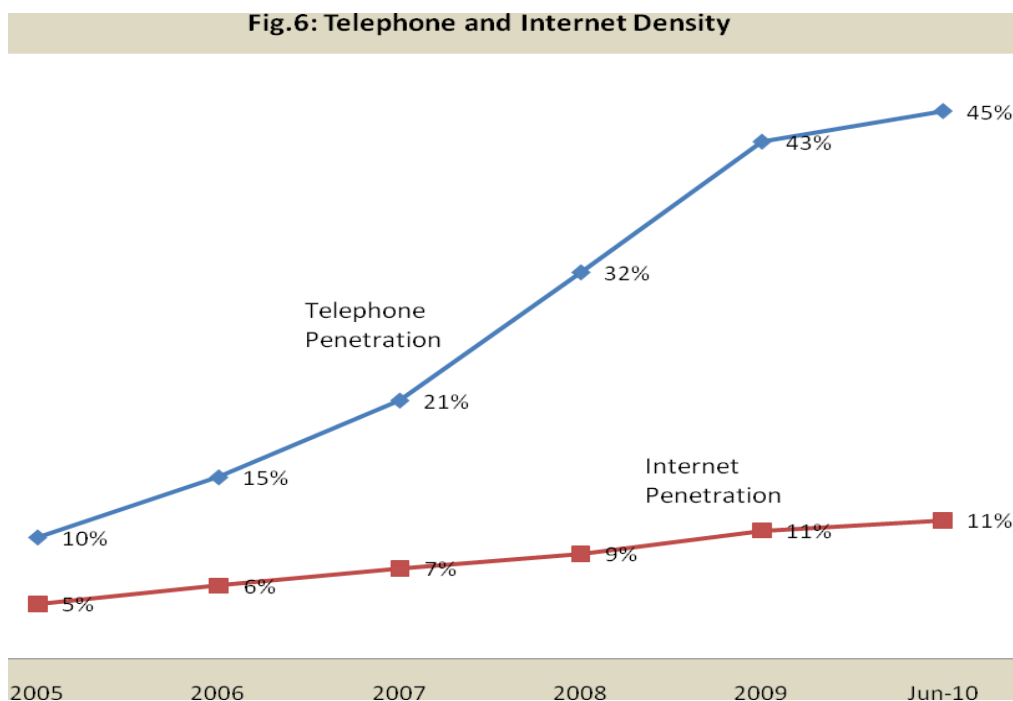
On the other hand, Cable modem has fewer users because of its nature and low level of investment in cable infrastructure by incumbent telecom operator compared to other countries. More sophisticated wireless connections with a higher speed have in recent years, taken the lead in usage as it seen in the case of mobile wireless.

4.3 Internet Density (Penetration)

The percentage of Tanzania population having an access and using the internet is not encouraging. There were only 11% of Tanzanians who access and use internet by June 2010. This percentage shows that there is a limited number of Tanzanians who can access and use internet. As mentioned earlier, the hindering factors can probably be associated with literacy level, low level of infrastructure and unavailability of internet services in semi-urban and rural areas.

However, an increase in internet penetration from 5% of 2005 to 11% of June 2010 as shown in figure 6 below is believed to be catalyzed by introduction of converged licensing framework in February 2005 that allow operators to use any type of technologies to provide range of services. A rapid technological change in electronic communication including usage of mobile handset for internet access is another factor which has contributed to

the registered increase in internet penetration in Tanzania.



In comparison, the penetrations of internet and voice telephone in Tanzania are both parallel increasing (see figure 6). As it is seen in that figure, voice telephone penetration in anyone year is more than double of internet penetration.

Though there is that bigger parallel difference, one can liberally consider a possibility of direct relationship between voice telephone and internet penetration. This relationship is strongly substantiated when mobile handsets are used for both voice communications and internet/data services. As it has been discussed earlier, the increasing provisions of internet and data services by mobile operators through their networks, is another ingredient confirming further the existence of direct relationship between the internet and voice telephone penetration. This can therefore be concluded that any

increase in voice telephone penetration, may probably results into an increase in internet usage hence penetration, though it is not necessarily in the same magnitude.

5.0 SUMMARY OF KEY FINDINGS AND RECOMMENDATION

5.1 Key Findings

The following are the summary of key findings from the survey;

- Out of 68 Application Services Licensees only 46 (67%) were found operating, 20 of them (30%) were not traced and 2 (3%) were not operational
- Out of 46 operational Licensees, only 38 (83%) of them provide internet services, the rest provide other services like voice, network design, data (SMS and MMS), website hosting and website designing
- Majority (82%) of those who provide internet services do so through fixed wireless,
- Total available internet and data capacity in Tanzania is 3,459Mbps out of which 1,475 Mbps (43%) is from satellite and 1,984 Mbps (57%) is from fibre optic.⁵ Of the total available capacity, only 2,239 Mbps (65%) is used as at June 2010, 49% from fibre optic and 51% from satellite.
- The number of internet users was estimated to be 4.8 millions by June 2010, out of which only 5% use internet services from cyber cafes, 55% from organizations/Institutions and 40% from households⁶.

⁵ See table3, page 14

⁶ See figure 3, page 18

- As at June 2010, only 11% of Tanzanians access and use internet services.

5.2 Recommendations

The following are some of factors or elements that the survey has found them to be a hindrance for internet services uptake. This section is therefore addressing the factors considered as hindrance for internet services usage and recommendations as remedies of the same. In order for the survey to be meaningful and cost effective, the Authority is therefore advised to consider the recommendations and take appropriate measures against them;

(i) Re-allocation of resources from Non-Operational Licensees

TCRA should consider conducting an annual enforcement exercise with among others, the aim to discover unused resources like numbers and frequencies so that can re-allocate the same to the new applicants

(ii) There is no information as regards to geographical, gender, education level etc on internet access and usage

The findings of this supply side survey can not give categories of information as mentioned above. Those categories of information are very important and key for government plans such as implementation of the Universal Communication Access Fund and National Fibre Optic deployment to mention but a few.

- Authority should therefore consider conducting a demand side survey on internet access and usage. This kind of

survey will give a more reliable estimate of internet usage in terms of geographical coverage, gender, income level and many others.

- Authority in collaboration with National Bureau of Statistics (NBS) should advise and engage the government to include ICT Access and Usage as one of the National Surveys to be conducted periodically like other national surveys such as HBS, NLFS, HDS etc.

(iii) There is no a regulation for internet tariffs for both wholesale and retail services.

Both wholesale and retail prices for internet services are not regulated. This makes ISP to take advantage of charging higher prices unaffordable by majority and as a result reduce number of internet users especially in semi-urban and rural areas. For this reason and many others, the Authority is advised to consider the following;

- By this time when the Authority is reviewing all regulations in accordance to EPOCA, should also consider to develop new regulations for internet tariffs especially in the wholesale portion and set mechanism to monitor the retail tariffs as well.
- National fibre optic once in fully use is expected to lower the tariffs for internet services. Since it is an essential facility for all, TCRA should therefore monitor and regulate the tariffs

provided by the operators or Manager of fibre optic cables.

- (iv) The internet services are neither widely spread or known by majority especially in semi-urban and rural areas**

The low penetration of only 11% is believed to be caused by two major reasons; ignorance and none availability of services. Since TCRA is responsible for ICT development, should therefore deliberately take the following measures

- Promote internet usage by providing technical and financial assistance for establishment of Community Telecentres, Public Internet Access Centres (PIAC), Internet centres in secondary schools etc
- Monitor and advise the ISPs to provide valid, reliable and value-for-money services; to use media, workshops and seminars to promote internet services in semi-urban and rural areas

6.0 APPENDICES

6.1 Appendix 1: List of Application Services Licensees and Services Provided

Service Providers	Voice Telecom Services	Internet Services	Other Data Services
BENSON INFORMATICS LIMITED	√	√	
CELTEL TANZANIA (LTD)	√	√	
DOVETEL (T) LIMITED	√	√	
MIC TANZANIA LTD	√	√	
SIX TELECOMS COMPANY LTD	√	√	√
TTCL	√	√	
VODACOM TANZANIA LIMITED	√	√	√
ZANZIBAR TELECOM LTD	√	√	√
AFRICA ONLINE(T) LTD		√	
AFSAT COMMUNICATIONS TANZANIA LTD		√	
A-LINK TELECOM TANZANIA LIMITED		√	
ARUSHA ART LTD		√	
ARUSHA NODE MARIE		√	
ATMA ELECTRONIC & SOFTWARE LTD		√	
AUVIONICS		√	
BELL COMMUNICATIONS LTD		√	
CATS-NET LTD		√	
GLOBE NETWORKS		√	√
HOTNET INTERNET SERVICE PROVIDER		√	
IMPAKTEL LTD		√	
INVENTIONS COMPANY LIMITED		√	√
JUA LTD		√	
KICHEKO LTD		√	
MILAN CABLE TELEVISION		√	
MISSION ARIAHAN FELLOWSHIP		√	
MOROGORONET LTD		√	

NEXUS DIGITAL LTD		√	
NURU INFOCOMM LIMITED		√	
SELCOMGAMING LTD		√	√
SIMBANET (T) LIMITED		√	√
SPIDERSAT COMMUNICATIONS LIMITED		√	
STARTEL TANZANIA LIMITED		√	
TANZANIA POSTS CORPORATIONS		√	
TWIGATECH LIMITED		√	
UNIVERSITY COMPUTING CENTRE		√	
VIZADA NETWORKS LTD		√	√
ZANZIBAR CONNECTIONS COMPANY LTD		√	
ZEE COMMUNICATIONS LTD (ZANLINK)		√	
ALLDEAN SATELLITE NETWORKS (TZ) LTD			√
INFOSYS IPS LTD			√
PUSH MOBILE MEDIA LIMITED			√

6.2 Appendix 2: Summary of Status of Application Services Licensees

S/N	NAME OF OPERATOR	CITY/TOWN	STATUS
1	Jua Limited	MUSOMA	Operational
2	2 Mobile Limited	DAR ES SALAAM	Operational
3	Africa On Line (T) Ltd	DAR ES SALAAM	Operational
4	Afsat Communications (T) Limited	DAR ES SALAAM	Operational
5	Alink Telecom Tanzania Limited	DAR ES SALAAM	Operational
6	Alldean Satellite Networks (T) Ltd	DAR ES SALAAM	Operational
7	Arusha Art Ltd/ Cybernet	ARUSHA	Operational
8	Arusha Node Maria	ARUSHA	Operational
9	Atma Electronics & Software Limited	DAR ES SALAAM	Operational
10	AUVIONICS	MWANZA	Operational
11	Bell Communications Ltd	DAR ES SALAAM	Operational
12	Benson Informatics Limited	DAR ES SALAAM	Operational
13	Cats Net Limited	DAR ES SALAAM	Operational
14	Celtel Tanzania Limited	DAR ES SALAAM	Operational
15	Dovetel (T) Ltd	DAR ES SALAAM	Operational
16	Globe Networks	TANGA	Operational
17	Gozcom Limited	DAR ES SALAAM	Operational
18	Hotnet Internet Service Provider	TANGA	Operational
19	Impaktel Limited	DAR ES SALAAM	Operational
20	Infinity Communications Limited	DAR ES SALAAM	Operational
21	Infosys IPS (T) Ltd	DAR ES SALAAM	Operational
22	Inventions Company Limited	DAR ES SALAAM	Operational
23	Kicheko.Com	MOSHI	Operational
24	Milan Video Centre	ARUSHA	Operational
25	Mission Aviation Fellowship Europe (MAF)	DODOMA	Operational
26	Mobitel Tanzania Limited	DAR ES SALAAM	Operational
27	Morogoronet Ltd	DAR ES SALAAM	Operational
28	Nexus Digital	ARUSHA	Operational
29	Nuru Infocomm Limited	DAR ES SALAAM	Operational

30	Push Mobile Limited	DAR ES SALAAM	Operational
31	Satcom Network Africa Limited	DAR ES SALAAM	Operational
32	Selcom Gaming Limited	DAR ES SALAAM	Operational
33	Simbanet Tanzania Limited	DAR ES SALAAM	Operational
34	SPIDERSAT COMMUNICATIONS	MWANZA	Operational
35	Six Telecomms Company Limited	DAR ES SALAAM	Operational
36	Startel Tanzania Limited	DAR ES SALAAM	Operational
37	Tanzania Posts Corporation	DAR ES SALAAM	Operational
38	Tanzania Telecommunication Co. Ltd	DAR ES SALAAM	Operational
39	Twigatech Limited	DAR ES SALAAM	Operational
40	University Computing Centre	DAR ES SALAAM	Operational
41	Vizada Networks Ltd	DAR ES SALAAM	Operational
42	Vodacom Tanzania Limited	DAR ES SALAAM	Operational
43	Yellow Pages	DAR ES SALAAM	Operational
44	Zanzibar Telecom Limited (ZANTEL)	ZANZIBAR	Operational
45	Zanzibar Connections company Ltd	ZANZIBAR	Operational
46	Zee Communications Limited	ZANZIBAR	Operational
47	Acex Systems Limited	DAR ES SALAAM	Not Traced
48	ACG Telesystems Limited	DAR ES SALAAM	Not Traced
49	Auro Consultancy Logistic and Services	DAR ES SALAAM	Not Traced
50	Clearline Communications Limited	DAR ES SALAAM	Not Traced
51	Dynamic Communication (T) Ltd	DAR ES SALAAM	Not Traced
52	Easy Plus (T) Ltd	DAR ES SALAAM	Not Traced
53	eClick Solutions	DAR ES SALAAM	Not Traced
54	E-Fulusi Africa Tanzania	DAR ES SALAAM	Not Traced
55	E-Life Group (T) Ltd	DAR ES SALAAM	Not Traced
56	Epocha & Golden Ocean (T) Limited	DAR ES SALAAM	Not Traced
57	Global Call Company Limited	DAR ES SALAAM	Not Traced
58	Hotspot Business Solutions (T) Ltd	DAR ES SALAAM	Not Traced
59	Midas Commerce Limited	DAR ES SALAAM	Not Traced
60	Mycell Company Limited	DAR ES SALAAM	Not Traced

61	Nextelecom Tanzania Ltd	DAR ES SALAAM	Not Traced
62	QVC Company Limited	DAR ES SALAAM	Not Traced
63	Star Tel Company	DAR ES SALAAM	Not Traced
64	Tan-Communication Media Limited	DAR ES SALAAM	Not Traced
65	Tele Informatix Tanzania Limited	DAR ES SALAAM	Not Traced
66	Wavetek Communications Limited	TANGA	Not Traced
67	Zawadi Communications	DAR ES SALAAM	Not Traced
68	Babati Municipal Council	MANYARA, BABATI	Non Operational
69	JODEKA Enterprises Ltd	TANGA, Handeni	Non Operational

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