



NATIONAL INFORMATION TECHNOLOGY AUTHORITY-UGANDA

**DATA CONNECTIVITY AND INTERNET USAGE IN GOVERNMENT MINISTRIES,
DEPARTMENTS AND AGENCIES**

REPORT

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**Prepared by
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Chapter One: INTRODUCTION

1.1 Background

The Government of Uganda through the Ministry of ICT is implementing a National Backbone Infrastructure/E-government Infrastructure (NBI/EGI) project. This infrastructure will provide connectivity to all Government Ministries, Departments and Agencies (MDAs) to enhance transmission of data, voice and video conferencing services through the laid Fiber Optical Cables thus increasing efficiency and effectiveness of affordable and reliable communication and access among Government institutions, as well as reducing the associated costs in service delivery.

Following the approval of an e-government policy framework, NITA-U was tasked to work closely with various government agencies to develop a “shared corporate services infrastructure” to map out its architecture for the country’s e-government infrastructure as clearly stipulated in section 3.0. Reference is also made to a cabinet meeting held on 29th June 2011; Minute No. 125(CT2011) in which the Office of the Prime Minister tasked all MDAs to use e-government equipment as provided for in the E-government policy framework.

In line with the above, the Government of Uganda has put in place a number of initiatives to improve ICT infrastructure, support access to general communication and high speed internet connectivity and use of E-government across Ministries Departments and Agencies (MDAs) with the overall goal of improving efficiency and effectiveness in service delivery.

In order to plan for a smooth implementation of these initiatives, a survey of the current bandwidth and voice usage in government MDAs was undertaken by NITA-U.

1.2 Objectives of the survey

The main objective of the survey was to identify and collect basic IT data related to Bandwidth usage and telephony which are vital for planning.

Specific Objectives include:

- To assess the current bandwidth consumed by all Government MDAs
- Establish how much the government pays to private sector for voice and Bandwidth on an annual basis
- Assess the level of the current satisfaction with quality of service

1.3 Scope

The survey covered all government Ministries, Departments and Agencies (MDAs) with the majority being located Kampala area and a few in Entebbe and one in Jinja district.

1.4 Methodology

A cross sectional study that was quantitative in nature was conducted in all government MDAs in November 2011. A data collection instrument was developed in consultation with user departments within NITA-U and later pre-tested in the Ministry of Public service and Courts of Judicature. The Pre-test covered both the implementation of the survey process such as team logistic management, cohesion, work load, supervision, quality control, appropriateness of the questionnaire translations as well as further assess, areas of inconsistency, ambiguity, comprehension and exhaustiveness of the survey questionnaire.

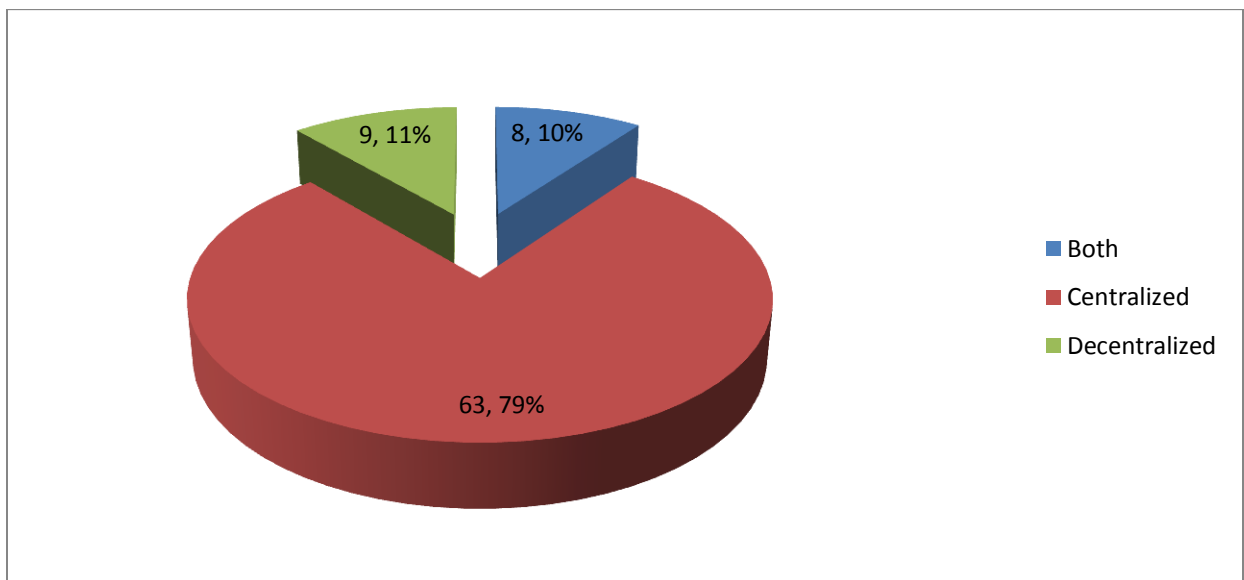
Research assistants were recruited, trained, delivered and followed up letters accompanied by data collection instruments to all Permanent secretaries, Executive and Managing directories of the various Ministries, Departments and Agencies in Uganda. A data collection instrument was filled in by IT coordinators in various MDAs and returned to NITA.

CHAPTER TWO: SURVEY FINDINGS

The survey was conducted in 101 Ministries, Departments and Agencies (MDAs) of government of Uganda. However, 81 MDAs managed to provide responses towards the survey and the findings are given below.

2.1 Bandwidth

2.1.1 Bandwidth Management



Centralized- procured and distributed at Head offices and other branches.

Decentralized- the branches attached to the Institution manage their own bandwidth.

Both-Head office and its branches manage their own bandwidth separately.

The figure above shows a share of bandwidth management amongst all government MDAs according to the categorization. 79% of the institutions manage their bandwidth centrally, 11% have their bandwidth management decentralized and the remaining 10% catered for institutions that have both centralized and decentralized management.

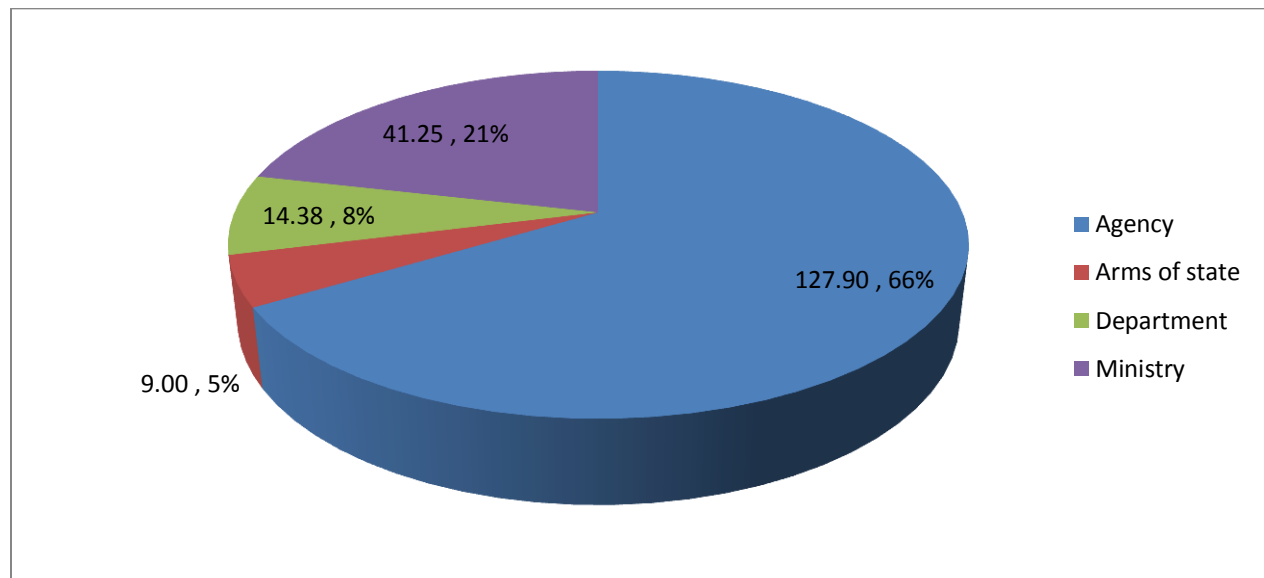
2.1.2 Total Monthly Bandwidth Capacity and Cost

Category	Total bandwidth in Mbps	Total cost UGS	Total cost USD	Grand Total(UGS)
Centralized	170	250,061,195	81,240	461,669,460
Decentralized + (Modem costs only)	22.5	36,332,877	5,424	50,460,933
Total	192.5	286,394,072	86,664	512,130,393

URA USD Exchange rate for November 2011=2604.73

From the table above, the total monthly bandwidth capacity of MDAs is estimated at 192.5 Mbps excluding the capacity of modems which was difficult to estimate. The cost of bandwidth was captured independently in Uganda shillings and US dollars as charged by the service providers. The total monthly cost of bandwidth is estimated at UGX 512,130,393 including the cost of modems. The estimated annual total cost of bandwidth with dollars exchanged to Uganda shillings therefore stood at UGX 6,145,564,713. This annual cost would however have exceeded greatly if information had been collected from the 20 MDAs that did not have any responses submitted.

2.1.3 Total Bandwidth Capacity in Mbps by type of MDA



The figure above shows the distribution of total bandwidth capacity in Mbps in the different types of MDAs. It is noted that Agencies had the largest proportion (66%) of bandwidth usage followed by Ministries (21%), departments (8%) and Arms of state 5%).

2.1.4 Average monthly Capacity of Bandwidth and Cost of in Uganda shillings by type of MDA

Type of MDA	Number of MDAs	Average Bandwidth in Mbps	Average Cost in UGX
Agency	59	2.2	5,823,708
Arms of state	2	4.5	7,010,426
Department	3	4.8	7,759,706
Ministry	17	2.4	7,719,509
Grand Total	81		

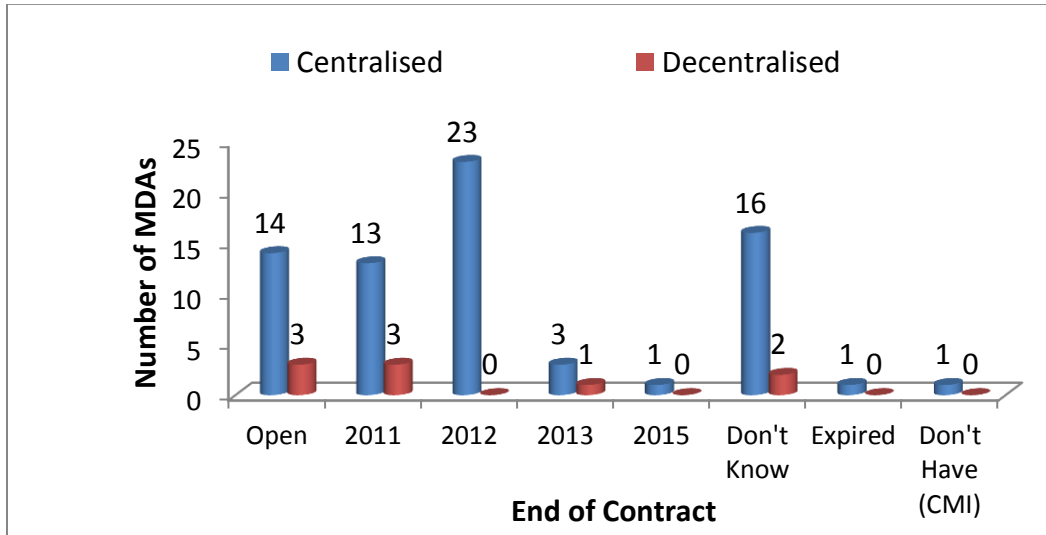
The table above shows the average bandwidth capacity and cost in Uganda shillings by type of MDA. It is noted that on average, each agency consumes 2.2Mbps per month at an estimated cost of 5.8m shillings. However each ministry on average spends about 7.7m per month for 2.4Mbps of bandwidth.

2.1.5 Average Monthly Capacity of Bandwidth and Cost of in Uganda shillings by Bandwidth category

Bandwidth Category	Number of MDAs	Average bandwidth in Mbps	Average cost of bandwidth Ugx
< 1mbps	15	0.4	664,598
1-3 mbps	41	1.5	4,755,232
>3 mbps	21	5.9	14,475,270
No internet	1	0.0	-
No response	2	0.0	1,383,112
Modems only	1	0.0	450,000
Grand Total	81		

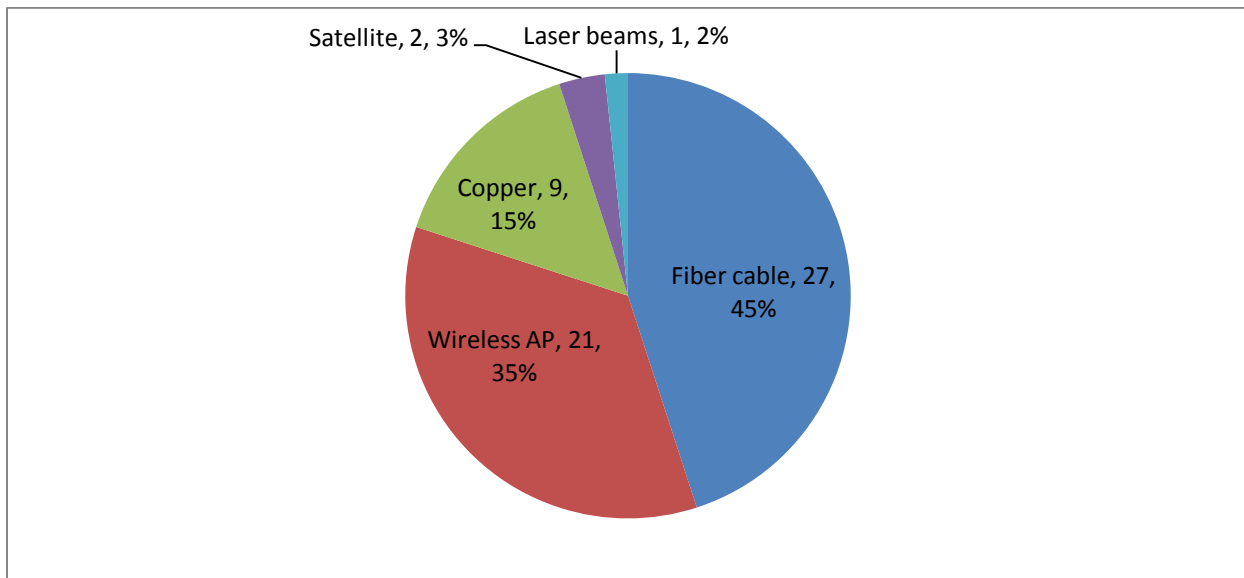
From the table shown above, it is noted that 21 MDAs use bandwidth that is greater than 3Mbps with each having an estimated average bandwidth of 5.9 Mbps at an average cost of 15m per month. Majority of MDAs have bandwidth between 1-3Mbps at an average cost of 4.7m and average bandwidth of 1.5Mbps. 2 MDAs had an average expenditure on bandwidth of 1.3m but did not specify their bandwidth capacity details.

2.1.5 End of contract details for the bandwidth in MDAs



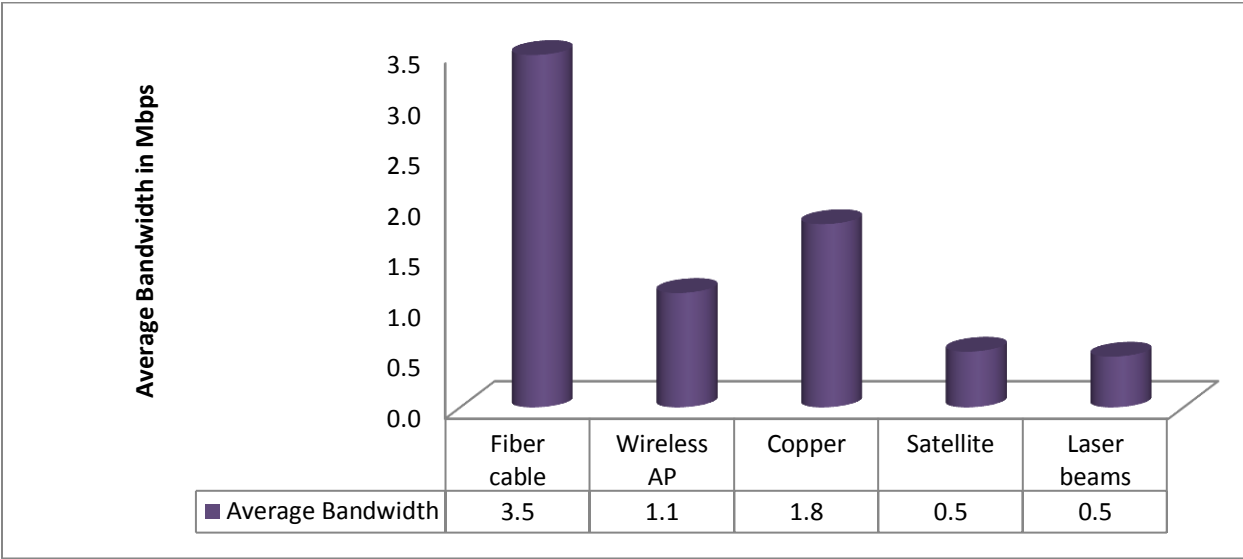
The graph above indicates the durations when contracts for providing bandwidth in the various institutions both centralized and decentralized will be ending. 17 institutions had open contracts while 16 MDA contracts will be ending this year. Majority of MDAs are having their contracts ending in 2012 while 18 institutions did not know when their contracts will be ending.

2.16 MDAs by type of Internet Connection



The chart above shows the types of internet connections across the 60 MDAs that had one type of internet connection. Most institutions have internet delivered to their premises through fiber cable and wireless with 45% and 35% respectively. 20% accounts for all MDAs that have their internet delivered through Copper, satellite and least with laser beams.

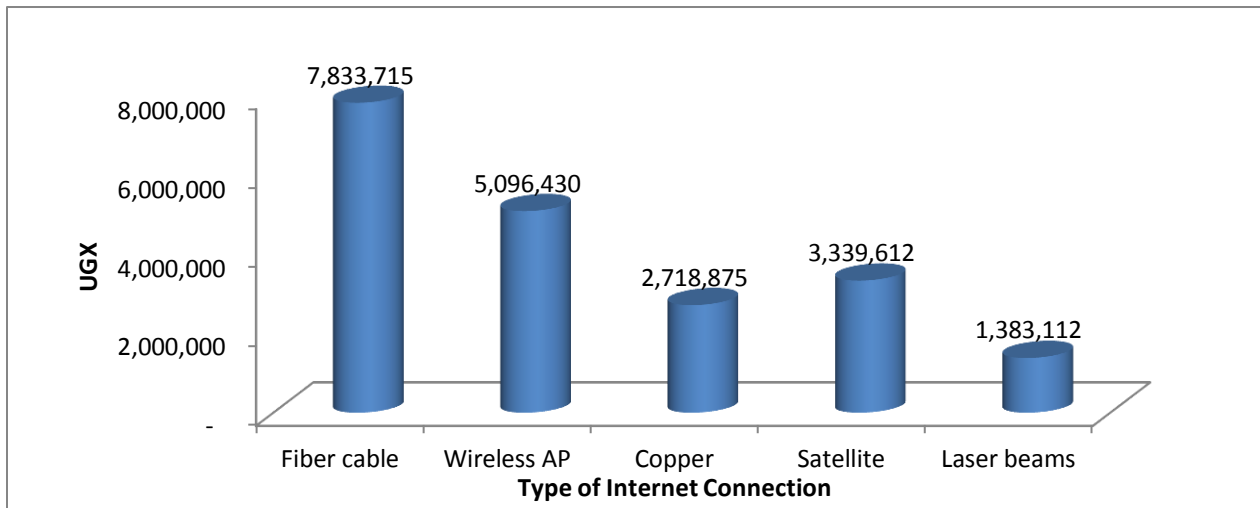
2.1.7 Average Capacity of Bandwidth per month in Mbps by type of Internet Connection



The graph above shows the average bandwidth capacity per month by type of internet connection.

On average, each MDA that is connected by fiber cable has a bandwidth of 3.5Mbps, 1.1Mbps, 1.8Mbps and 0.5Mbps for wireless, copper, satellite and laser beams respectively. This implies that most of the bandwidth is delivered through fiber cable.

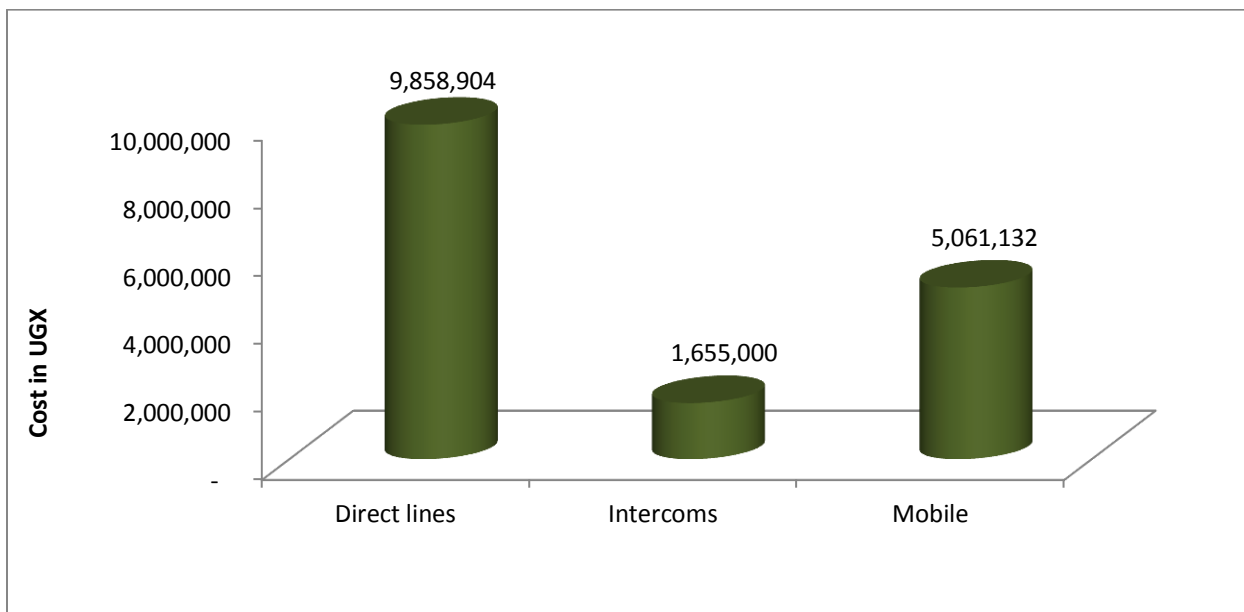
2.1.7 Average Cost of Bandwidth per month by type of Internet Connection



The graph above shows the average cost of bandwidth per month by type of internet connection in MDAs. The highest average cost per month of bandwidth (7.8m) across most MDAs is delivered through fiber cable. This is followed by wireless, copper, satellite and laser beams with 5m, 2.7m, 3.3m and 1.3m respectively.

2.2 Voice Services

2.2.1 Average Monthly Cost of Telephony in UGX



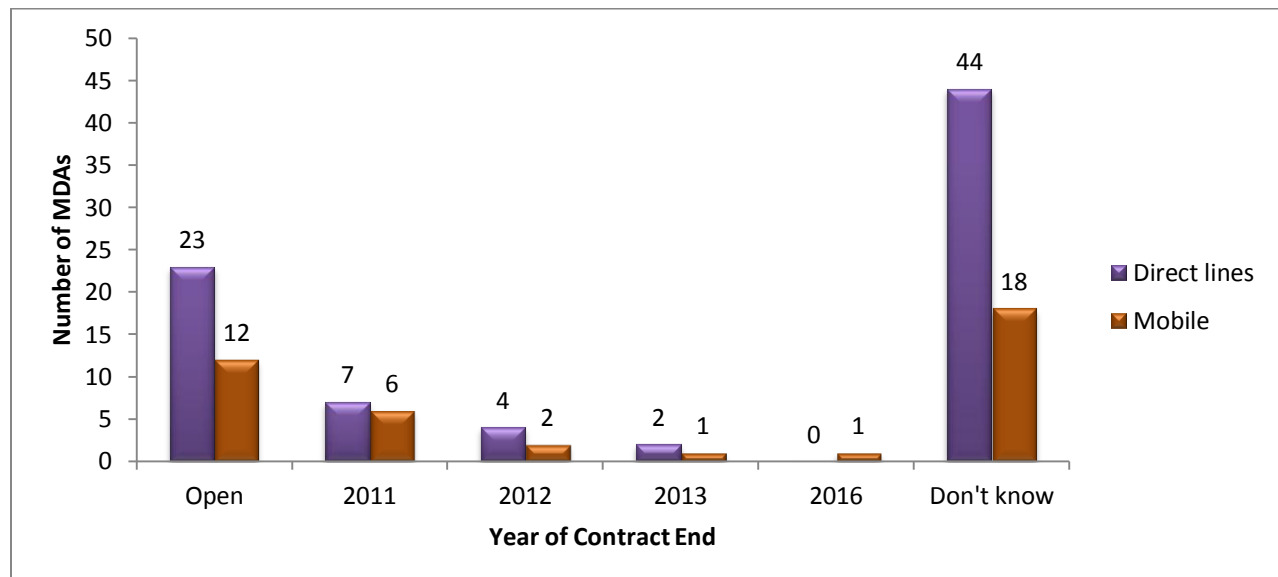
The graph shows the average monthly expenditure on telephone services per institutions. On average an MDA in a month, spends 9.8million Uganda shillings on direct lines,

1.6million on intercoms and 5million on airtime for mobile phones. It is therefore observed that most institutions spend more on direct lines compared to other telephony categories. The total cost in Uganda Shillings of voice services broken down per MDA type is given in the table below.

2.2.2 Voice services by type of MDA

Type of MDA	Direct lines		Intercom lines		Mobile	
	Number of hand sets	Cost per month (UGS)	Number of hand sets	Cost per month (UGS)	Number of hand sets	Cost per month (UGS)
Agency	2,940.00	304,505,000.00	4,924.00	9,920,000.00	4,170.00	126,073,000.00
Arm of state	243.00	23,890,000.00	570.00	-	-	-
Department	806.00	121,000,000.00	873.00	-	3,465.00	64,950,000.00
Ministry	956.00	63,268,000.00	1,073.00	10,000.00	106.00	1,300,000.00
Grand Total	4,945	512,663,000	7,440	9,930,000	7,741	192,323,000

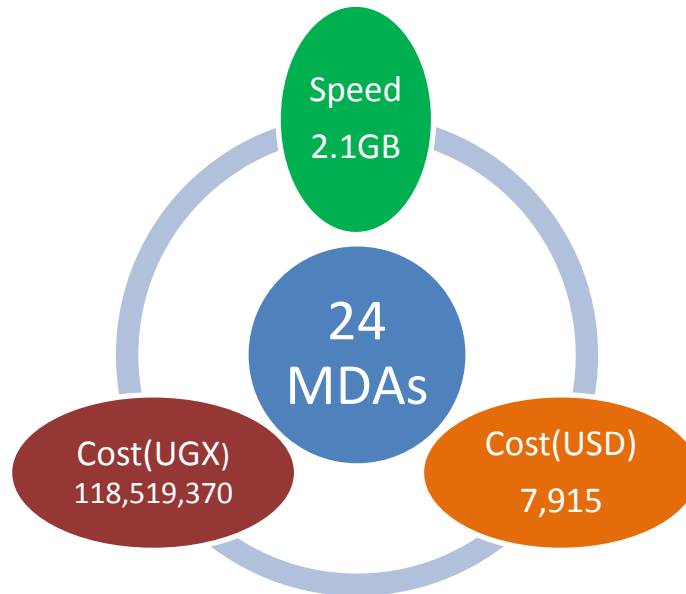
2.2.3 Year of contract end for Telephony



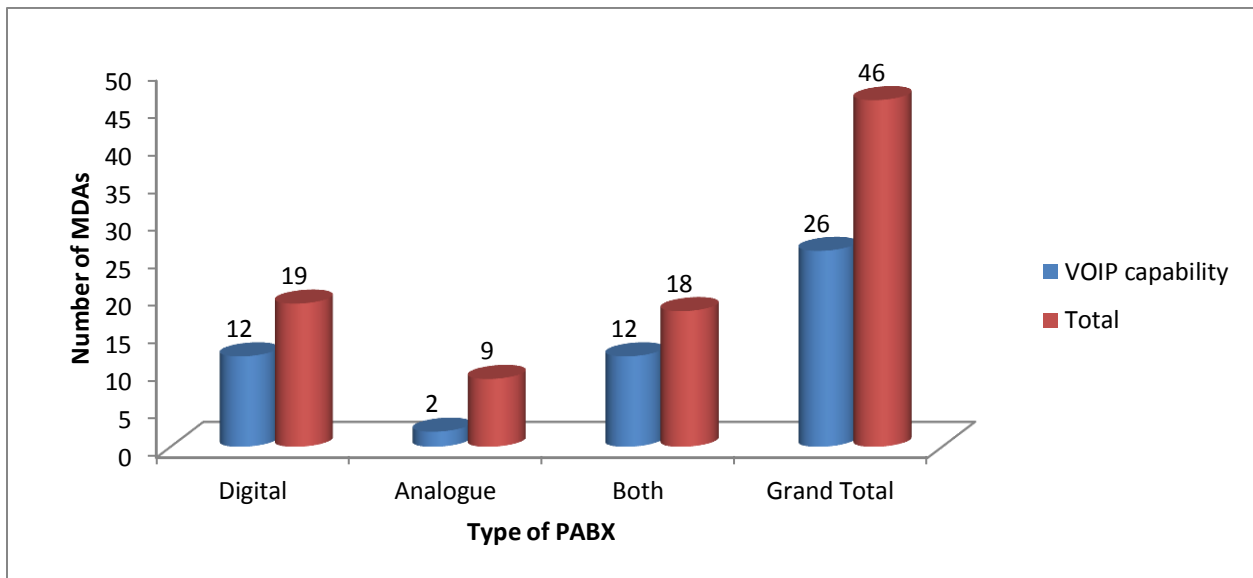
The graph above shows the number of MDAs and their corresponding periods in years within which contracts for telephone services will be ending. However, on direct lines, 44 institutions did not know when their contracts would be ending.

2.3 Data links

The figure below gives the overall picture of all MDAs that have data links with their branches. Twenty two MDAs had data links with a total speed of 1.1 GB. The costs are given in both Uganda shillings and in US Dollars according to service provider preference of charge. The total cost for data links in Uganda shillings is 138,085,308.



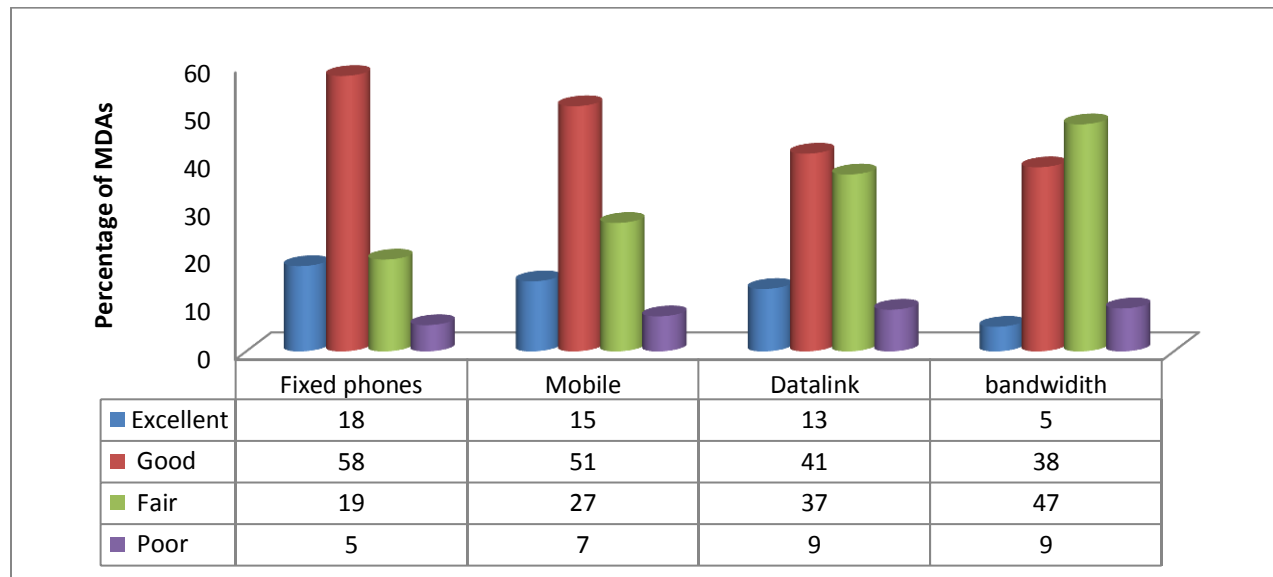
2.4 PABX Details



The graph above shows 26 MDAs with VOIP capabilities out of the 46 MDAs that had and gave details about PABX in their institutions.

19 MDAs had digital PABXs with 12 having VOIP capabilities while 9 MDAs had Analogue PABXs with only 2 having VOIP capability. However 17 institutions had both digital and analogue PABXs.

2.5 Satisfaction levels of MDAs with service providers



As shown above, the level of satisfaction with the service provisions amongst the different MDAs is commendable for voice services (Fixed phones and Mobile) with majority responses tending towards good and excellent. However, regarding bandwidth and data links, majority of the institutions were not contented with the services they were receiving as depicted in the graph above.

CHAPTER THREE: CONCLUSIONS, SUCCESSES, CHALLENGES AND RECOMMENDATIONS

3.1 Conclusions

A total of 81 MDAs participated in the data connectivity and internet usage survey. One institution (CMI) reported having no internet connectivity. Majority of MDAs procure and distribute bandwidth at their Head offices and other branches as opposed to a few institutions that manage their own bandwidth independently.

The monthly bandwidth capacity across all the MDAs (80) that responded stood at 201.1Mbps at a total cost of Uganda Shs 524,280,393 along with the cost of Modems. The derived annual total expenditure on bandwidth capacity by all MDAs totals up to Uganda Shs 6,291,362,716. These totals would have been greater if all the institutions had provided input.

Among the major consumers of bandwidth, it was noted that Agencies have the largest proportion (66%) of bandwidth usage followed by Ministries (21%) departments (8%) and Arms of state (5%).

Seventeen institutions had open contracts for bandwidth while 16 MDAs had their contracts for bandwidth will be ending this year. Majority of MDAs are having their contracts ending in 2012 while 18 institutions did not know when their contracts would be ending.

The average monthly expenditure on telephone services per institution is estimated as below;

Direct lines- 9,858,904/=

Intercom- 1,655,000/=

Mobile- 5,061,132/=

Twenty three MDAs that use direct lines had open contracts compared to 12 for the mobile. However, a considerable of MDAs (44-Direct lines and 18-Mobile) did not know when their contracts would end.

On the use of data links, 24 MDAs reported having data links with their branches with an overall total speed of 2.1 GB. The total monthly cost for data links in Uganda shillings totaled up to 118,519,370/=.

3.2 Successes

- Guidance support from NITA-U stakeholder user departments
- Resources availed by NITA-U management
- 80% response rate attained

3.3 Challenges

- Short notice given to MDAs for feedback (response)
- Shortage of computers for entry of data
- Reluctance/refusal in providing information by respondents
- Poor records management by most MDAs
- Delayed responses from MDAs
- Limited budget which did not support supervision

3.4 Recommendations

- Follow up should be made on all those MDAs that did not submit responses on the survey.
- Further analysis of information collected from the survey based on emerging information needs.
- These survey results can be matched with other related surveys that have been conducted before and those in future.