



The National Backbone Infrastructure: Is the country reaping investment dividends?

Background

The National Data Transmission Backbone Infrastructure and e-Government Infrastructure (NBI/EGI) is a Government of Uganda (GoU) Initiative implemented by the Information and Communication Technology (ICT) sector through the National Information Technology Authority (NITA-U). Implementation started from FY 2006/07 –FY 2015/16. It aimed at connecting ministries and Government departments onto the e-Government Network. This was done to create an efficient government through simplifying procedures, bringing transparency, accountability and making timely information available to citizens.

The objectives of the project were to: establish a secure NBI with high bandwidth data connection in major towns of Uganda; connect all Government Ministries, Departments and Agencies (MDAs) in a single wide area network; establish a government data centre, and establish district information centres. Implementation was initially arranged in three phases that ended FY 2015/16.

The fourth phase of implementation is ongoing (FY 2016/17-21/22) as part of the Regional Communication Infrastructure Programme (RCIP), largely covering the missing links and last mile connectivity.

The expected outputs at completion of the first three phases were: All government ministries connected; e-government implemented; an optic fiber backbone transmission cable set up across the country (2,294km); district information centres established to improve communication, improved service delivery by MDAs, and reduced cost of communications.

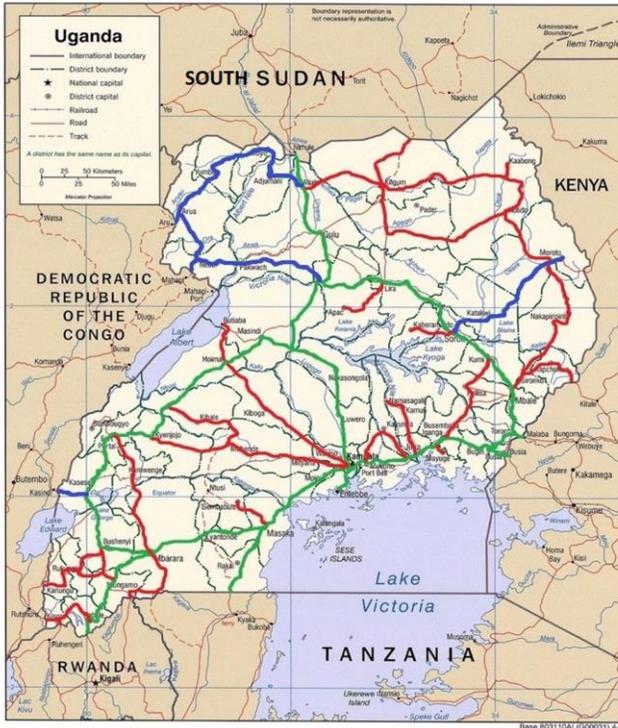
This policy brief presents the extent to which GoU has reaped from the investment and proposes options for increasing the benefits.

Key Issues

- There is no policy and regulations on maximising the NBI benefits.
- Provision of bulk Internet bandwidth over the NBI is still low.
- Local governments and service units such as hospitals and schools lack operation budgets for ICTs.
- MDAs with standalone systems are hesitant to migrate to the NBI.

Introduction

The First three phases of the NBI/EGI were funded by a concession loan from the EXIM Bank of China with counterpart funding from GoU. In 2006, a contract was signed between the Ministry of ICT and M/s Huawei Technologies Company Limited of the Peoples' Republic of China at a contract sum of US\$ 106,590,305, all of which was paid by 2016. The missing links and last mile connectivity (Phase IV) is funded by the World Bank and GoU to the tune of US\$85 million. Implementation is ongoing with both sub-components under procurement by December 2018. Subsequent phases shall cover the rest of the country.



Key: Green = Completed, Blue = Phase IV, Red = Future Phases. Source: NITA-U

What has been achieved so far?

Phase I, II and III of the NBI/EGI project entailed laying of 2,294km of fibre optic cables, installation of 33 transmission stations, setting up of the NBI Primary Data Centre, Network Operation Centre (NOC), and Metropolitan Area Network (MAN).

All ministries, some agencies and some Local Governments were connected to the MAN.

Table 1: Connectivity and Access to NBI Services by MDAs as at December 2018

Connectivity and access to E-Government services	NO
Number of districts connected to NBI	29
Districts with sites receiving service	26
Total Number of Sites Connected	397
Number of Sites Connected and Accessing Services	282
Number of Sites Connected, Pending Service Migration	115
Sites Accessing Internet Service through NBI Network	195
Sites Accessing Other Services through NBI Leased Line	74
Sites Accessing IFMS Service through NBI Leased Line	92
Links/Segments Connected through NBI Dark Fiber Service	3

Source: NITA-U

Number of districts connected: Twenty-nine (29) district headquarters across the country were connected to the NBI, however only 26 were accessing services through the link. The pending connections were scheduled under the last mile sub-component of the RCIP. At least 282 sites out of the 397 connected were receiving services over the NBI. The remaining 115 were either having running contracts with previous service providers including Uganda Telecoms (UTL), or lacked budgets for the services.

Low cost, high quality internet bandwidth is available and accessible by MDAs, LGs and service unit over the NBI. By December 2018, a total of 75,879 Megabyte per second (Mbps) of International Internet bandwidth was supplied



over the NBI. The price of whole sale International capacity (\$ per month/Mbps) reduced from US\$ 97 to US\$ 2.6, accordingly, the price of retail Internet capacity reduced from US\$ 300 to US\$ 70. With the expected extension of the NBI to unserved areas of West Nile (Pakwach, Nebbi, Arua, Maracha, Koboko, Yumbe, Moyo and Adjuman) and Karamoja (Katakwi, Moroto), sub-regions under the missing links, the prices were expected to further reduce. The government was saving millions of dollars annually in bandwidth costs after over 100 agencies switched from private operators to the NBI as the primary service provider.

A total of eighty-one (81) **e-Government services are provided** by different MDAs to the citizen's over the NBI platform. The services include application for official documents, (e-visas, work permits), tax returns, programme based budgeting system, declaration of income, assets and liabilities by leaders and specified public servants, E-certification service by the Ministry of Agriculture, Animal Industry and Fisheries, Anti-Corruption Online Tool by

Office of the President, e-health, e-education, video conferencing link by Courts of Judicature, among others.

The backbone presented Uganda with an opportunity to **link to another undersea cable** through Mutukula (Tanzania), and extended connection to Eregu (South Sudan) and Katuna (Rwanda). The links have strengthened redundancy, reliability and availability of the NBI.

Provision of free public WI-FI: The coverage of MYUG Free Public WI-FI service covered over 186 locations in and around Kampala and over 76,519 users had signed up for the service which is available to the public from 6:00pm to 6:00am daily. This has enabled the citizens have free, fast, secure and reliable Internet connectivity. Further still, the availability of Internet enables users especially application developers, innovation hubs, universities, and Business Process Outsourcing enterprises reduce the cost of doing business.

Data centre services: NITA-U upgraded the



Left-right: Completed transmission site in Mutukula, and an aerial NBI optic cable in Hoima District



National Data Centre and Disaster Recovery Site to Tier 3 classification. By December 2018, the facilities were providing services to 33 MDA/LGs and hosting 36 critical Government applications and systems. Government shall realize cost saving through centralized hosting and Disaster Recovery Services for Government Applications and Data at the National Data Centre. The financial savings made owing to the NBI are not yet measured.

Challenges

1. Provision of bulk Internet bandwidth is still low. This is in part due to delays in implementation of the last mile project under RCIP (NBI Phase IV), which is affecting the revenue to Government and lowering of prices of bandwidth.
2. Delays in concluding procurement of missing links and last mile connectivity partly due to lengthy processes of securing “No Objection” from the World Bank. Government of Uganda is losing out on the projected income.
3. Lack of ICT operations budget in Local governments and service units such as hospitals and schools.
4. Resistance to change from MDAs with independent/standalone systems to centralised ICT systems.

Conclusion

Access to high speed data and efficient delivery of public services remains a priority in Uganda’s National Development. The NBI has improved collaboration within government and established a platform for integration of systems. In order to further optimize benefits, lower prices of bandwidth, and increase efficiency in government service delivery,

more agencies need to migrate their systems to the Government Data Centre to optimally reap the investment dividends. Efforts to enhance uptake including policy pronouncements are therefore paramount.

Recommendations

- The GoU through the Ministry of ICT and NITA-U should initiate a policy and regulations that require MDAs to utilize the shared e-Government public service delivery platform in order to increase uptake and maximise the economies of scale.
- The MFPED should enhance the recurrent resource allocation to Local Governments and service delivery units (schools and hospitals) to cater for emerging ICT costs including bandwidth to enhance the utilisation of the NBI.
- The NITA-U and MoICT&NG should develop and roll out a change management strategy to dispel the fears of migrating to centralised platforms.

References

- MFPED: Budget Monitoring Reports; FY2014/15 -FY2018/19
- MoICT&NG: Ministerial Policy statements 2014/15-18/19
- NITA-U: Quarterly Progress Reports 2017/18 and 2018/19

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