NITA
UGANDA

- Driving the IT Revolution -

NATIONAL INFORMATION TECHNOLOGY AUTHORITY

2020

NITA-U STATISTICAL ABSTRACT

FOREWORD

The National Information Technology Authority-Uganda (NITA-U) is committed to the production and dissemination of quality Information Technology statistics. Specifically, indicators are required for monitoring the progress towards achieving the goals for the National Development Plan, Government Performance within the ICT sector and the United Nations Sustainable Development Goals. This Statistical Abstract is NITA-U's major annual publication through which key statistical information derived from the Authority's operations and administrative records of other agencies that are involved in the production of Information Technology statistics and International ICT publications are disseminated for use in tracking outcomes of policies and programmes as well as decision-making.

The information presented in this 2020 NITA-U Statistical Abstract covers statistics on NITA-U Human resources statistics, NITA-U administrative statistics, internet and telephony statistics, E-waste statistics, ICT performance in the economy and Uganda's ICT rankings on the global scale. Information is presented either based on a calendar year (January-December) or Financial year (June-July) structure, depending on availability of data.

The Authority would like to appreciate the Uganda Bureau of Statistics' (UBOS) continued technical support and cooperation of the various agencies in providing the requisite data to produce this publication. In a special way, I wish to thank the 2020 NITA-U Statistical Abstract committee that compiled this publication.

Copies of this publication are available on the NITA-U's website: www.nita.go.ug.

It is my sincere hope that the statistical information in this publication will be used by the readers to make informed decisions.

Dr. Hatwib Mugasa
Executive Director

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LIST OF ACRONMYS

CERT/CC	Cyber Security Emergency Response Team/Co-ordination Centre
EEE	Electric and Electronic Equipment
EGDI	E-Government Development Index
EPI	The e-participation index
FY	Financial Year
GCI	Global Cybersecurity Index
ICT	Information and Communications Technology
IDI	ICT Development Index
IFMS	Integrated Financial Management System
ISIC	International Standard Industrial Classification of All Economic Activities
IT	Information Technology
ITU	International Telecommunications Union
DLGs	District Local Governments
MDAs	Ministries, Departments and Agencies
NBI	National Backbone Infrastructure
NCSI	National Cyber Security Index
NITA-U	National Information Technology Authority-Uganda
UGX	Ugandan Shillings
UMCS	Unified Messaging and Collaboration System
UN	United Nations
USSD	Unstructured Supplementary Service Data

EXECUTIVE SUMMARY

This NITA-U Statistical Abstract is an annual publication of some key statistics produced within the Authority under its mandate to coordinate, promote and monitor Information Technology developments. Other statistics are collected from agencies that are involved in the production of Information Technology statistics. This publication is divided into six major thematic areas which include; NITA-U Human resources statistics, NITA-U administrative statistics, internet and telephony statistics, E-waste statistics, ICT performance in the economy and Uganda's ICT rankings on the global scale.

NITA-U Human Resources statistics

This section presents organisational statistics related to NITA-U staff with the majority (64%) being male in FY2019/20.

NITA-U Administrative Statistics

This section presents statistics on NITA-U's core business covering: National Backbone Infrastructure, e-Government services, priority IT standards, Certification of IT service providers, awareness of the existing cyber laws, information security and capacity building and skilling for e-government.

- In FY2019/20, 920kms of Optical Fibre cable were laid bringing the total number of kilometers laid to 3,394kms.
- Of the 597 sites connected to the NBI, 342 (71%) were utilizing various services (Internet Bandwidth, IFMS, leased lines, and dark fiber) delivered over the NBI in FY2019/20 compared to 342 sites out of 428 connected (80%) in FY2018/19.
- In FY2019/20, 125 critical Government applications and systems were being centrally hosted at the National Data Centre compared to 58 applications hosted in FY2018/19.
- A total of ten (10) new e-services were added to the e-citizen portal (www.ecitizen.go.ug) bringing the total number to one hundred seven (107) e-

services that can be accessed by the citizens compared to 18 new e-services added in FY2018/19.

- In FY2019/20, a total of twelve (12) e-services were developed of which seven (7) of them were developed to support the fight against COVID-19 and five (5) were developed to aid the smooth operation of entities; UPRS Membership Management, NBRB Building Control System, UNCCI Membership Management System, Ministry of Education Learner's Dashboard and the UG-GO mobile application.

- A total of twenty-nine (29) Government websites were developed and six (6) were redeveloped and revamped in FY2019/20, and in FY2018/19, a total of sixty-seven (67) websites were developed.

- In FY2019/20, twenty-three (23) entities were assessed on their adherence to IT Standards and consumer protection provisions under the Electronic Transactions Act. There was noted improvement in the overall MDA compliance rating for the Standards from an average rating of 59% in previous financial year to 69% in FY2019/20.

- Forty-four (44) sensitization engagements were conducted in the public and private sector to promote awareness on IT laws in FY2019/20.

- By the end of FY2019/20, eighty-seven (87) additional IT Service Providers were certified under the Certification Framework making a cumulative total of three hundred twenty-six (326).

- The number of MDAs implementing National Information Security Framework (NISF) promoting initiatives in FY2019/20 were sixteen (16).

Internet and telephony statistics

This section covers statistics internet and telephone subscriptions; Smartphones and feature phones in Uganda with the following highlights:

- Total internet subscriptions improved by 25% from about 15.17million in FY2018/19 to about 18.94million in FY2019/20; translating into a penetration of 46 internet connections for every 100 Ugandans as compared to 37.6 internet connections for every 100 Ugandans in FY2018/19.

- Mobile internet subscriptions alone increased by 25% from about 15.16million in FY2018/19 to about 18.91million in FY2019/20.
- A decline of 0.3% was recorded in mobile phone subscriptions from 25.44million in FY2018/19 to 25.37million in FY2019/20.
- Tele-density declined by 4% from 63.6% in FY2018/19 to 61.0% in FY2019/20.
- In FY2019/20, an increase of 26.3% was recorded in smart phone subscriptions from 5.51million subscriptions in FY2018/19 to 6.96million.

E-waste statistics

- The amount of Electric and Electronic Equipment placed on the market has been steadily decreasing since 2014 from 37,231 tonnes to 28,083 tonnes in 2018. The component of small equipment forms the biggest percentage of electronics placed on the market since 2014.
- The E-waste generated has increased over time. In the year 2018, the amount of e-waste generated was about 19,264 tonnes compared to 15,118 tonnes generated in 2014. The biggest component of e-waste generated in 2018 was small equipment.

ICT sector performance in the economy

This includes statistics on the ICT sector GDP, trade in ICT goods, ICT sector revenue collections and ICT planned investment with the following high lights;

- The percentage share of ICT activities on GDP at current price improved from 2.2% in FY2018/19 to 2.6% in FY2019/20.
- The percentage share of ICT activities on GDP at constant 2016/17 price accounted for 2.3% in FY2019/20 compared to 1.8% in FY2018/19.
- The estimated value of formal ICT exported goods in FY2019/20 declined by 30% from the previous FY2018/19 record of UGX 35.3billion to UGX 24.5billion.
- The percentage contribution of the formal ICT exports to total formal exports has been declining consistently from 0.3% in FY2018/19 to 0.2% in FY2019/20.

- The ICT sector contribution to the total revenue collections declined from 10.7% in FY2018/19 to 10.6% in FY2019/20; the telecommunications division alone contributed 81% to the ICT sector revenue.
- Total number of planned jobs to serve in ICT investments improved from one hundred and eleven (111) in FY2018/19 to one thousand and twenty-five (1,025) in FY2019/20.

Uganda's ICT ranking on the global scale

This section comprises of the e-Government Development Index, e-Participation Index, ICT Development Index and the Global Cybersecurity Index with the following highlights:

- Uganda's E-government Development Index improved by 10.9% from 40.55% in 2018 to 44.99% in 2020 which is above Africa's average of 39.14%.
- The Online Service Index improved by 2.3% from 56.94% in 2018 to 58.24% in 2020. Telecommunication Infrastructure Index (TII) improved by 45.5% from 15.66% in 2018 to 22.78% in 2020 and Human Capital Index (HCI) improved from 49.06% in 2018 to 53.95% in 2020.
- However; Uganda declined by two positions in E-government Development ranking from a rank of 135th in 2018 to 137th out of 193 UN member states in 2020.
- Uganda declined by eight positions in e-participation ranking from 87th in 2018 to 95th out of 193 countries in 2020. The e-Participation Index declined from 0.6236 in 2018 to 0.5714 out of 1.0000 in 2020.
- Uganda's ICT development ranking improved by six positions from rank 158 in 2016 to 152 out of 176 countries in 2017. The ICT development Index value also improved from 1.9 in 2016 to 2.19 on a scale of 1 to 10.
- Out of the 193 member states assessed in 2018, Uganda ranked the 65th globally in Cybersecurity and the 7th in Africa with a score of 0.621 out of 1 from 0.536 in 2017.

GLOSSARY

Bandwidth:

This describes the maximum data transfer rate of a network or internet connection. It measures how much data can be sent over a specific connection in a given amount of time.

Cyber Laws:

These are laws put in place in to facilitate transacting and communicating using electronic platforms, specifically, consumer protection matters. They include; Electronic Transactions Act, 2011; Electronic Signatures Act, 2011 and Computer Misuse Act, 2011, The Data Protection and Privacy Act, 2019 and all the Regulations promulgated under the National Information Technology Authority, Uganda Act, 2009.

Dark fiber service:

This refers to un-used fiber optic capacity on the NBI leased out to clients.

Data Centre:

This is a large group of networked computer servers typically used by organizations for the remote storage, processing, or distribution of large amounts of data. The National Data Centre is fully equipped with state of the art technology which is utilised for Centralized Hosting Services, Disaster Recovery Services and other Data Centre Services for Government Applications & Data.

E-Citizens Portal:

This a one-stop centre for Government online services (http://www.ecitizen.go.ug). Its main objective is to enhance Government service delivery to citizens, non-citizens, businesses and to Government Ministries, Departments and Agencies (MDAs).

E-Government:

This is the use of information and communication technologies to deliver public services in a convenient, efficient customer-oriented and cost-effective way.

E-Government Development Index:

The United Nations e-Government Development Index (EGDI) comparatively measures the e-Government readiness of states in terms of the scope and quality of online services (Online Service Index), the development status of telecommunication infrastructure (Telecommunication Infrastructure Index) and the human capital (Human Capital Index). E-Government Development Index ranges from zero to one.

E-Government Regulations:

These are regulations that aim at promoting e-government services and electronic communications and transactions with public and private bodies, institutions and citizens enacted under the National Information Technology Authority, Uganda Act, 2009.

E-Participation Index:

The e-participation index (EPI) is derived as a supplementary index to the UN E-Government Survey. It extends the dimension of the survey by focusing on the use of online services to facilitate provision of information by governments to citizens ("e-information sharing"), interaction with stakeholders ("e-consultation"), and engagement in decision-making processes ("e-decision making"). E-Participation Index ranges from zero to one.

E-Services:

These are services delivered through the use information and communication technologies (ICTs). The three main components of e-services are- service provider, service receiver and the channels of service delivery (i.e. technology).

Electronic Waste (E-Waste):

The Basel Convention on the control of trans-boundary movement and disposal of hazardous waste, to which Uganda is a member, defines E-Waste, as: "all discarded electrical and electronic assemblies, scrap, components and batteries". E-Waste includes a broad range and growing number of electronic devices ranging from large household appliances such as refrigerators and air conditioners, to personal products such as handheld cellular phones, personal stereos, consumer electronics and computers.

Exports:

Outward flows comprising goods leaving the economic territory of a country to the rest of the world.

Feature phone:

A mobile phone that incorporates features such as the ability to access the internet and store and play music but lacks the advanced functionality of a smartphone.

Global Cybersecurity Index:

Global Cybersecurity Index (GCI) is a composite index produced, analysed and published by the International Telecommunication Union (ITU) to measure the commitment of countries to cybersecurity in order to raise cybersecurity awareness. Each country's level of development or engagement is assessed along five pillars – (i) Legal Measures, (ii) Technical Measures, (iii) Organizational Measures, (iv) Capacity Building, and (v) Cooperation – and then aggregated into an overall score. GCI score ranges from zero to one.

Hardware & Software Standards:

These spell out the rationale for establishing minimum specifications and guidelines for use in the procurement of Information Technology hardware and software products by MDAs for sustainable and manageable IT in Government.

ICT Development Index:

The ICT Development Index (IDI) developed by the International Telecommunication Union is a measure that serves to monitor and compare developments in information and communication technology across countries. The IDI is composed of ICT access, ICT use and ICT skills components. The IDI value ranges from one to ten.

ICT goods:

ICT goods are those that are either intended to fulfil the function of information processing and communication by electronic means, including transmission and display, or which use electronic processing to detect, measure and/or record physical phenomena, or to control a physical process.

ICT Sector:

The ICT sector combines manufacturing and services industries whose products primarily fulfil or enable the function of information processing and communication by electronic means, including transmission and display. This comprises ICT manufacturing industries, ICT trade industries and ICT services industries.

ICT services:

ICT services are those intended to enable the function of information processing and communication by electronic means.

IT Certification:

IT Certification is a formal procedure, by which NITA-U assesses, verifies and attests that a company/person providing information technology products or services meets the minimum requirements and standards.

Imports:

Inward flows of goods from the rest of the world into the economic territory of a country.

Information Technology:

This means the science of collecting and using information by means of computer systems and refers to computers, ancillary or peripheral equipment such as printers and scanners, software and firmware services including support services, and related resources and includes any equipment or interconnected systems that are used in the acquisition, storage, manipulation or processing, management, movement, control, display, transmission or reception of data or information.

Information Security:

This means the protection of information and information systems from unauthorised access, use, disclosure, disruption, modification or destruction.

Internet:

This is worldwide public computer network. It provides access to a number of communication services including the World Wide Web and carries e-mail, news,

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entertainment and data files, irrespective of the device used (not assumed to be only via a computer – it may also be by mobile phone, PDA, game machine, digital TV or other device). Internet access can be via a fixed or wireless network.

Leased line:

This refers to a dedicated connection that allows for communication between two sites (a point-to-point leased line) or between a site and the internet (an internet leased line). Leased lines typically deliver bandwidth over a leased fibre connection, although copper local tails can sometimes be used as well.

National Cyber Security Index:

National Cyber Security Index, developed by e-Governance Academy measures the preparedness of countries to prevent cyber threats and manage cyber incidents. Analysing these fields helps governments to identify the gaps in policies and strategies that should to be tackled to improve a country's cyber security. The NCSI focuses on measurable aspects of cyber security implemented by the central government:1. Legislation in force – legal acts, regulations, orders, etc.; 2. Established units – existing organisations, departments, etc.; 3. Cooperation formats – committees, working groups, etc.; 4. Outcomes – policies, exercises, technologies, websites, programmes, etc. The maximum NCSI Score is always 100 (100%) regardless of whether indicators are added or removed.

Smartphone:

A class of mobile phones and of multipurpose mobile computing devices. They are distinguished from feature phones by their stronger hardware capabilities and extensive mobile operating systems, which facilitate wider software, internet (including web browsing over mobile broadband), and multimedia functionality (including music, video, cameras, and gaming), alongside core phone functions such as voice calls and text messaging.

Structured Cabling Standards:

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These aim at providing guidance in the process of implementing structured cabling to enhance the delivery of voice, data and video conferencing services across the different Government MDAs.

Website:

This means a location on the internet and a collection of web pages, images, videos, data which are addressed relative to a common Uniform Resource Location (National Information Technology Authority, Uganda (E-Government) Regulations, 2015).

NATIONAL STANDARD INDICATORS

Indicator	2015/16	2016/17	2017/18	2018/19	2019/20
Level 3: Sector Outcomes					
Percentage of households with internet access	-	-	10.8%	-	-
Percentage of population using internet	-	-	12.1%	-	-
Proportion of the population owning a mobile phone	-	-	70.9%	-	-
Proportion of population utilizing e-government services	-	-	62.6%	-	-
Percentage share of ICT to GDP (current prices)	2.5%	2.2%	2.2%	2.2%	2.6%
Percentage share of ICT revenue to total revenue	9.5%	8.5%	8.6%	10.7%	10.6%
Level 4: Intermediate Outcomes					
Level of availability for hosted public services	99.8%	99.8%	99.8%	99.8%	95.6%
Number of sites utilizing services (internet, data centre, IFMIS, Leased lines and Dark fibre) over the National Backbone infrastructure	-	180	273	342	428
Level of compliance with IT related laws, legislation and standards	69.5%	57.3%	57.0%	57.5%	62.3%

1. NITA-U HUMAN RESOURCES STATISTICS

1.1 NITA-U Staff by Gender

This section covers statistics on NITA-U staffing levels by gender. In the FY2019/20, the total number of NITA-U staff was Ninety-four (94) compared to Ninety-five (95) recorded in FY2019/20. This translates into 64% being male and 36% female (figure 1.1.1).

Figure 1.1.1: Number of Staff by Gender; FY2015/16-2019/20
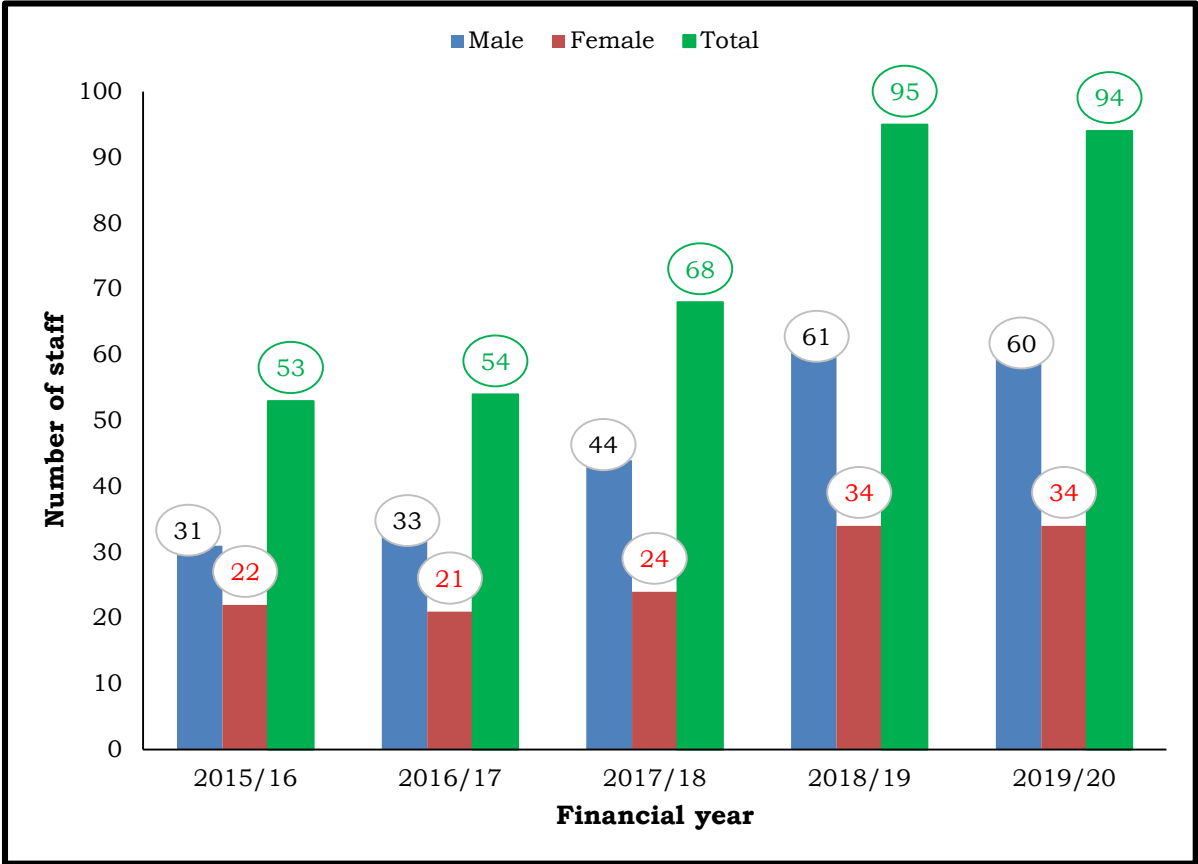
Source: National Information Technology Authority-Uganda

2. NITA-U ADMINISTRATIVE STATISTICS

This section contains statistics collected from NITA-U administrative reports/records on the business of the organisation. It covers the National Data Backbone Infrastructure, e-government services, IT standards, laws and regulation; and Information Security.

2.1 National Backbone Infrastructure (NBI)

This section provides information on the National Backbone Infrastructure whose major aim is to connect all major towns within the country onto an Optical Fibre Cable based Network and to connect Government entities onto the e-Government Network. Statistics on the kilometers of Optical Fibre Cable on the NBI; districts covered by the NBI; government sites connected to the NBI; government sites utilizing services over the government sites receiving Internet band width service over the NBI and government sites using other services over the NBI are presented in this section.

2.1.1 Kilometers of Optical Fibre Cable on the NBI

In FY2019/20, 920kms of Optical Fibre cable were laid bringing the total number of kilometers laid to 3,394kms (figure 2.1.1).

Figure 2.1.1: Kilometers of Fibre Optical Cable on the NBI; FY2015/16-2019/20
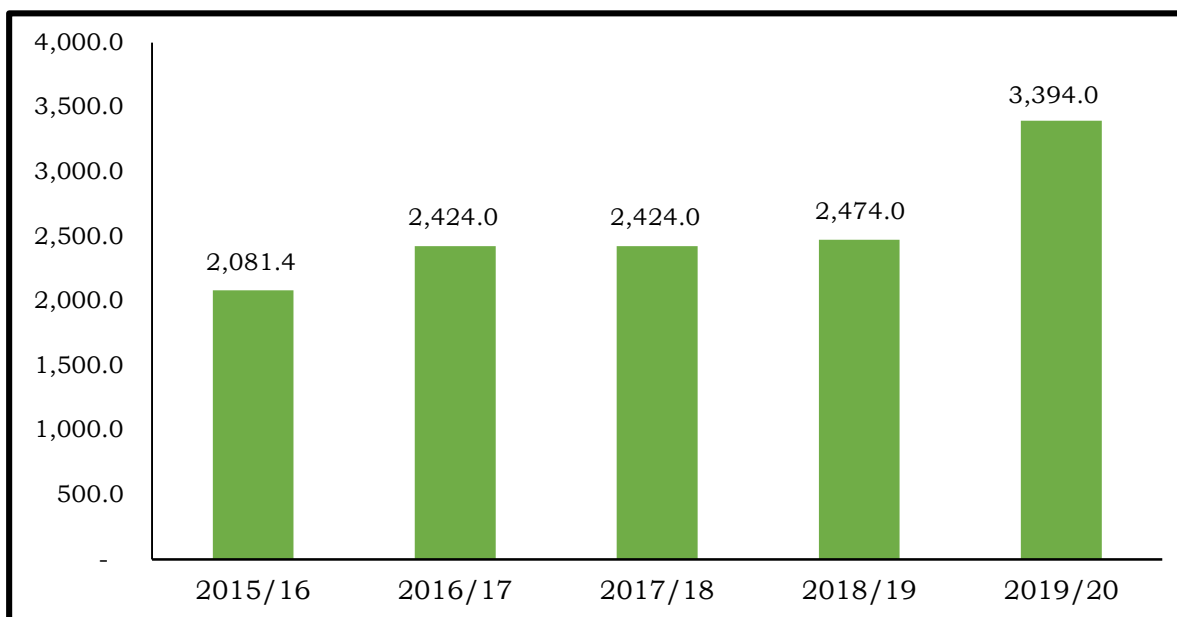
Source: National Information Technology Authority-Uganda

2.1.2 Districts covered by the NBI

In FY2019/20, additional ten (10) districts were covered by the NBI making a total of forty-nine (49) districts across the country (figure 2.1.2).

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Figure 2.1.2: Number of districts covered by the NBI; FY2015/16-2019/20
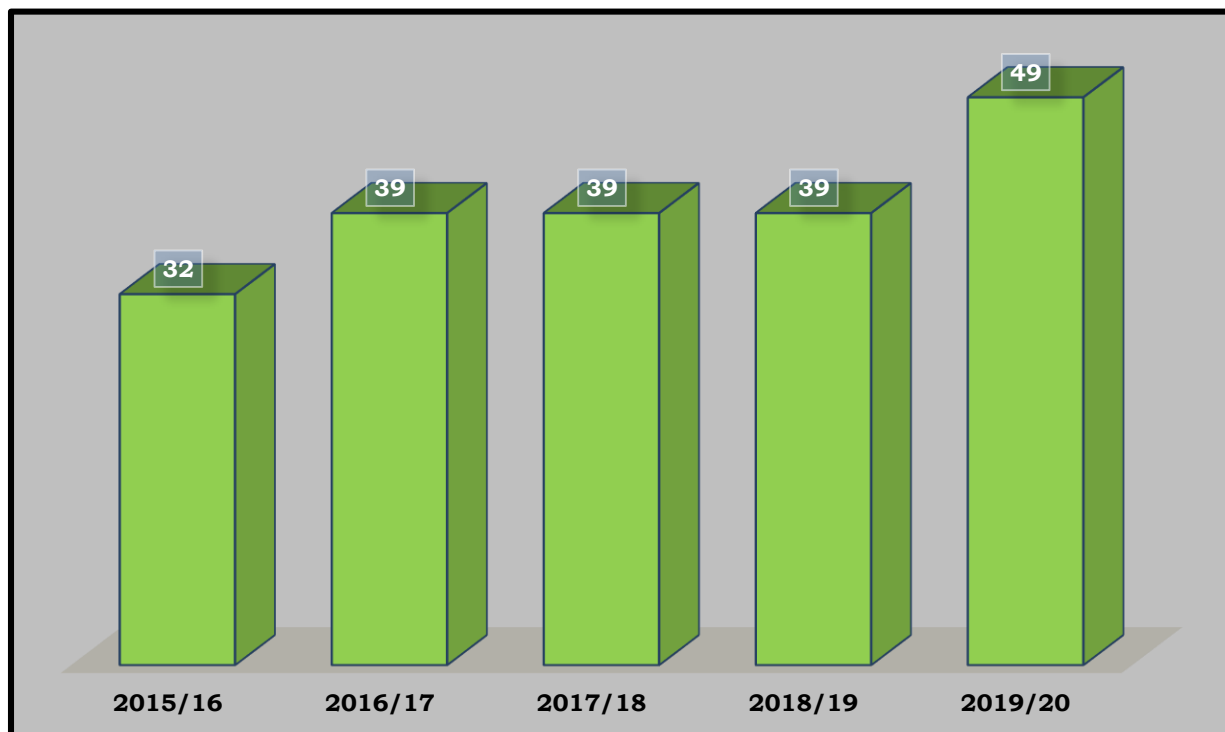
Source: National Information Technology Authority-Uganda

2.1.3 Sites connected to the NBI

Similarly, in FY2019/20, 169 (One Hundred Sixty-nine) new MDA/LG sites were connected to the NBI bringing the total to 597 (Five Hundred Ninety-Seven) compared to 96 (Ninety-Six) additional sites in FY2018/19 (figure 2.1.3).

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Figure 2.1.3: Number of MDA/LG sites connected to the NBI; FY2015/16-2019/20
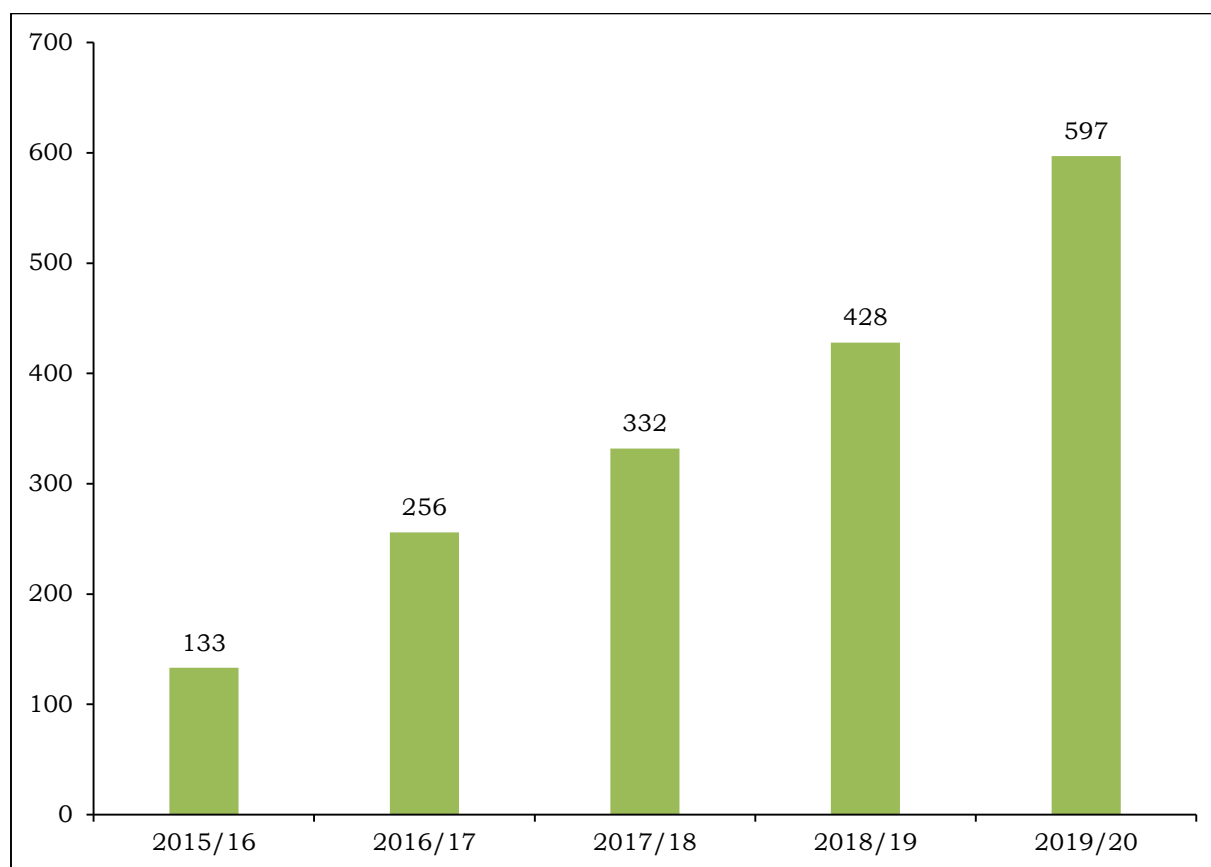
Source: National Information Technology Authority-Uganda

2.1.4 Sites utilizing services over the NBI

Of the 597 MDA/LG sites connected to the NBI, 342 (71%) were utilizing various services delivered over the NBI in FY 2019/20 compared to 342 sites out of 428 connected (80%) in FY2018/19 (figure 2.1.4). The services over the NBI include; Internet Bandwidth, Data Centre hosting, Integrated Financial Management (IFMS) services, dark fibre among others.

Figure 2.1.4: Number of MDA/LG sites utilizing services over the NBI; FY2016/17-2019/20
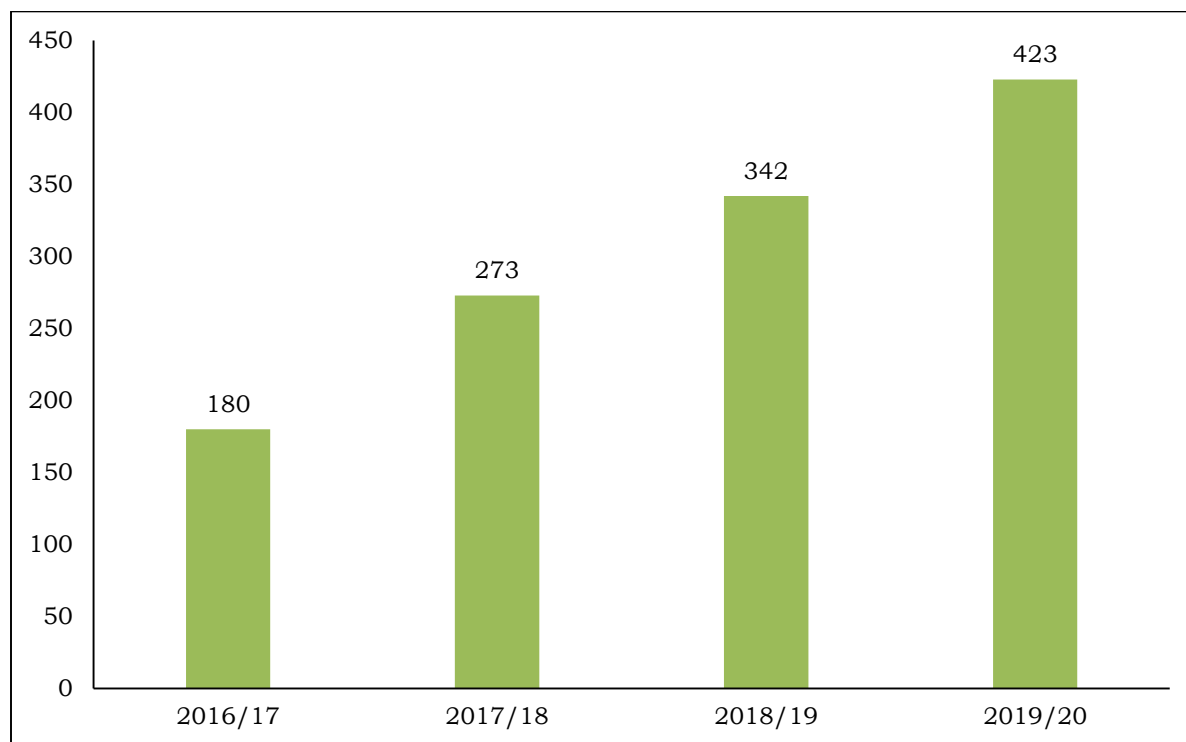
Source: National Information Technology Authority-Uganda

2.1.5 Entities using National Data Centre services

NITA-U established a Government Cloud infrastructure (National Data Centre) which is a Tier 3 Data Centre and a Disaster Recovery (DR) site to provide hosting services for all Government applications and Data.

By the end of FY2019/20, there were sixty-seven (67) entities hosting applications in the National Data Centre compared to forty (40) in FY2018/19 (Figure 2.1.5).

Figure 2.1.5: Number of entities using Data Centre services; FY2015/16-2019/20
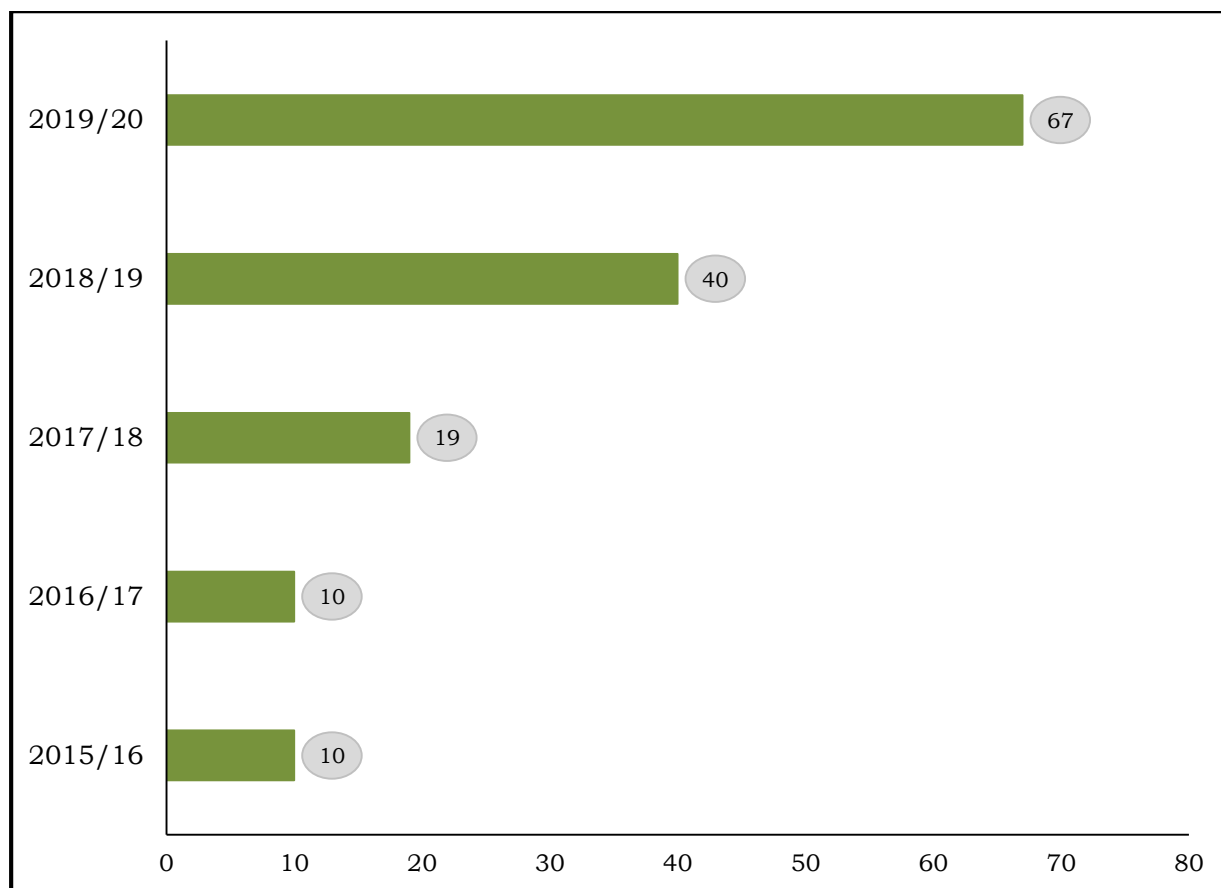
Source: National Information Technology Authority-Uganda

2.2 Snapshot of e-government services

E-Government enables citizens, enterprises and organizations to carry out their business with government in a more efficient, transparent, and effective manner. Therefore, NITA-U is championing comprehensive implementation of information and communication technology in government Ministries, Departments, Agencies (MDAs) and Local Governments. The government has setup infrastructure and is promoting the roll out of e-services.

This section presents statistics among others on applications hosted at the National Data Centre, MYUG free Wi-Fi service, e-services accessed through the

e-citizens Portal, MDAs/LGs provided technical assistance to in the implementation of e-Government projects and websites developed by NITA-U.

2.2.1 Applications hosted at the National Data Centre

In FY2019/20, there was an additional of sixty-seven (67) applications hosted at the National Data Centre from fifty-eight (58) in FY2018/19 totaling to one hundred twenty-five (125) (Figure 2.2.1).

Figure 2.2.1: Number of applications hosted at the Data Centre; FY2015/16- 2019/20
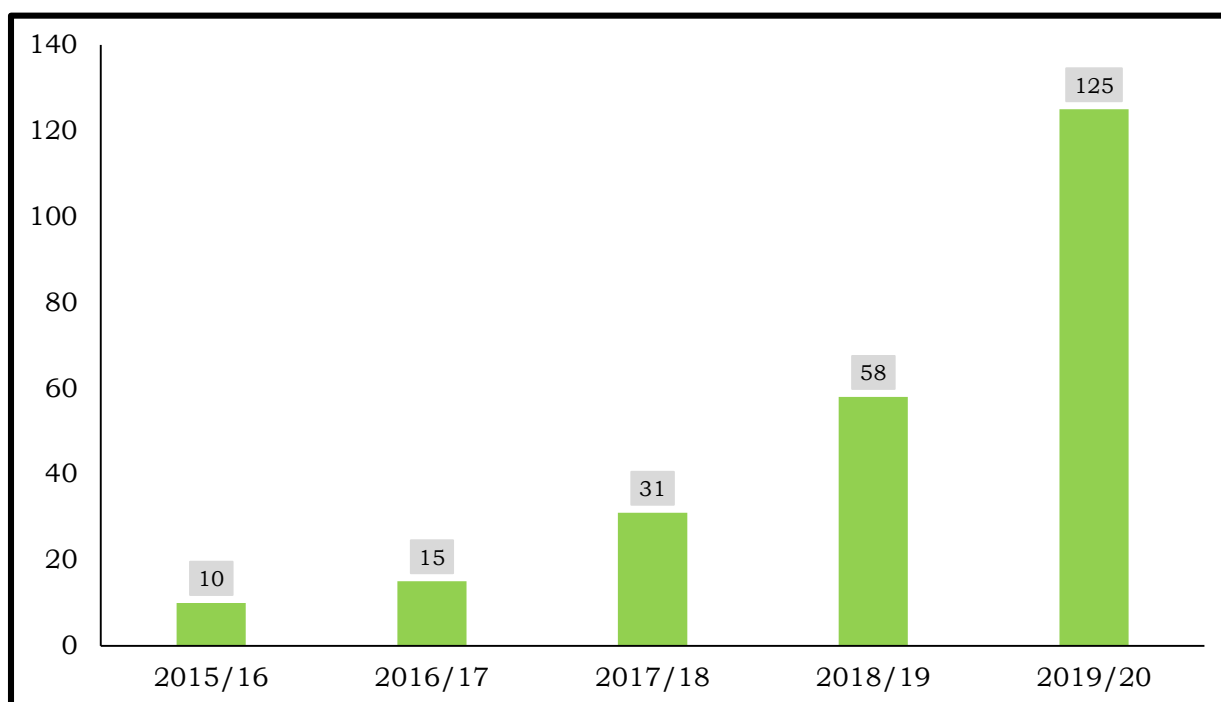
Source: *National Information Technology Authority-Uganda*

2.2.2 MYUG free Wi-Fi service

In FY2019/20, a cumulative total of 257,463 (Two hundred fifty-seven thousand four hundred sixty-three) unique users were registered on MYUG network with 5,985,548 (Five million nine hundred eighty-five thousand five hundred forty-eight) average monthly user login sessions from 2,213 (Two thousand two

hundred thirteen) registered in FY2018/19 with 1,972,218 (One million nine hundred seventy-two hundred eighteen) average monthly user login sessions (Figure 2.2.2). In total, 284 (Two hundred eighty-four) Wi-Fi sites are located across the central business district of Kampala and areas of Entebbe.

Figure 2.2.2: MYUG Average Monthly User login sessions
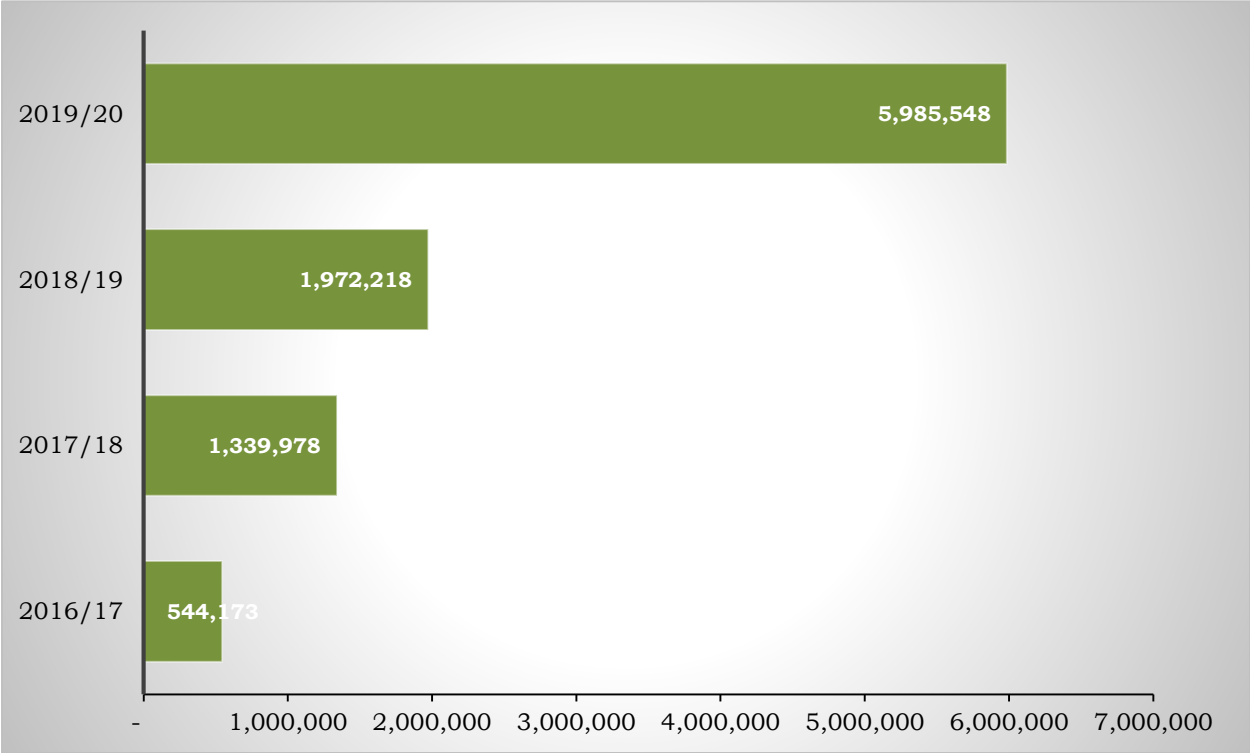
2.2.3 E-services accessed through the e-citizen portal

NITA-U has made commendable efforts to promote the usage of the e-Citizen portal (http://www.ecitizen.go.ug). In FY2019/20, cumulatively a total of one hundred and seven (107) e-services were added to the portal compared to a cumulative total of ninety-seven (97) e-services added in FY2018/19 (Figure 2.2.3).

Figure 2.2.3: Number of e-services accessed through the e-citizens Portal; FY2015/16-2019/20
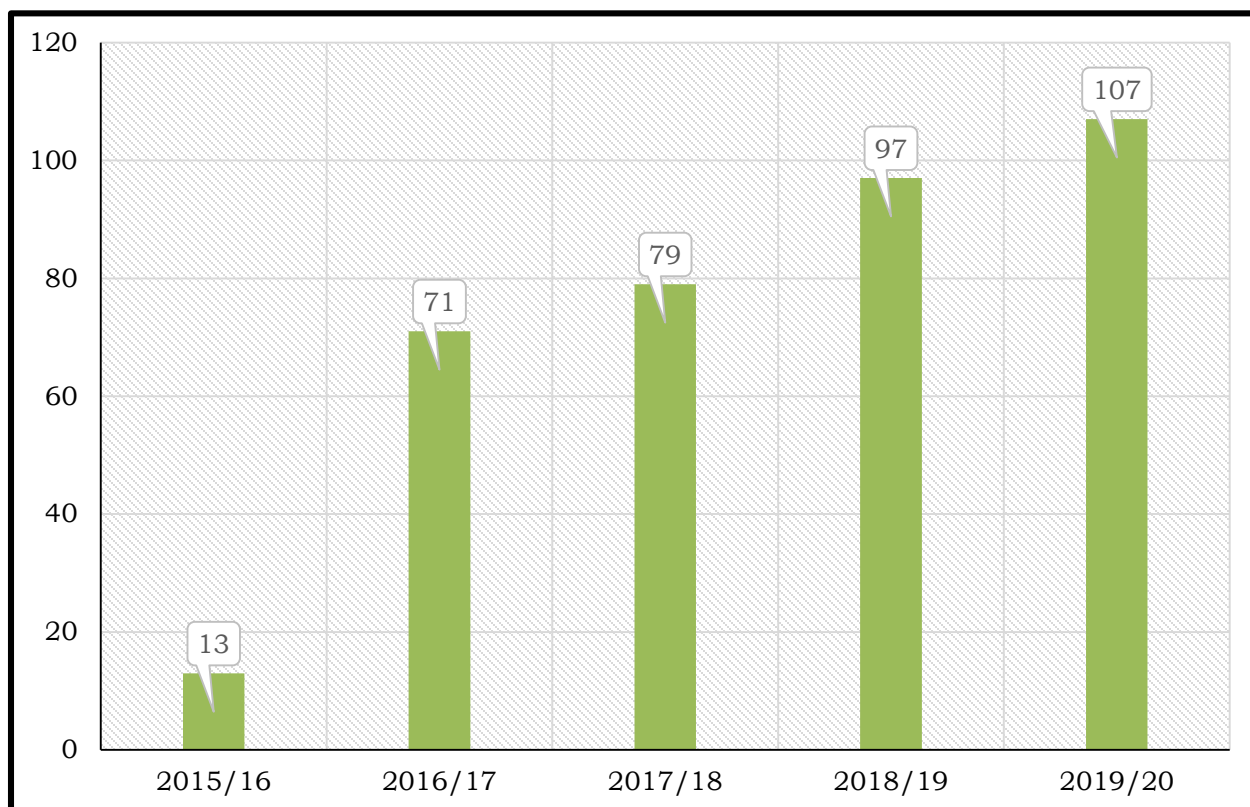
Source: National Information Technology Authority-Uganda

2.2.4 Usage of NITA-U IT Service Desk

NITA-U established the Government of Uganda IT Service Desk as a single Point of Contact for IT service delivery and support to all Ministries, Departments, Agencies and Local Governments. The usage of the Service Desk has improved considerably since its operationalization as seen figure 2.2.4 below. Throughout the FY2019/20, the Service Desk, together with technical teams in NITA-U provided support to two hundred (200) entities including district local governments. The ticketing tool (https://helpdesk.nita.go.ug) processed a total of two thousand seven hundred and thirty (2,730) tickets in FY2019/20 compared to two thousand four hundred and sixty-one (2,461) tickets raised in FY2018/19.

Figure 2.2.4: Growth in usage of service desk; FY2017/18-2019/20
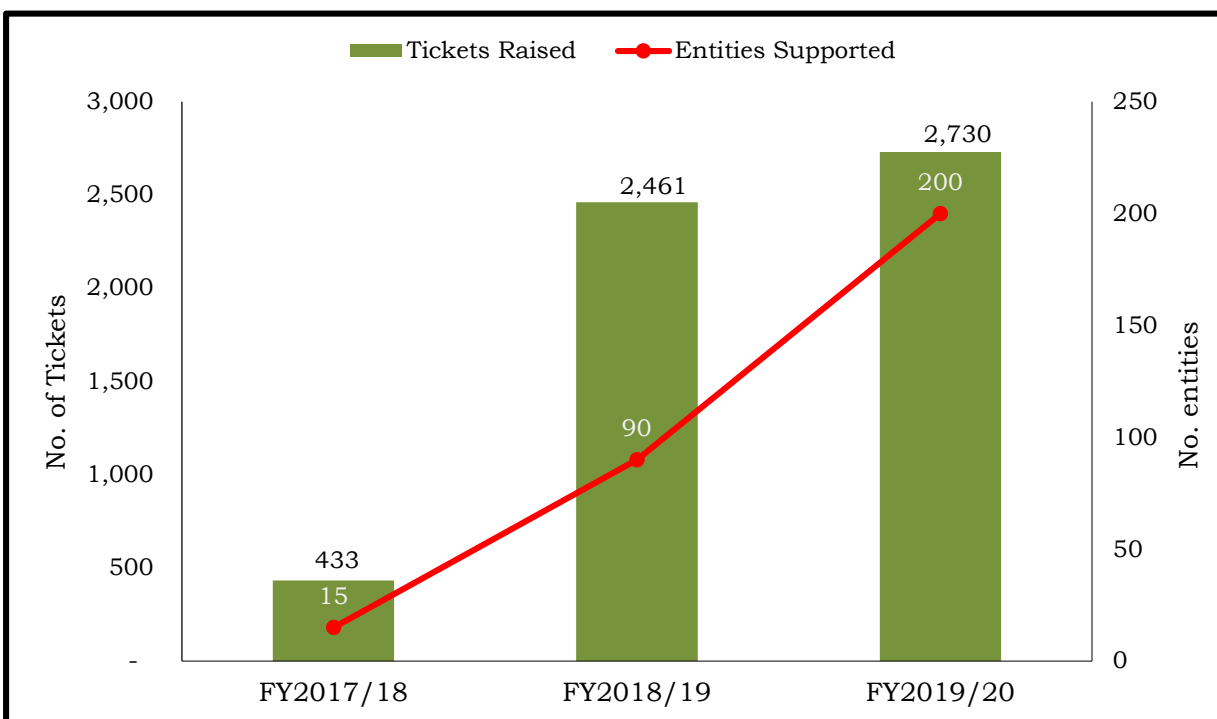
2.2.5 Number of E-services developed

In FY2019/20, a total of twelve (12) e-services were developed of which seven (7) of them were developed to support the fight against COVID-19 and five (5) were developed to aid the smooth operation of entities; Uganda Performing Right Society Membership Management, National Building Review Board Building Control System, Uganda National Chamber of Commerce and Industry Membership Management System, Ministry of Education Learner's Dashboard and the UG-GO mobile application. In FY2018/19, NITA-U developed five (5) new e-services that is; Anti-Corruption Reporting Service, Uganda Wildlife Education Centre payments portal, Uganda Museum payments portal, Uganda Hotel and Tourism Training Institute Hotel management system and the online registration system for membership for Uganda Chamber of Commerce (Figure 2.2.5).

Figure 2.2.5: Number of e-services developed; FY2018/19-2019/20
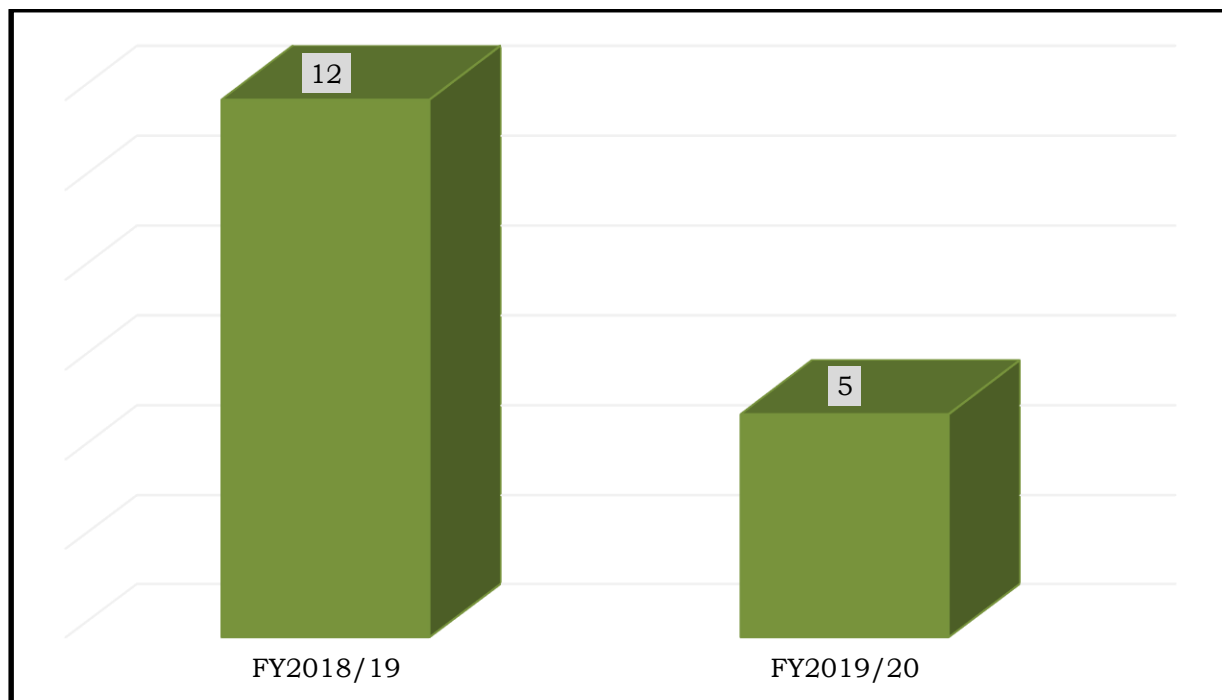
Source: National Information Technology Authority-Uganda

2.2.6 Websites developed

Furthermore, as per the national guidelines for development and management of websites, in FY2019/20 NITA-U developed a total of thirty-five (35) websites; (Figure 2.2.7). As per the national guidelines, NITA-U developed 65% of all existing government websites to meet the needs of people with disabilities (PWDs).

Figure 2.2.6: Number of websites developed; FY2015/16-2019/20
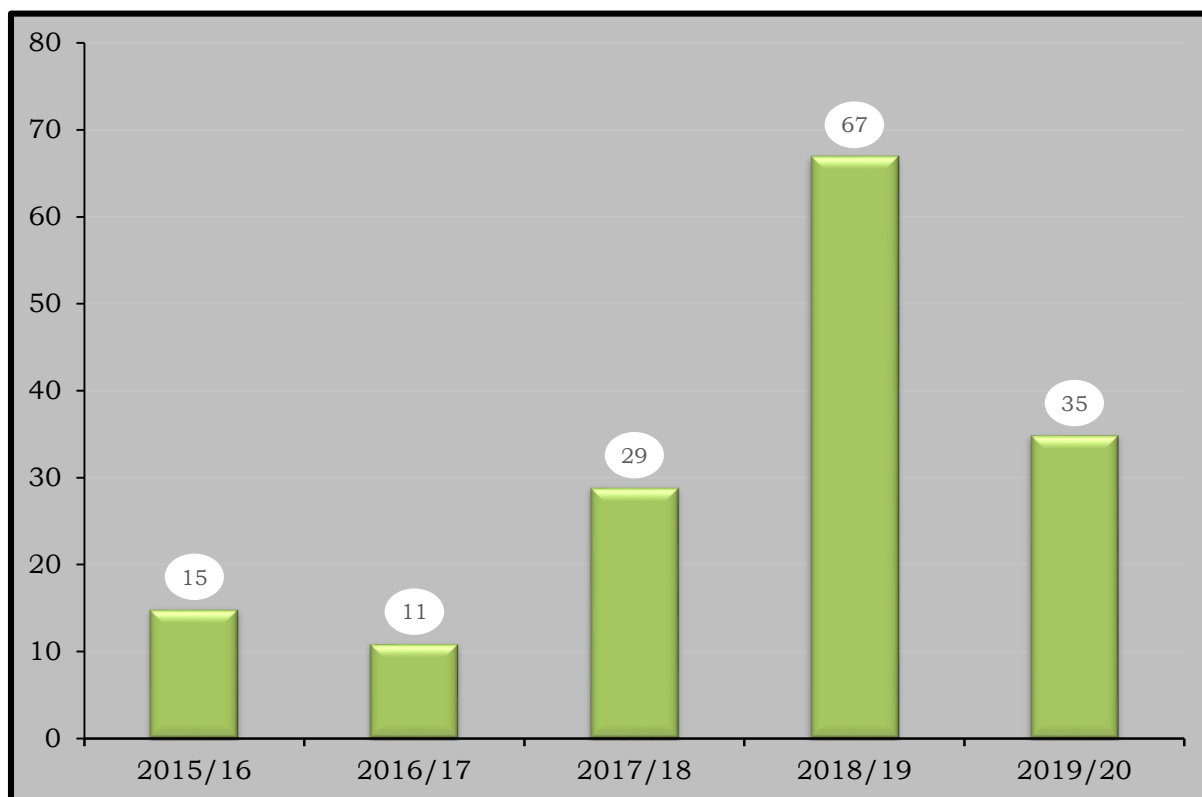
Source: National Information Technology Authority-Uganda

2.2.7 Unified Messaging and Collaboration System

The NITA-U established the Unified Messaging and Collaboration System (UMCS) which provide a standardized platform for seamless communication across Government. In the FY2019/20, UMCS was rolled out to additional twenty-eight (28) Government MDAs cumulatively bringing the total number of MDAs using the UMCS to forty-three (43) MDAs with a total of eleven thousand six hundred fifty-seven (11,657) users across these Government entities (Figure 2.2.7).

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Figure 2.2.7: Unified Messaging and Collaboration System; FY2015/16-2019/20
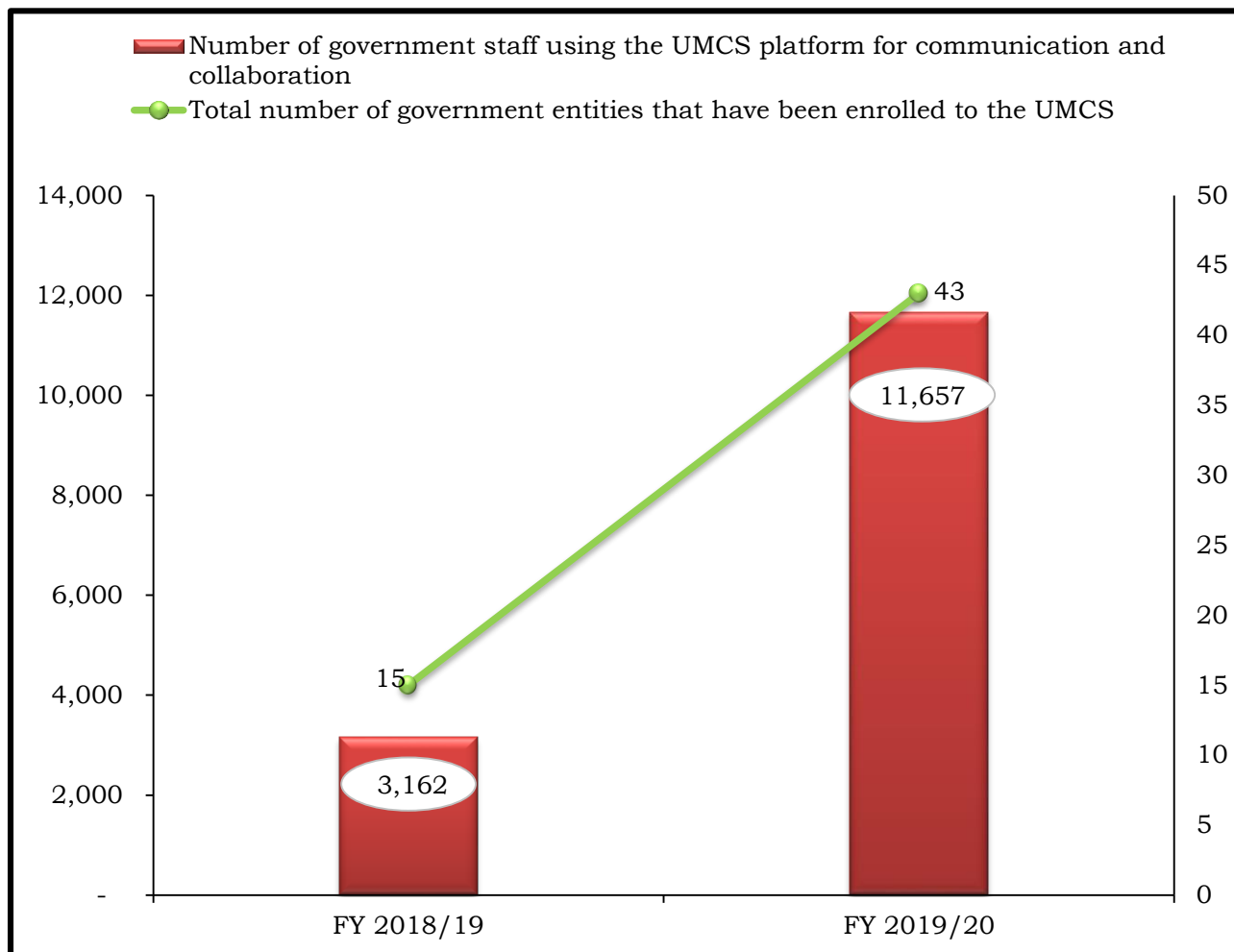
2.2.8 Electronic Payment Gateway

The e-payment Gateway was developed to give Government visibility on the financial transaction (collection and expenditure) which creates transparency.

By end of FY2019/20, the e-Payment gateway had been implemented with nineteen (19) e-services in production and five (5) entities had been enabled for integration from 6 (six) e-services in FY2018/19. A total of one hundred seven thousand eight hundred sixty-four (197,864) transactions had been made through the e-Payment gateway compared to forty-three thousand seven hundred (43,700) transactions made in FY2018/19 (Figure 2.2.8).

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Figure 2.2.8: Electronic Payment Gateway Indicators; FY2015/16-2019/20
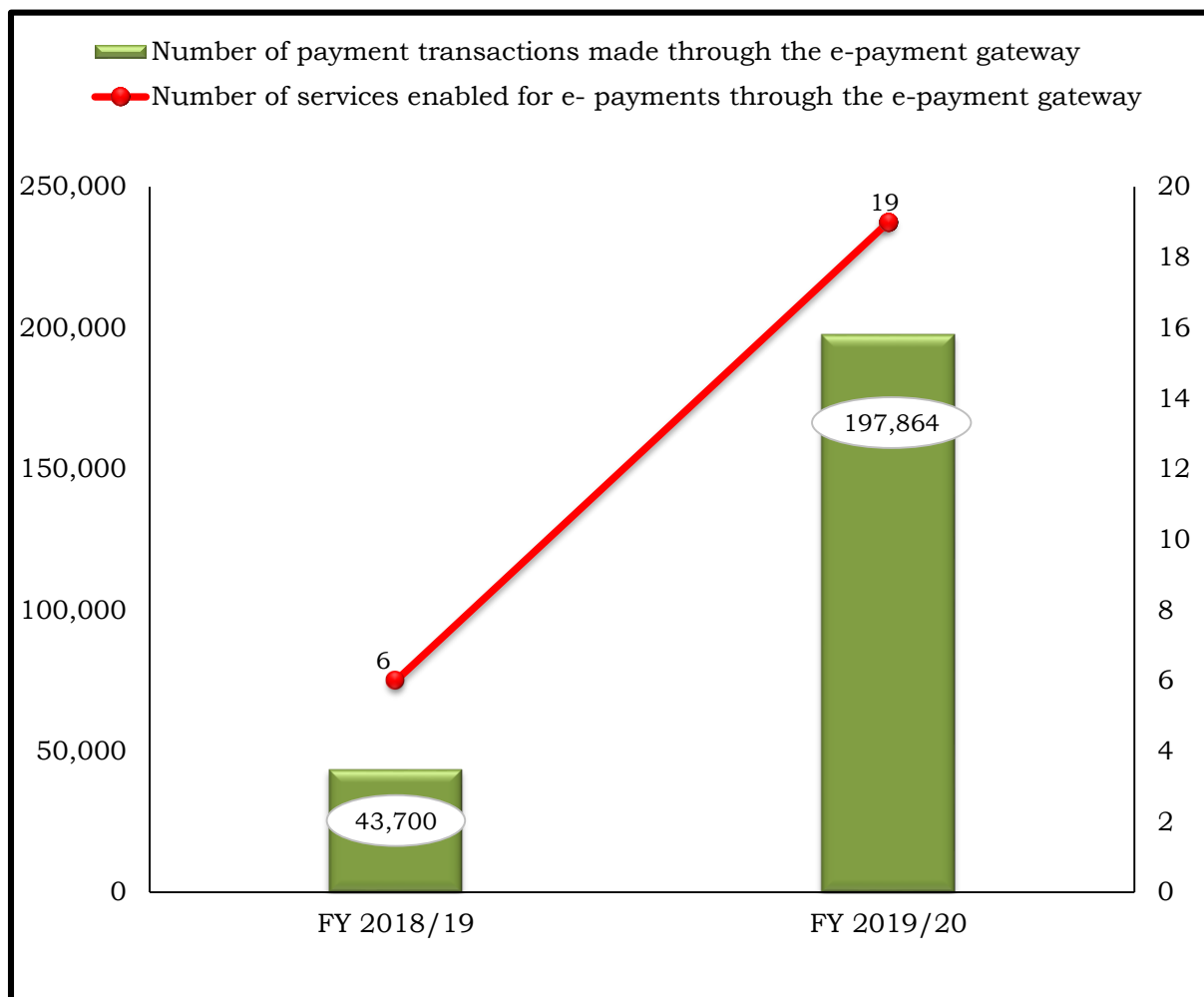
2.2.9 SMS Gateway

The SMS gateway was developed to provide a platform for dispatch of SMS in bulk by MDAs at affordable prices. The gateway assists Government to carry out SMS notification, telephone and mobile services; (i) Bulk short message service (SMS) and voice broadcasts, (ii) Open API for system integration to push/pull instant SMS notifications and (iii) Unstructured Supplementary Service Data (USSD). Subscribers of MTN and Airtel can receive SMS messages through the SMS Gateway with the short code 6120 and sender ID "NITA". The Subscribers can also access Government services through *260#.

In FY2019/20, an addition thirteen (13) entities were on boarded for the SMS gateway making a cumulative total of fourteen (14) entities integrated with the SMS gateway and a cumulative total of 2,256,494 SMSs were pushed through the SMS gateway.

In addition, the number of government services accessed using USSD code *260# in FY2019/20 increased from one (1) in FY2018/19 to four (4) services (Figure 2.2.9).

Figure 2.2.9: SMS Gateway Indicators; FY2015/16-2019/20

2.2.10 Availability for hosted public services

Furthermore, in FY2019/20, the level of availability for hosted public services (average uptime of the services hosted) declined to 95.6% up from 99.8% in the past three years (figure 2.2.10). In FY2019/20, on average, availability hosted

public services was as follows; 82.0% on Internet Bandwidth services, 99.6% on leased line services, 100% on Data Centre Services, 99.8% on IFMS services and 96.8% on web services.

Figure 2.2.10: Level of availability for hosted public services; FY2015/16-2019/20
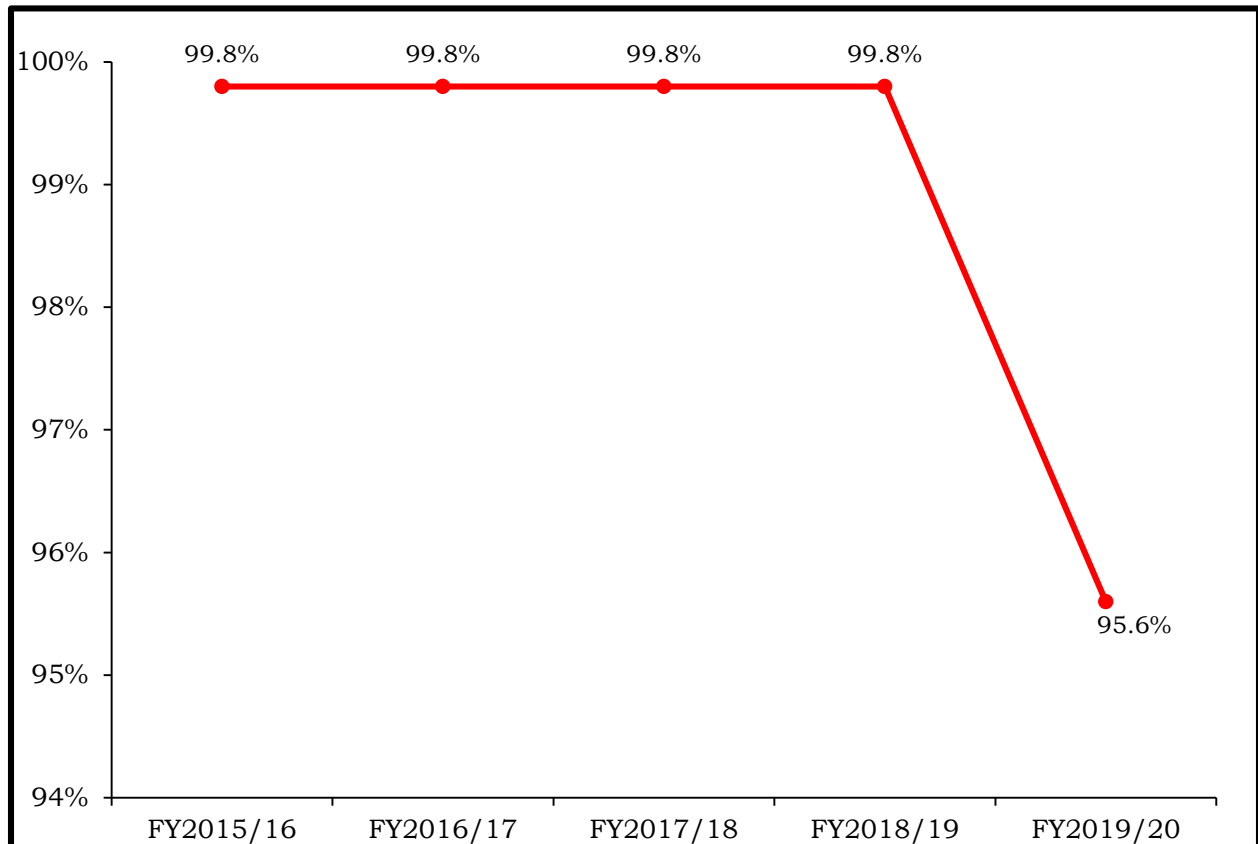
2.3 Priority IT Standards

NITA-U is charged with the responsibility of developing national information technology standards. These standards are developed through technical committees comprised of subject matter experts. These experts are sourced from different fields such as academia, industry, business, government regulatory bodies and independent researchers etc. In developing these standards, NITA-U prioritizes different competing needs and therefore the standards that have the greatest impact on the technological advancement of the country in line with the

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government's development programs are considered first for development. Such standards are considered to have a great impact on trade, security and affect positively the ability of government to deliver services in a fast, efficient, reliable and effective manner for all citizens which in turn has the effect of propelling the socio-economic development of the country.

In FY2019/20, a total of ten (10) National priority standards were developed, reviewed and approved for Mandatory implementation by the National Standards Council under the Uganda National Bureau of Standards (UNBS) bringing the total number of standards developed to sixty-two (62). Fifteen (15) National IT Standards were developed, reviewed and approved for Mandatory implementation in FY2018/19. The standards developed in FY2019/20, were in the areas of Digital services; Network cabling; Personnel Security; Incident Management; Technical Risk Assessment; Security Classification; Physical Security respectively.

Figure 2.3.1: Number of IT Standards developed; FY2015/16-2019/20
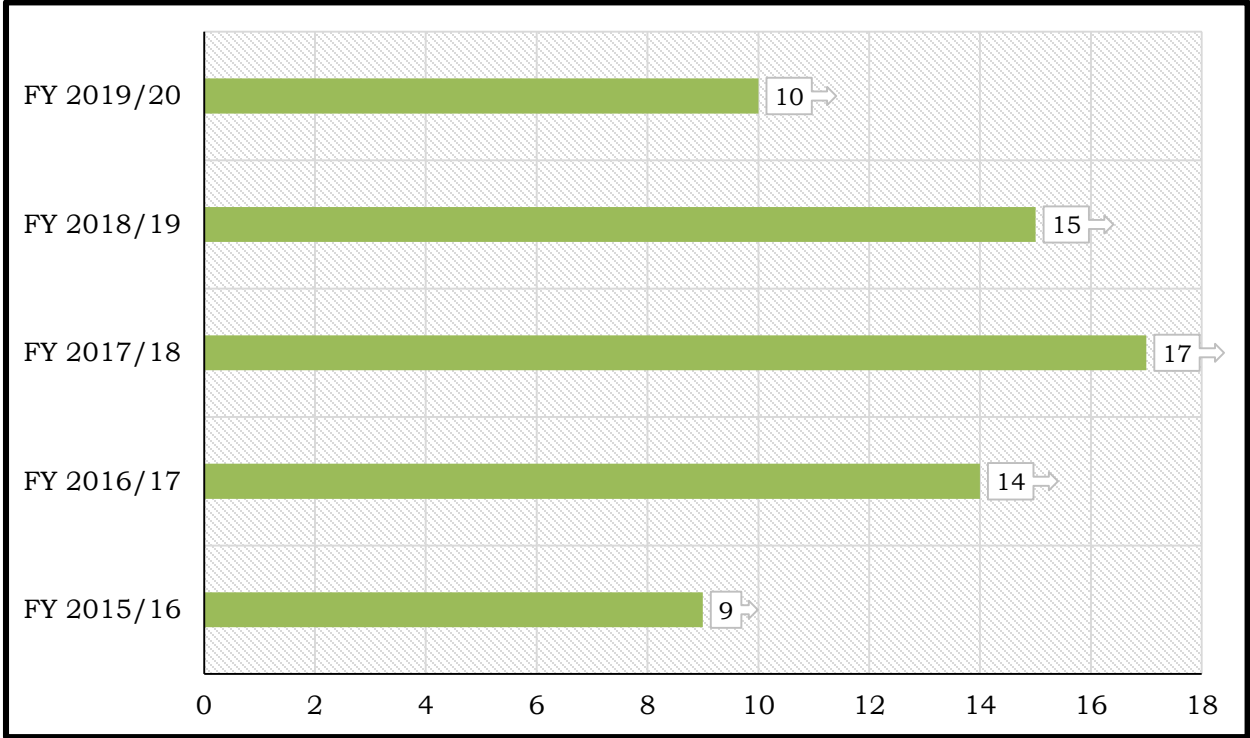
2.4 Compliance to IT standards

NITA-U conducts compliance assessments in entities against the standards for structured cabling and guidelines; Standards for the acquisition of IT Hardware & Software; E-Government Regulations, 2015 and the Electronic Transactions Act, 2011.

In the FY2019/20, thirteen (13) compliance assessments were conducted on structured cabling standards and acquisition of IT hardware and software guidelines. Overall MDA compliance with the Standards improved to 69% up from 59% in the previous financial year, well above the set target (55%) for the FY2019/20. There was noted improvement in the overall MDA compliance rating with the Standards on Acquisition of IT Hardware and Software at 76% compared to a rating of 65% in FY2018/2019. There was also noted improvement in the overall MDA compliance rating with the Structured Cabling Standards, 2013 at 62% compared to 53% in FY2018/2019. The above performance is well within the strategic indicators under the NITA-U Strategic Plan FY2018-2022 (Table 2.4.1).

Ten (10) compliance assessments were also undertaken for online service providers based on the consumer protection requirements under the Electronic Transactions Act, 2011. The entities scored an average 49% compliance rating, and remedial action plans have been agreed with each of them to close the gaps.

Table 2.4.1: Number of Compliance Assessments and Compliance levels; FY2015/16-2019/20

Financial Year		Compliance levels (average score)

	Number of Entities assessed	Structured Cabling Standards, 2013	Hardware & Software Standards, 2013	Overall score
2015/2016	21 MDAs	65%	74%	69.5%
2016/2017	10 MDAs	64%	73%	68.5%
2017/2018	10 MDAs	62%	67%	64.5%
2018/2019	16 MDAs	53%	-	59.0%
	11 MDAs	-	65%	
2019/2020	13 MDAs	62%	76%	69.0%

Source: National Information Technology Authority-Uganda

2.5 Certification of IT Service Providers

The National Information Technology Authority- Uganda (NITA-U) certifies and authenticates IT service providers and IT training institutions in Uganda for systematic growth of the sector and warrant of better quality IT services for the consumers.

From figure 2.5.1, by the end of FY2019/20, eighty-seven (87) additional firms were certified under the Certification Framework bringing the total number of IT firms certified to three hundred twenty-six (326).

Figure 2.5.1: Number of IT Service Providers certified; FY2016/17-2019/20
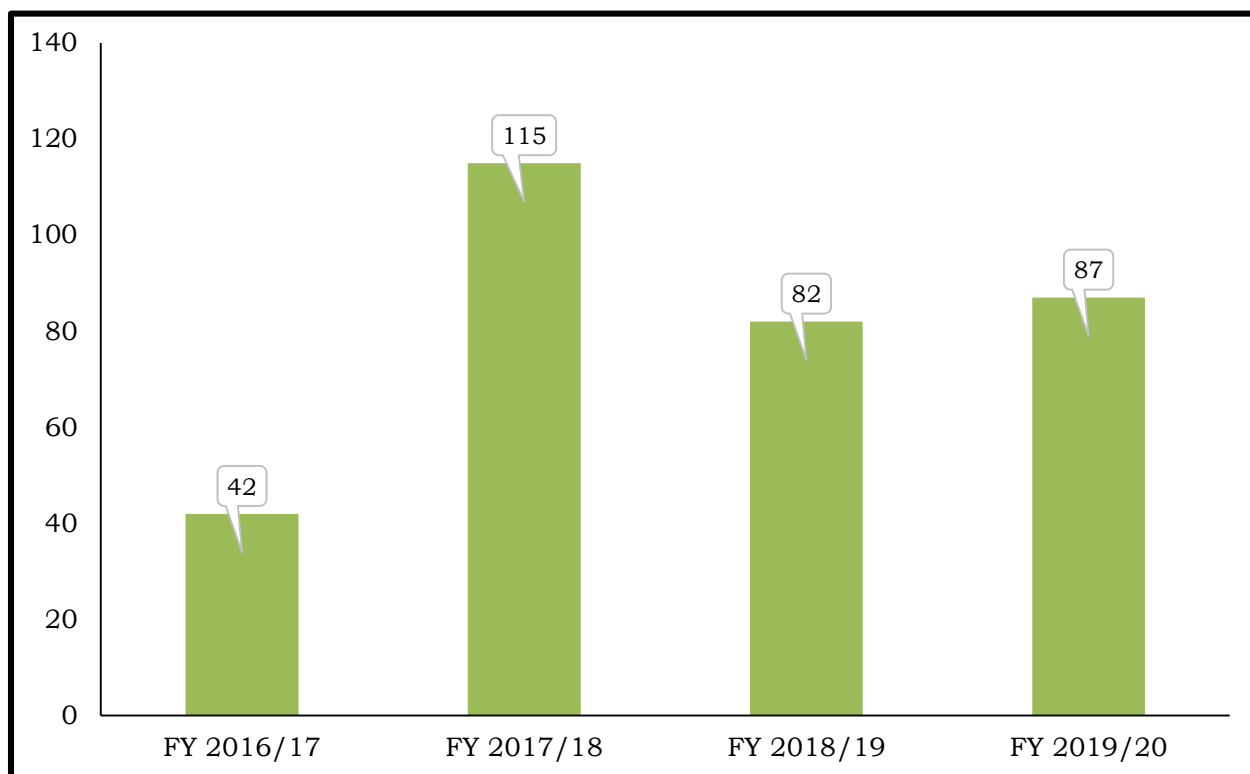
Source: National Information Technology Authority-Uganda

2.6 Cyber Laws Awareness

Sensitization activities to enhance awareness of the existence and application of the cyber laws have been conducted over the years. In FY2019/20, forty-six (46) sensitization engagements were conducted in the public and private sector to promote awareness on IT laws as compared to fifty (50) sessions conducted in FY2018/19 (figure 2.6.1).

Figure 2.6.1: Number of sensitization sessions on cyber laws; FY2015/16-2019/20
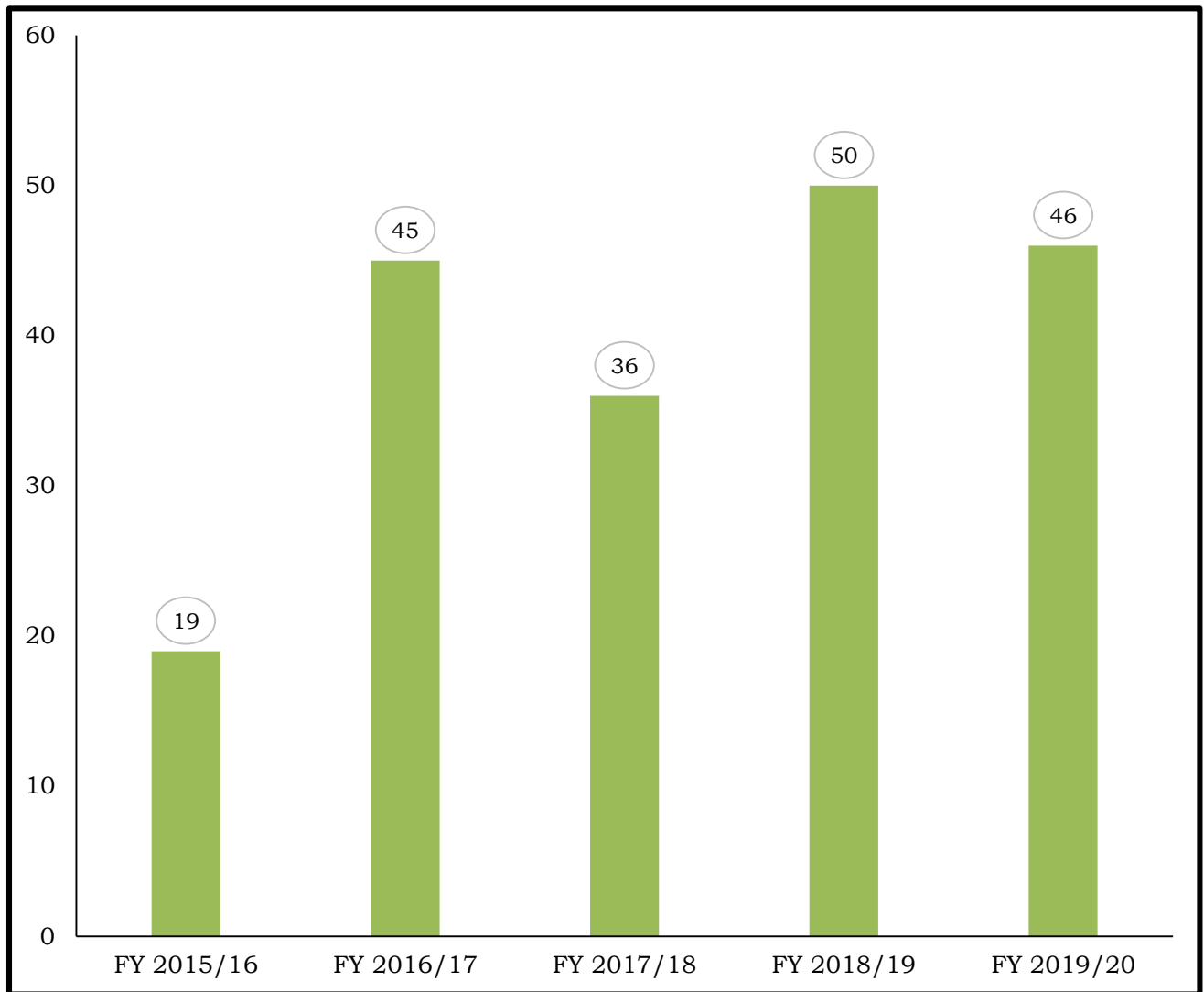
Source: National Information Technology Authority-Uganda

2.7 Information Security

This section presents statistics on Information Security awareness sessions targeting numerous stakeholder groups, Information Security Advisories issued by the National Cyber Security Emergency Response Team/Co-ordination Centre (CERT/CC), MDAs implementing National Information Security Framework, privacy protection for personal or confidential data collected, processed and stored as well as the availability for hosted public services.

2.7.1 Information Security awareness sessions

In FY2019/20, Forty (40) Information Security awareness aimed at bridging the information gap of information security risks and vulnerabilities to the public were conducted. In FY2018/19, twenty-six (26) cyber security awareness sessions were conducted targeting numerous stakeholder groups (figure 2.7.1).

Figure 2.7.1: Number of Information Security Awareness Sessions; FY2015/16-2019/20
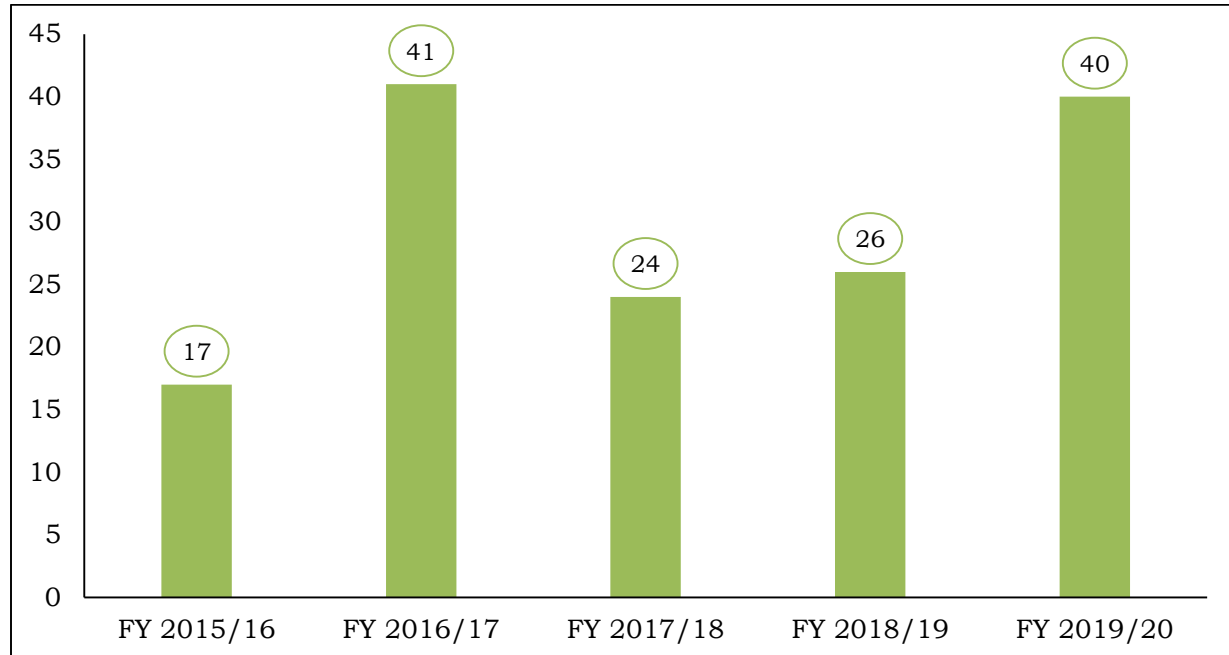
Source: National Information Technology Authority-Uganda

2.7.2 MDAs complaint with the National Information Security Framework

The number of MDAs compliant with the National Information Security Framework (NISF) in FY2019/20 remained at sixteen (16) (figure 2.7.2).

Figure 2.7.2: Number of MDAs complaint with the National Information Security Framework (NISF); FY2015/16-2019/20
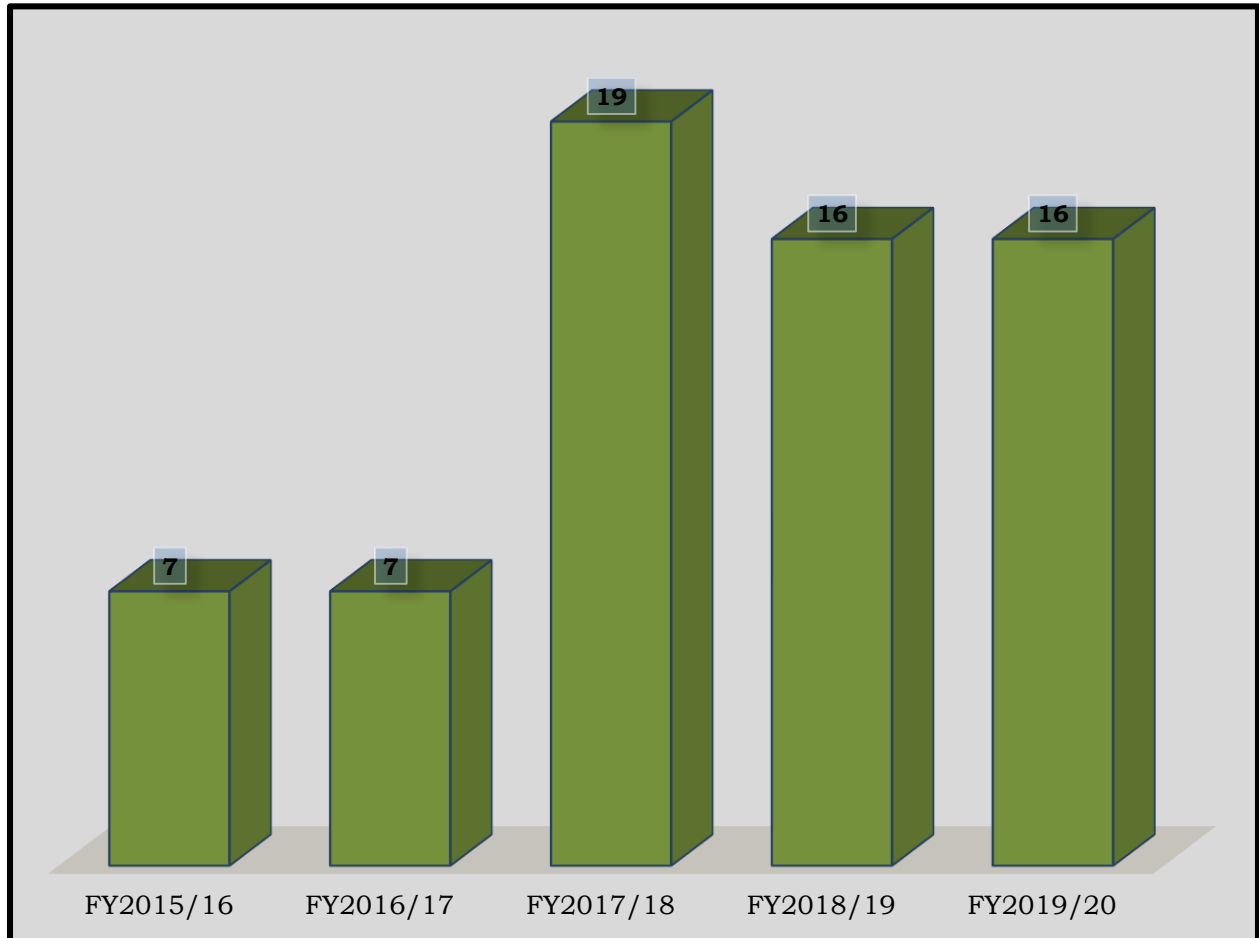
Source: National Information Technology Authority-Uganda

2.7.3 Information Security Advisories

For the FY2019/20, the National CERT/CC issued fifty-seven (57) cyber security advisories about critical vulnerabilities in software, applications and systems

and the possible mitigation procedures to the Critical Information Infrastructure Operators and other stakeholders.

3. INTERNET AND TELEPHONY STATISTICS

This sub section covers some statistics on internet and telephone subscriptions; Smartphones and feature phones in Uganda.

3.1 Internet

The number of mobile internet subscriptions in FY2019/20 increased by 25% from about 15.16million in FY2018/19 to about 18.92million. In addition, there was an increase in fixed internet subscriptions from 9,929 to 27,351 subscriptions in the same period. Furthermore, the total internet subscriptions improved by 25% from about 15.17million in FY2018/19 to about 18.94million in FY2019/20 translating into a penetration of 46 internet connections for every 100 Ugandans as compared to 37.6 internet connections for every 100 Ugandans in FY2018/19 (figure 3.1.1).

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Figure 3.1.1: Internet subscriptions; FY2015/16-2019/20
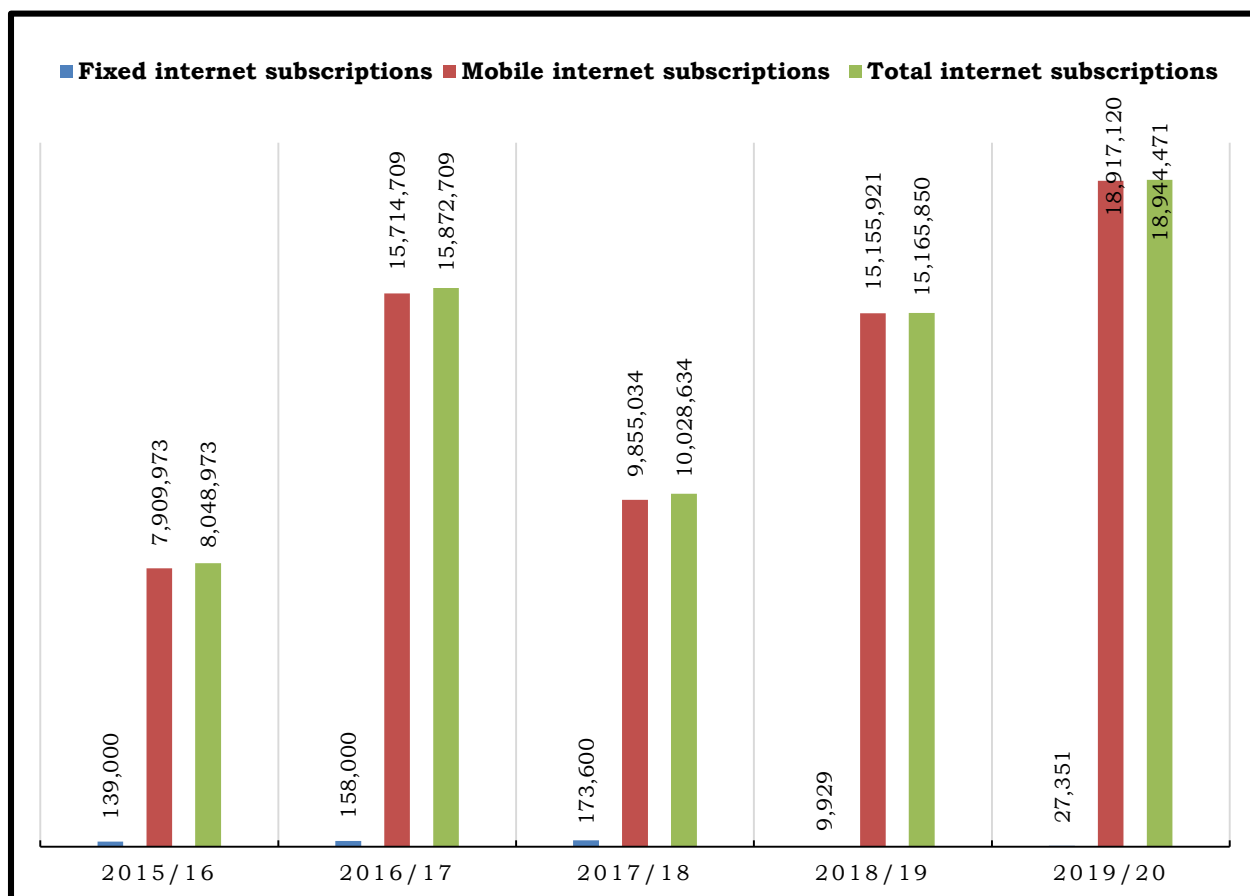
Source: Uganda Communications Commission

3.2 Telephone subscriptions

In FY2019/20, a decline of 0.3% in mobile phone subscriptions was recorded from 25.44million in FY2018/19 to 25.37million. A total of 203,132 active fixed phone subscriptions was recorded in the FY2019/20 compared to 85,738 subscriptions in FY2018/19. In addition, total telephone subscriptions of 25.45million was registered in FY2019/20 compared to 25.65million registered in FY2018/19 (figure 3.2.1).

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Figure 3.2.1: Phone Subscriptions; FY2015/16-2019/20
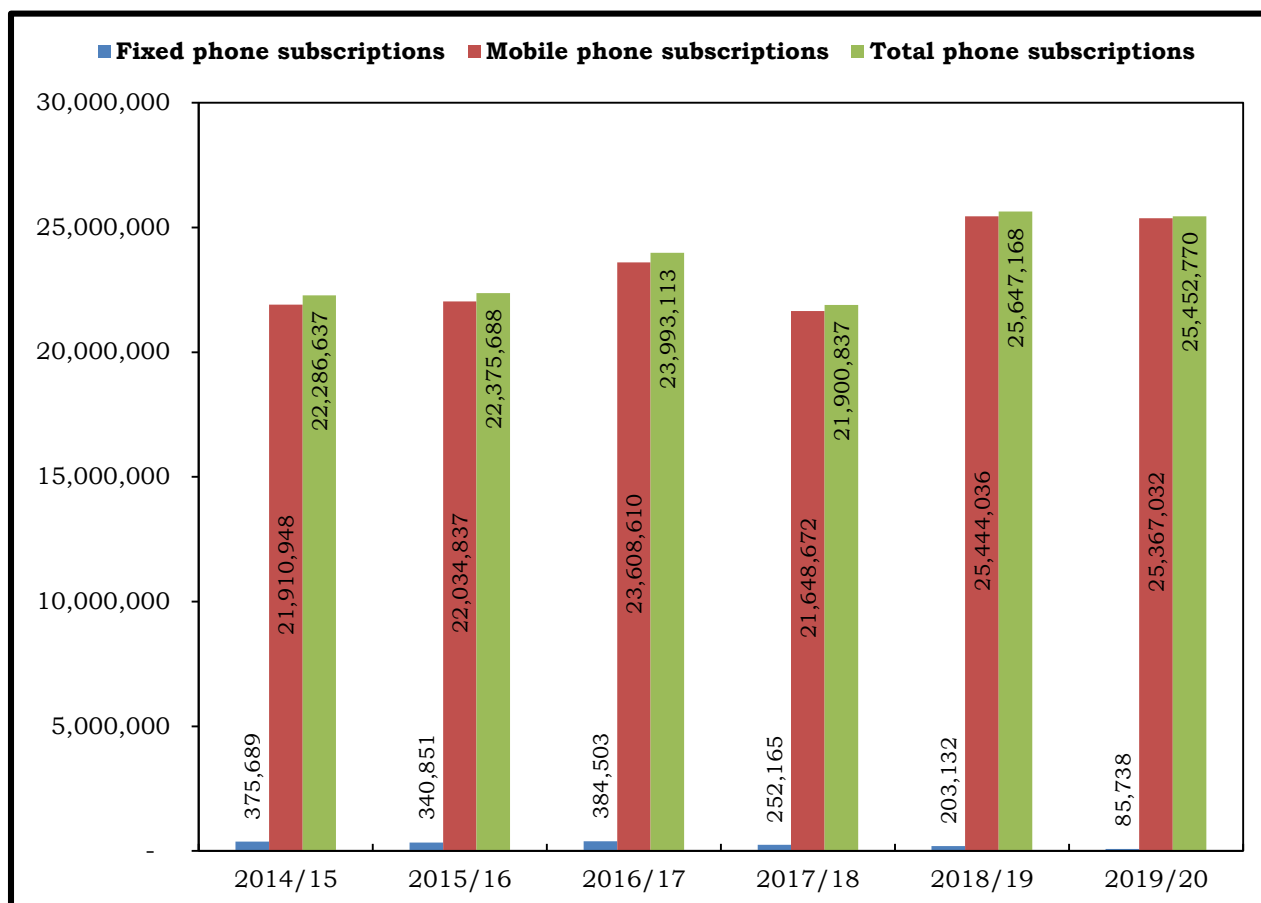
Source: Uganda Communications Commission

3.3 Tele density

In FY2019/20, there was a decline of 4% in telephone penetration per 100 subscribers from 63.6 in FY2018/19 to 61.0 (figure 3.3.1). The market contraction was attributed to:

- A clean-up of the subscriber register by one of the leading mobile cellular providers that rid the register of SMS-receiving only SIMs.
- Suppressed new demand because of the national COVID 19 lockdown and its subsequent effects on spending patterns.
- Retail store closures across the country that prevented on boarding of new customers to networks.

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Figure 3.3.1: Tele density; FY2015/16-2019/20
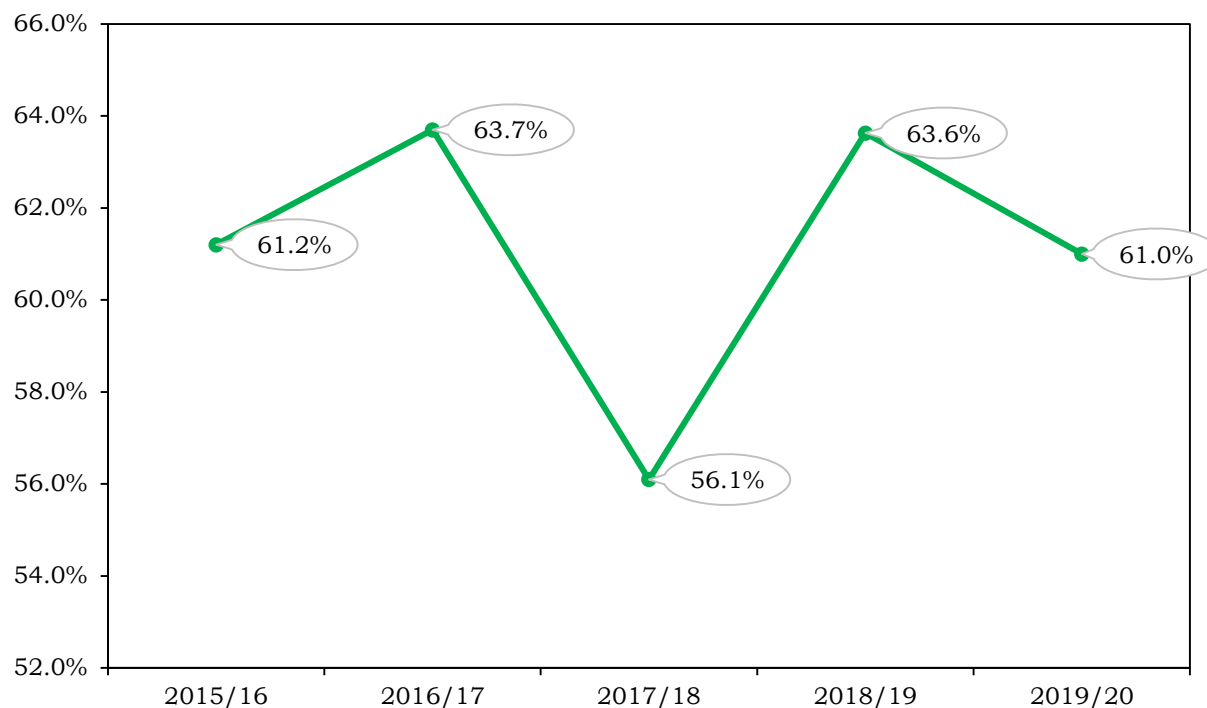
Source: Uganda Communications Commission

3.4 Smartphones and feature phones

Smartphones and feature phones with basic internet access remain the driver of new mobile internet subscriptions, growing from 21.5million smartphones and feature phones in FY2018/19 to about 24.1million in FY2019/20.

In FY2019/20, an increase of 26.3% was recorded in smart phone subscriptions from 5.51million subscriptions in FY2018/19 to 6.96million. In addition, a 7% increase was registered in feature phone subscriptions from 15.96million registered in FY2018/19 to 17.09million in FY2019/20 (figure 3.4.1).

Figure 3.4.1: Number of smartphones and feature phones; FY2018/19-2019/20

■ Smartphones ■ Feature phones

	2018/19	2019/20
Smartphones	5,511,987	6,961,778
Feature phones	15,962,646	17,090,406
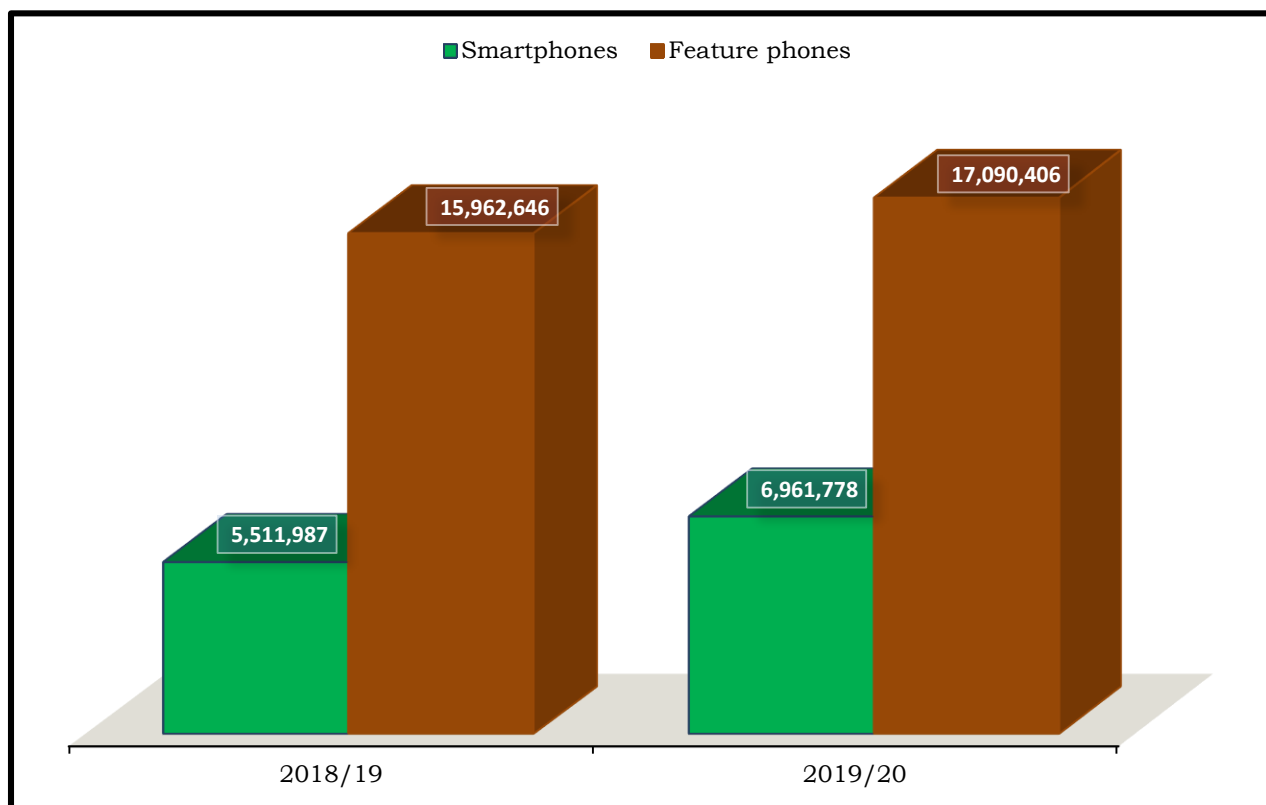
Source: Uganda Communications Commission

4. E-WASTE STATISTICS

E-Waste is one of the new environmental threats arising out of huge global sales of Electric and Electronic Equipment (EEE), with symmetric volumes of waste generated after, whose disposal is a complicated process especially for developing countries like Uganda.

4.1 Placed on the Market (sales)

The Placed on the Market variable is simply total imports less exports plus local manufactured EEE. Results reveal that, the amount of EEE placed on the market has been steadily decreasing since 2014 from 37,231 tonnes to 28,083 tonnes in 2018. The component of small equipment forms the biggest percentage of

electronics placed on the market since 2014. This is followed by Temperature exchange equipment such as Air Conditioner and refrigerators. However, large equipment (excluding Photovoltaic panels) have the least quantities of what is placed on the market.

Figure 4.1.1: Amount of EEE placed on the market as per EU-6 Classification; 2014-2018
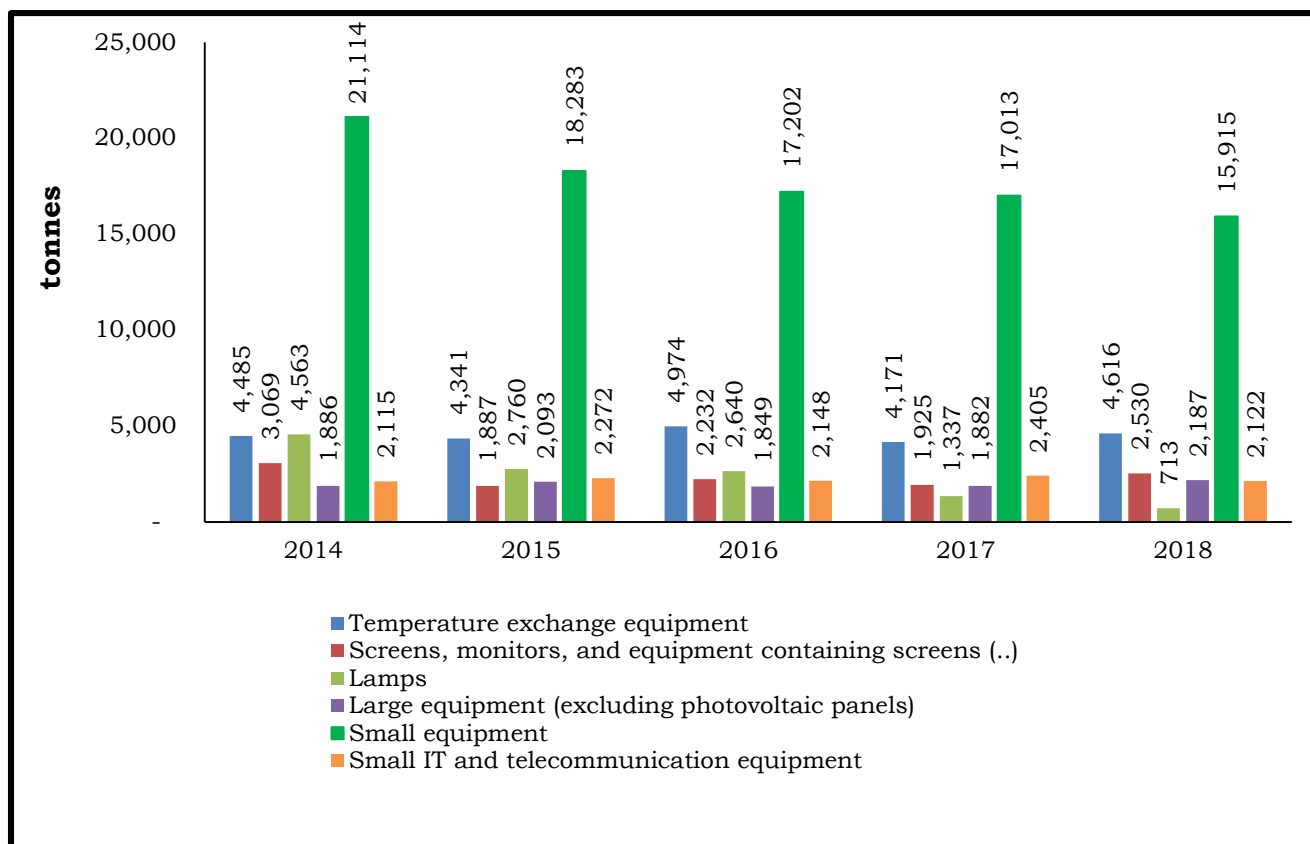
Source: Uganda Bureau of Statistics

4.2 E-Waste Generated

The E-waste generated depends on the quantities placed on the market and various life spans for the various categories. The E-waste generated has increased over time as shown in Figure 4.2.1. In the year 2018, the amount of e-waste generated was about 19,264 tonnes compared to 15,118 tonnes generated in 2014. The biggest component of E-waste generated in 2018 was small equipment as seen from graph 4.2.1. E-waste generated has been increasing over the years.

Figure 4.2.1: E-waste generated as per EU-6 Classification; 2014-2018
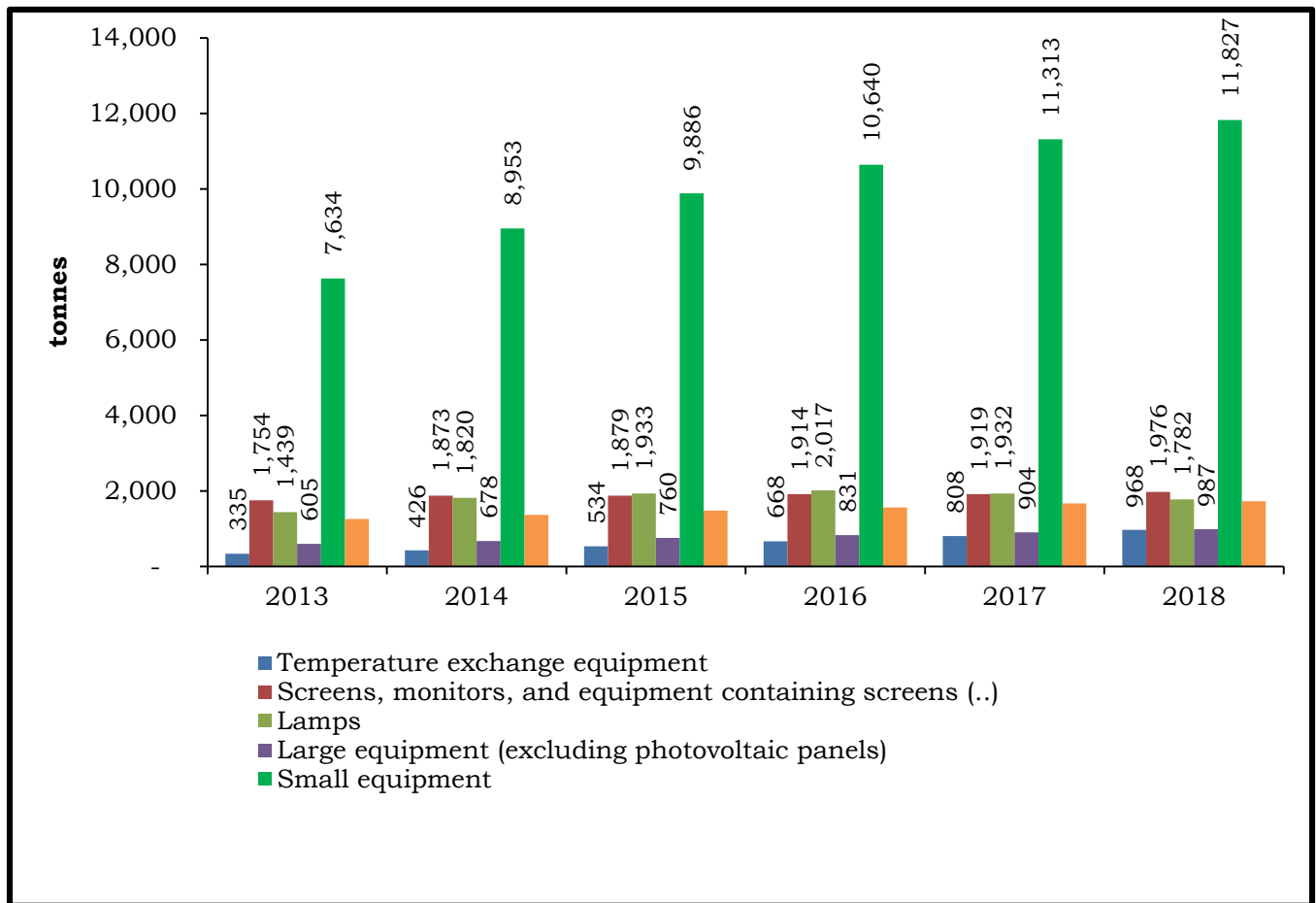
Source: Uganda Bureau of Statistics

5. ICT SECTOR PERFORMANCE IN THE ECONOMY

ICT sector plays an important role in the economy and its one of the most vibrant and fastest growing sectors since its liberalization in 2010. This section covers statistics on how ICT has contributed to the economy in terms of GDP, trade, revenue and investment.

5.1 ICT sector Gross Domestic Product (GDP)

This sub section covers statistics on ICT sector gross value added, contribution of the ICT sector to the national GDP and real ICT GDP growth rate.

5.1.1 ICT sector Gross Value added at current prices

The size of the ICT sector in terms of gross value added at current prices increased from UGX 2.87trillion in FY2018/19 to UGX 3.57trillion in FY2019/20 (table 5.1.1).

Table 5.1.1: ICT sector Gross value added at current price for FY2015/16-2019/20 (UGX Millions);

ICT Activities	2015/16	2016/17	2017/18	2018/19	2019/20
Computer, Electronic and Optical Products	1,598.3	3,026.3	3,590.8	3,712.5	3,318.7
Postal and Courier services	70,591.6	49,705.8	43,579.6	45,041.4	40,775.4
Audio-Visual Production and Distribution services	65,578.2	92,764.5	67,162.8	61,861.5	59,964.0
Broadcasting and Programming services	41,382.0	35,630.9	44,909.4	45,417.5	20,828.2
Telecommunications services	1,849,018.2	1,674,954.0	2,024,395.2	2,168,152.4	2,881,770.5
Computer Programming, Consultancy and Related services	135,119.5	135,153.2	125,756.0	164,453.3	167,991.1
Information Services	97,835.4	101,380.1	103,652.4	124,386.6	117,745.3
Repair of Computers and Personal and Household Goods service	262,185.7	257,328.0	249,141.6	260,343.8	277,123.3
ICT sector Gross Value Added at current prices	**2,523,308.8**	**2,349,942.8**	**2,662,187.7**	**2,873,369.1**	**3,569,516.5**

Source: Uganda Bureau of Statistics

5.1.2 ICT sector Gross Value added at constant 2016/17 prices

The size of the ICT sector in terms of gross value added at constant 2016/17 prices increased from UGX 2.24trillion in FY2018/19 to UGX 2.91trillion in FY2019/20 (table 5.1.2).

Table 5.1.2: ICT sector Gross value added at constant 2016/17 prices for FY2015/16-2019/20 (UGX Millions);

| ICT Activities	2015/16	2016/17	2017/18	2018/19	2019/20
Computer, Electronic and Optical Products	1,668.4	3,026.3	3,529.7	3,978.1	3,680.5
Postal and Courier services	71,131.3	49,705.8	46,092.1	49,733.8	35,237.6
Audio-Visual Production and Distribution services	69,606.7	92,764.5	68,470.4	63,753.6	61,756.5
Broadcasting and Programming services	30,541.6	35,630.9	34,071.2	32,718.4	42,361.8
Telecommunications services	1,369,843.1	1,674,954.0	1,518,314.8	1,534,864.2	2,203,793.9
Computer Programming, Consultancy and Related services	135,785.4	135,153.2	219,483.8	191,275.8	192,883.6
Information Services	95640.4	101380.1	108587.3	118384.4	124670.2
Repair of Computers and Personal and Household Goods service	276,367.8	257,328.0	248,651.9	245,764.3	247,086.9
ICT sector gross value added at constant 2016/17 prices	**2,050,584.7**	**2,349,942.8**	**2,247,201.3**	**2,240,472.6**	**2,911,470.9**

Source: Uganda Bureau of Statistics

5.1.3 Contribution of ICT sector to national GDP

The ICT sector activities contribution to nominal GDP (current price) improved from 2.2% in FY2018/19 to 2.6% in FY2019/20.

In addition, the contribution of ICT sector activities to the real GDP (at constant 2016/17 price) accounted for 2.3% in FY2019/20 compared to 1.8% in FY2018/19 (figure 5.1.1).
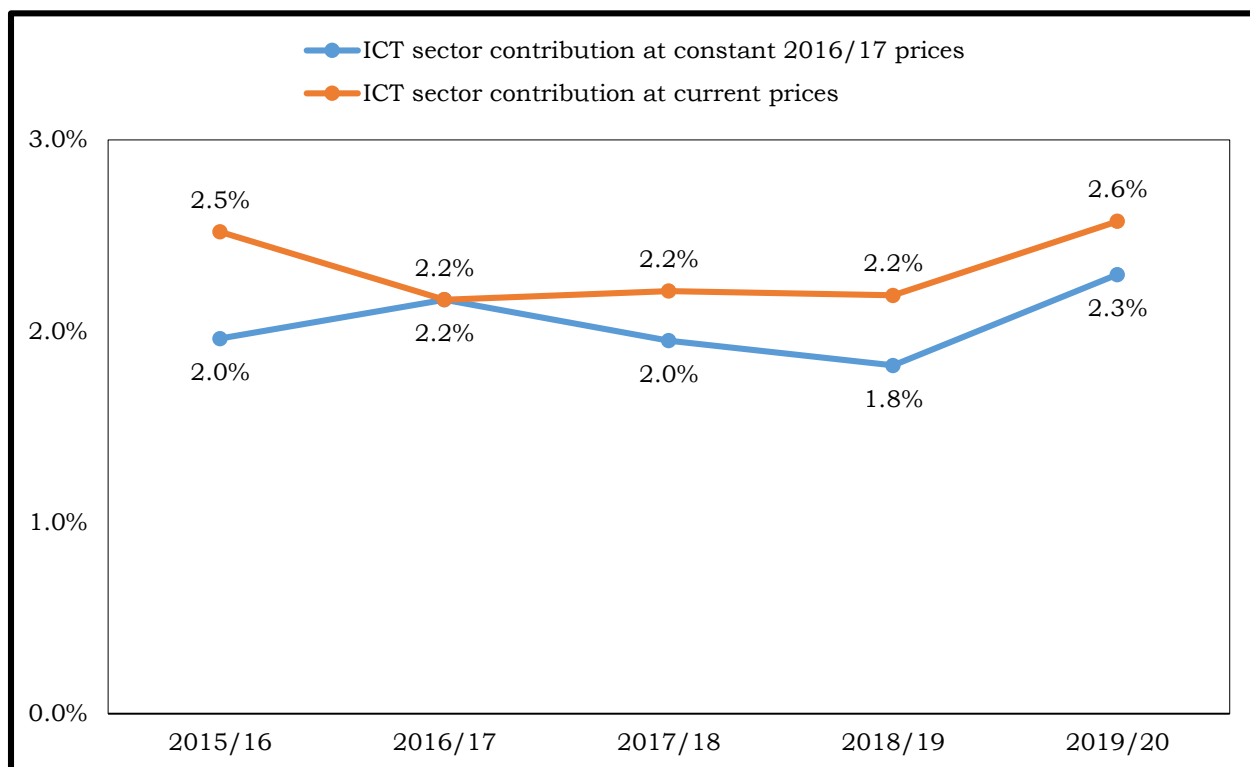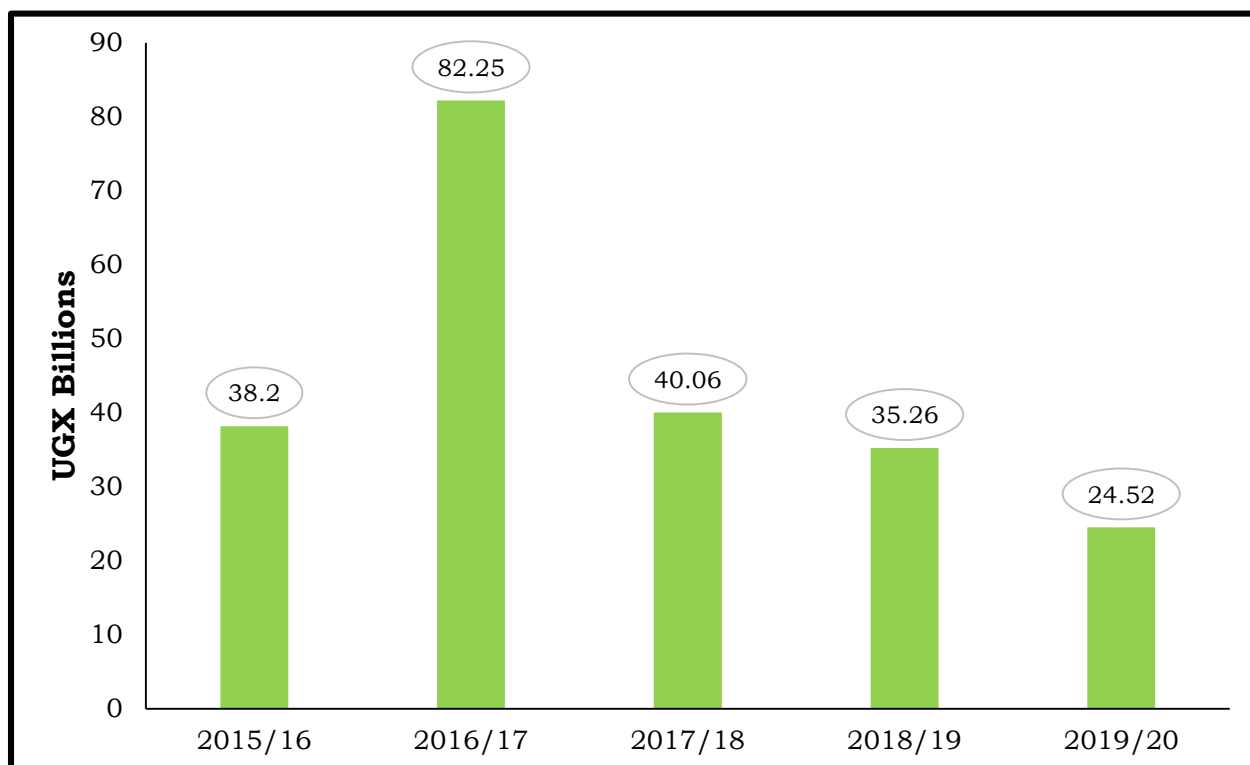
Source: Uganda Bureau of Statistics

5.2 Trade in ICT goods

This section presents a summary of External Trade Statistics in formal ICT goods in Uganda shillings as shared by the Uganda Bureau of Statistics (UBOS). The compilation of External Trade Statistics is based on the General Trade System and coded according to HS2012 and the Standard International Trade Classification Revision Four (SITC Rev4) nomenclature.

5.2.1 Value of ICT exports

Over the past three years, the value of ICT exports has been tremendously declining. During the FY2019/20, the total estimated formal ICT export earnings reduced from UGX 35.3billion in FY2018/19 to UGX 24.5billion translating into a decline of 30% (figure 5.2.1).

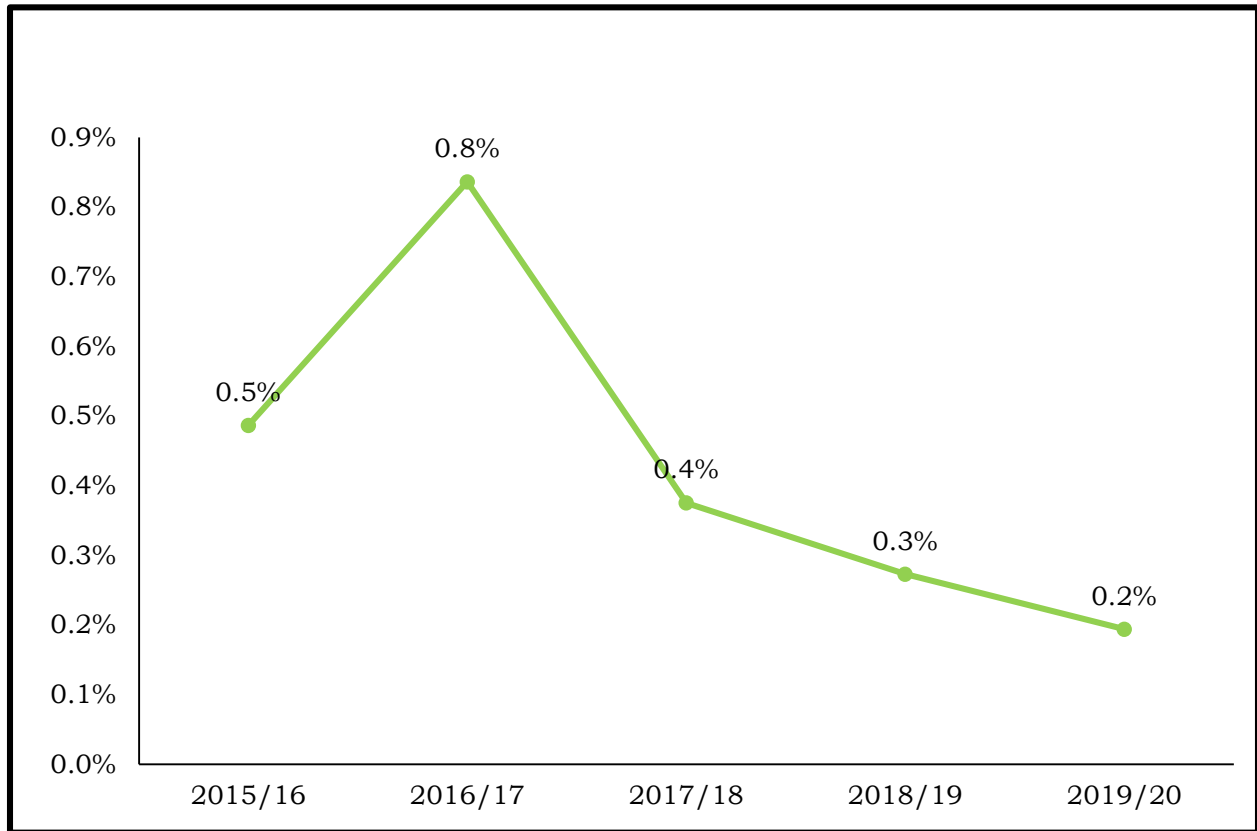**Figure 5.2.1: Value of ICT exports (UGX Billions); FY2015/16 – 2019/20**

Source: Uganda Bureau of Statistics

5.2.2 Contribution of ICT to total exports

The percentage contribution of the ICT exports to total exports has been declining consistently from 0.3% in FY2018/19 to 0.2% in FY2019/20 (figure 5.2.2).

Figure 5.2.2: Percentage share of ICT to Total value of exports; FY2016/15 – 2019/20
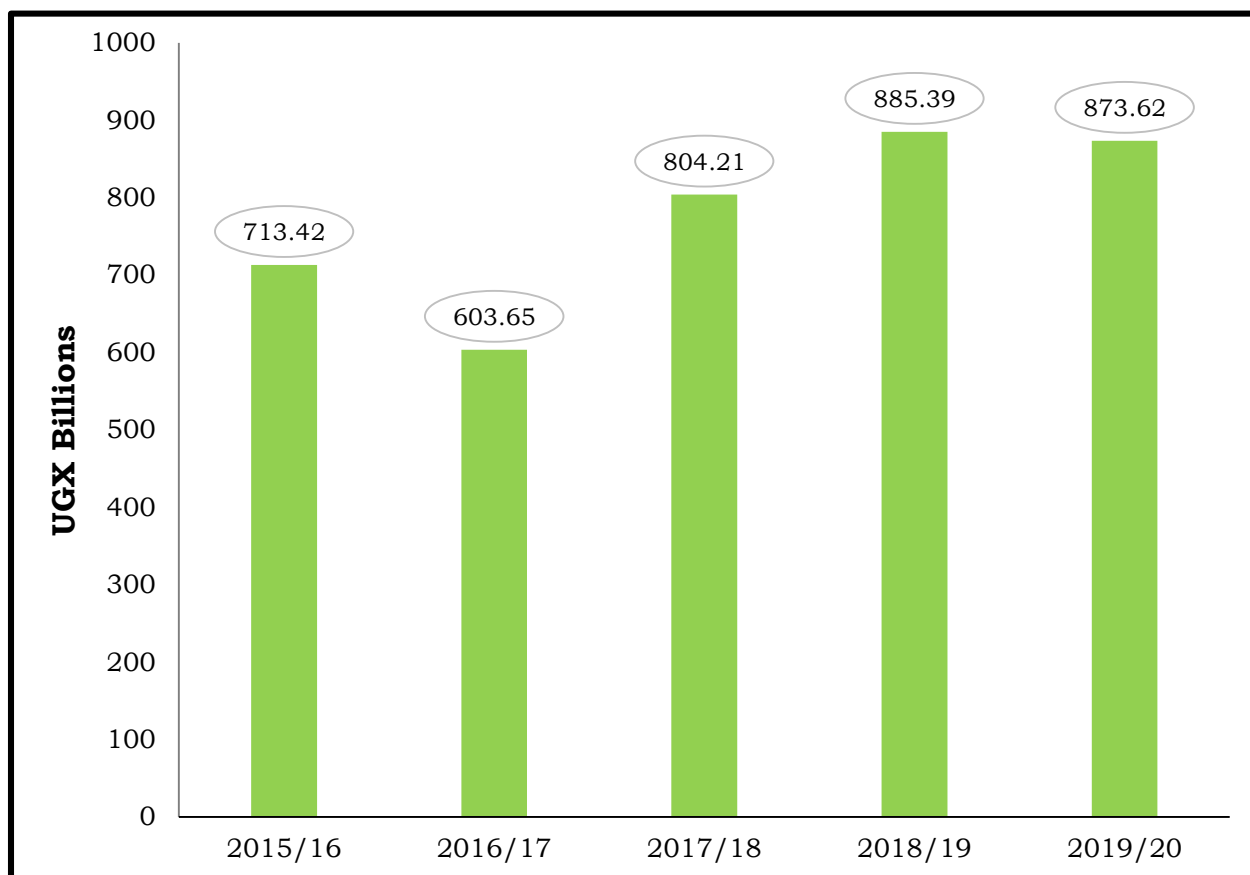

Source: Uganda Bureau of Statistics

5.2.3 Value of ICT imports

The total estimated formal ICT imports bill in FY2019/20 reduced from UGX 885.4billion in FY2018/19 to UGX 873.6billion translating into a 1% decline (figure 5.2.3).

Figure 5.2.3: Value of ICT imports; FY2014/15 – 2018/19

Bar chart showing UGX Billions (y-axis) by financial year (x-axis):
- 2015/16: 713.42
- 2016/17: 603.65
- 2017/18: 804.21
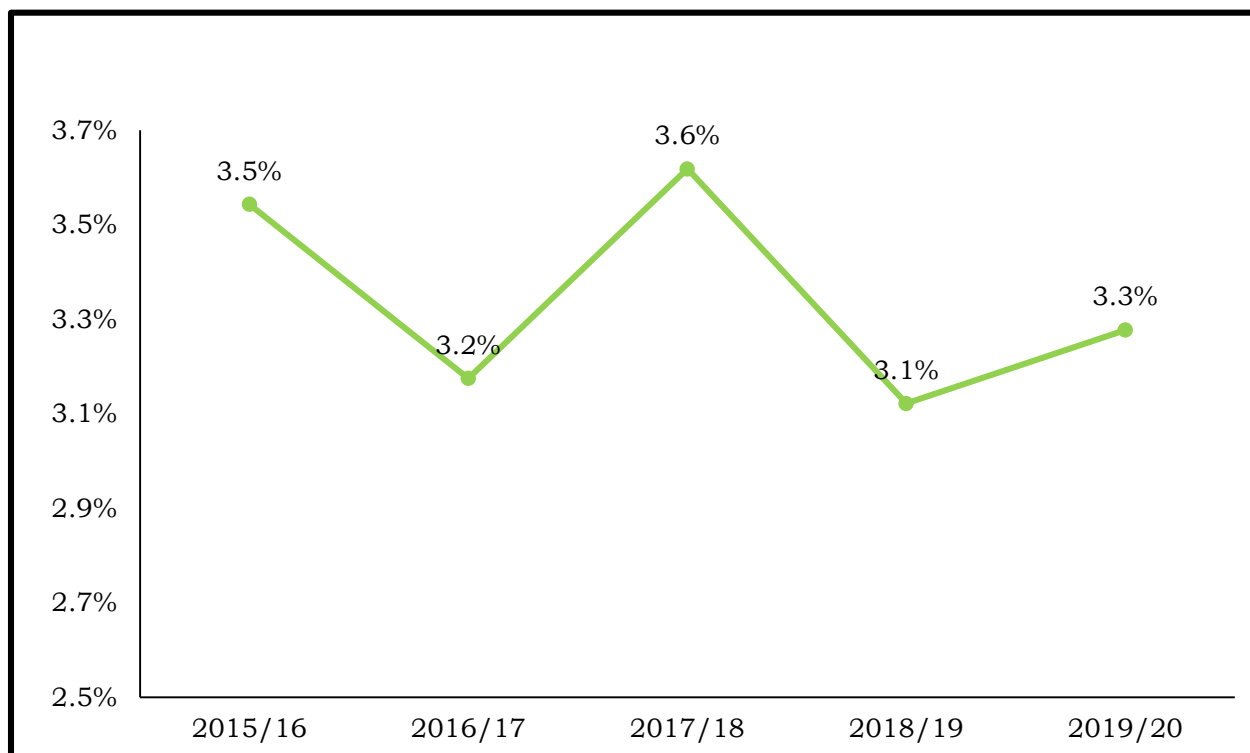- 2018/19: 885.39
- 2019/20: 873.62

Source: Uganda Bureau of Statistics

5.2.4 Share ICT to total imports

In addition, the share of ICT to the overall formal import bill increased from 3.1% in FY2018/19 to 3.3% in FY2019/20 (figure 5.2.4).

Figure 5.2.4: Percentage share of ICT to Total imports; FY2015/16 – 2019/20

Source: Uganda Bureau of Statistics

5.3 ICT Sector Revenue Collections

This section includes information on the Gross Revenues (includes all non-tax revenue) from the ICT sector.

5.3.1 ICT sector Revenue Collections

ICT sector revenue collections declined by 0.04% from UGX 1.820 trillion in the previous FY2018/19 to 1.819 trillion in FY2019/20 (Table 5.3.1).

***Table 5.3.1: ICT sector Gross Revenue Collections [UGX Millions];
FY2015/16– 2019/20***

ICT Activity	2015/16	2016/17	2017/18	2018/19	2019/20
Manufacture of computer, electronic and optical products	612.49	666.73	694.62	538.65	491.00
Wholesale of machinery, equipment and supplies	88,459.57	88,617.94	117,376.19	130,120.24	138,246.55
Postal and courier activities	11,916.61	12,223.17	17,056.55	18,977.97	16,484.38
Publishing activities	34,589.72	31,290.78	30,374.78	32,993.12	30,399.80
Motion picture, video and television programme production, sound recording and music publishing activities	38,593.48	35,583.70	40,923.69	48,831.18	37,114.60
Programming and broadcasting activities	29,080.86	19,518.19	33,176.68	36,107.61	37,709.33
Telecommunications	847,687.28	848,422.37	951,899.76	1,472,976.44	1,477,507.35
Computer programming, consultancy and related activities	17,841.03	20,817.80	24,870.85	26,607.28	25,393.24
Information service activities	17,611.75	18,263.31	22,716.08	25,574.64	29,094.86
Activities of Mobile Money	1,677.10	3,572.01	6,513.48	16,230.30	15,059.65
Repair of computers and personal and household goods	8,824.44	10,914.88	13,618.81	10,942.93	11,710.05
Total	1,096,894.32	1,089,890.89	1,259,221.50	1,819,900.37	1,819,210.80

Source: Uganda Revenue Authority

5.3.2 Contribution of ICT sector to Total Revenue

The ICT sector contribution to total Gross Revenue declined from 10.7% in FY2018/19 to 10.6% in FY2019/20 (Figure 5.3.1).

Figure 5.3.1: Percentage contribution of ICT sector to Total Gross Revenue Collections FY2015/16 – 2019/20
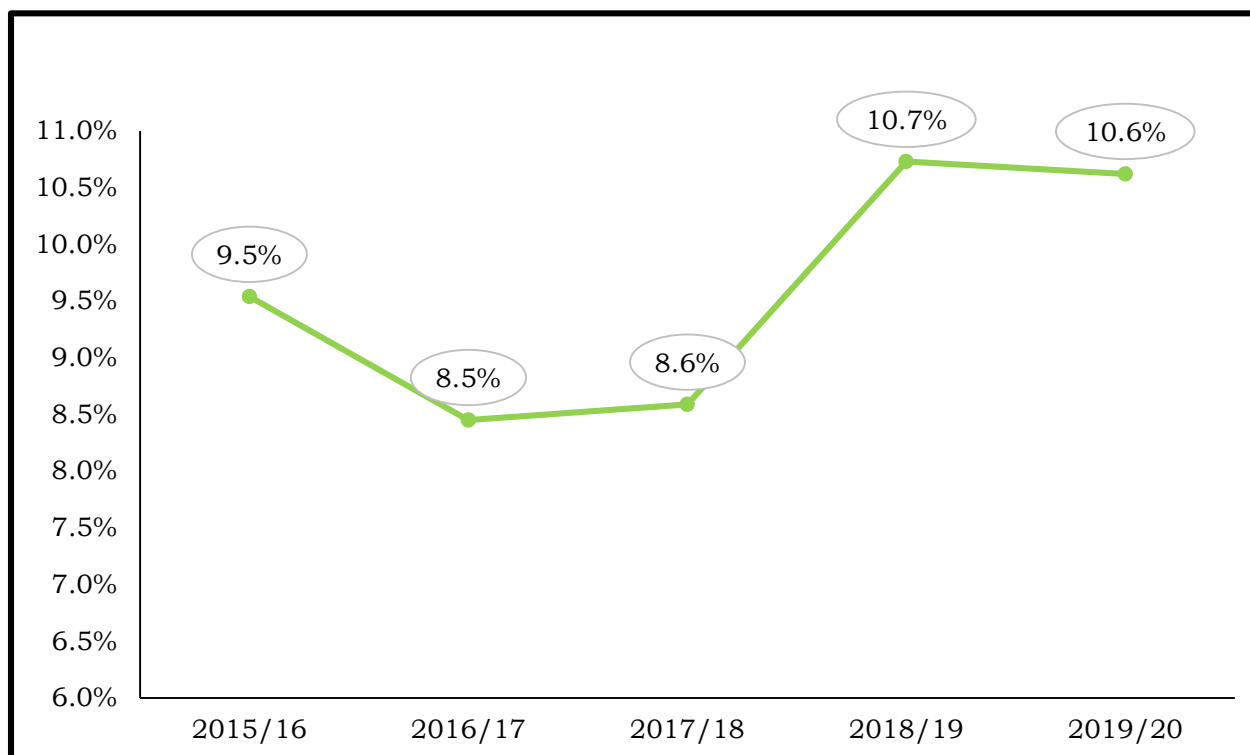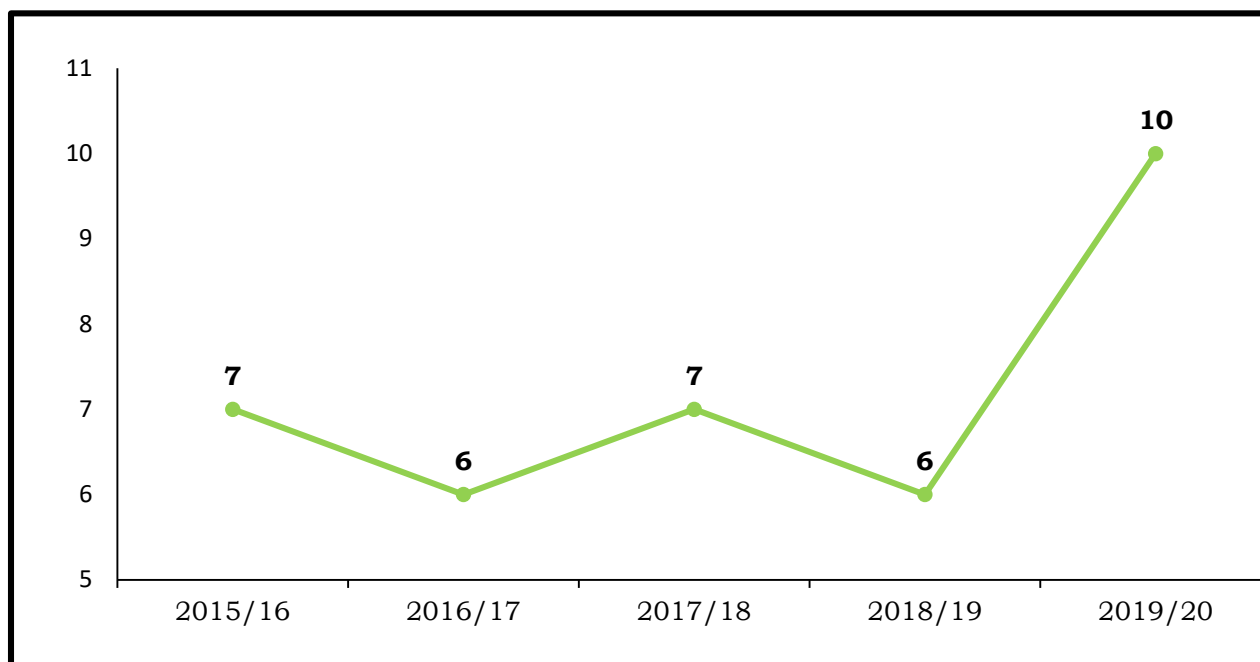

Source: Uganda Revenue Authority

5.4 ICT planned investment

This section contains information on the planned investment projects in ICT in Uganda. It contains statistics on licensed companies, planned capital investment and jobs.

5.4.1 Number of companies licensed to carry out ICT projects/ services

The number of licensed companies to carry out ICT projects/services increased by 67% from six (6) in FY2018/19 to ten (10) in FY2019/20 (figure 5.4.1).

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**Figure 5.4.1: Number of companies licensed to carry out ICT projects/ services; FY 2015/16 – 2019/20**

Source: Uganda Investment Authority

5.4.2 Total number of planned jobs in ICT investments

Similarly, the total number of planned jobs to serve in ICT investments improved from one hundred and eleven (111) in FY2018/19 to one thousand and twenty-five (1,025) in FY2019/20 (figure 5.4.2).

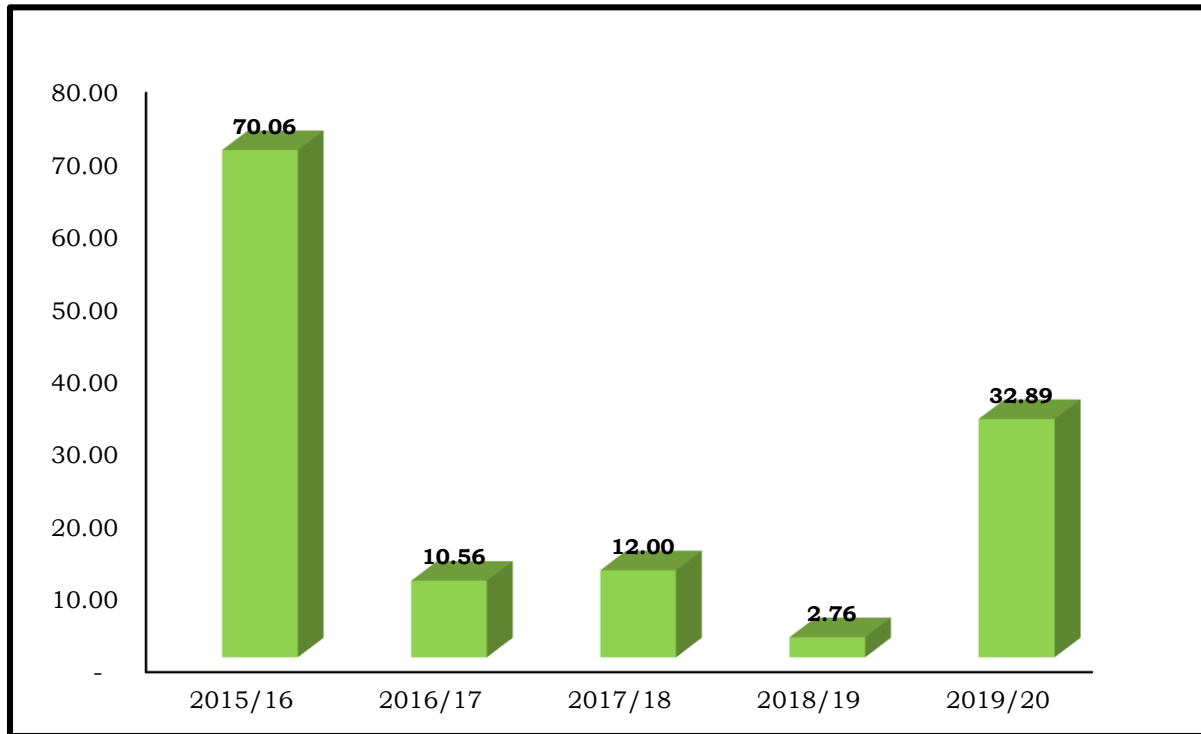*Figure 5.4.2: Total number of planned jobs; FY2015/16– 2019/20*
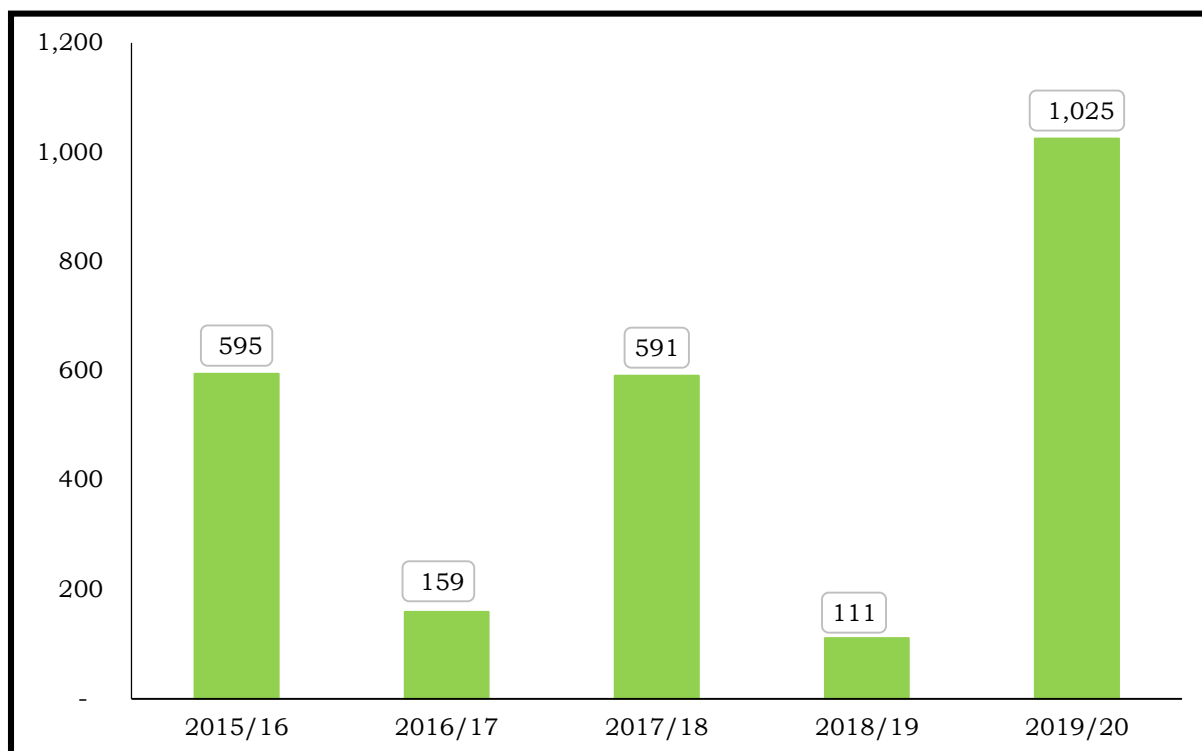
Source: Uganda Investment Authority

5.4.3 Planned capital investment in ICT

Planned capital investment in ICT increased from about USD2.76million in FY2018/19 to USD 32.89million in FY2019/20 (figure 5.4.3).

Figure 5.4.3: ICT planned capital investment (USD Million); FY2015/16 – 2019/20

Source: Uganda Investment Authority

6. UGANDA'S ICT RANKINGS ON THE GLOBAL SCALE

This section presents reviews on Uganda's global ranking in ICT as measured using the e-government development index that is biannually done by the United Nations Department of Economic and Social Affairs, ICT Development Index and the Global Cybersecurity Index by the International Telecommunications Union.

6.1 E-Government Development Index (EGDI)

As a composite indicator, the E-Government Development Index (EGDI) is used to measure the willingness and capacity of national administrations to use information and communication technologies to deliver public services. The EGDI score ranges between zero and one.

Uganda's E-government Development Index improved by 10.9% from 40.55% in 2018 to 44.99% in 2020 which is above Africa's average of 39.14%. Nevertheless, the average EGDI for Africa (39.14%) is below the world average of 60%. Uganda declined by two positions in E-government Development ranking from a rank of 135th in 2018 to 137th out of 193 UN member states in 2020 (Figure 6.1.1).

Uganda's Online Service Index (OSI) improved by 2.3% from 56.94% in 2018 to 58.24% in 2020 and is in the High OSI group. Uganda is among the promising examples of countries that offer online services above the average despite being landlocked and/or least developed. Telecommunication Infrastructure Index (TII) for Uganda improved by 45.5% from 15.66% in 2018 to 22.78% in 2020 and is in the low TII group. Human Capital Index (HCI) improved from 49.06% in 2018 to 53.95% in 2020 and is in the High HCI group (Figure 6.1.2).

Figure 6.1.1: Uganda's E-government Index; 2012-2020
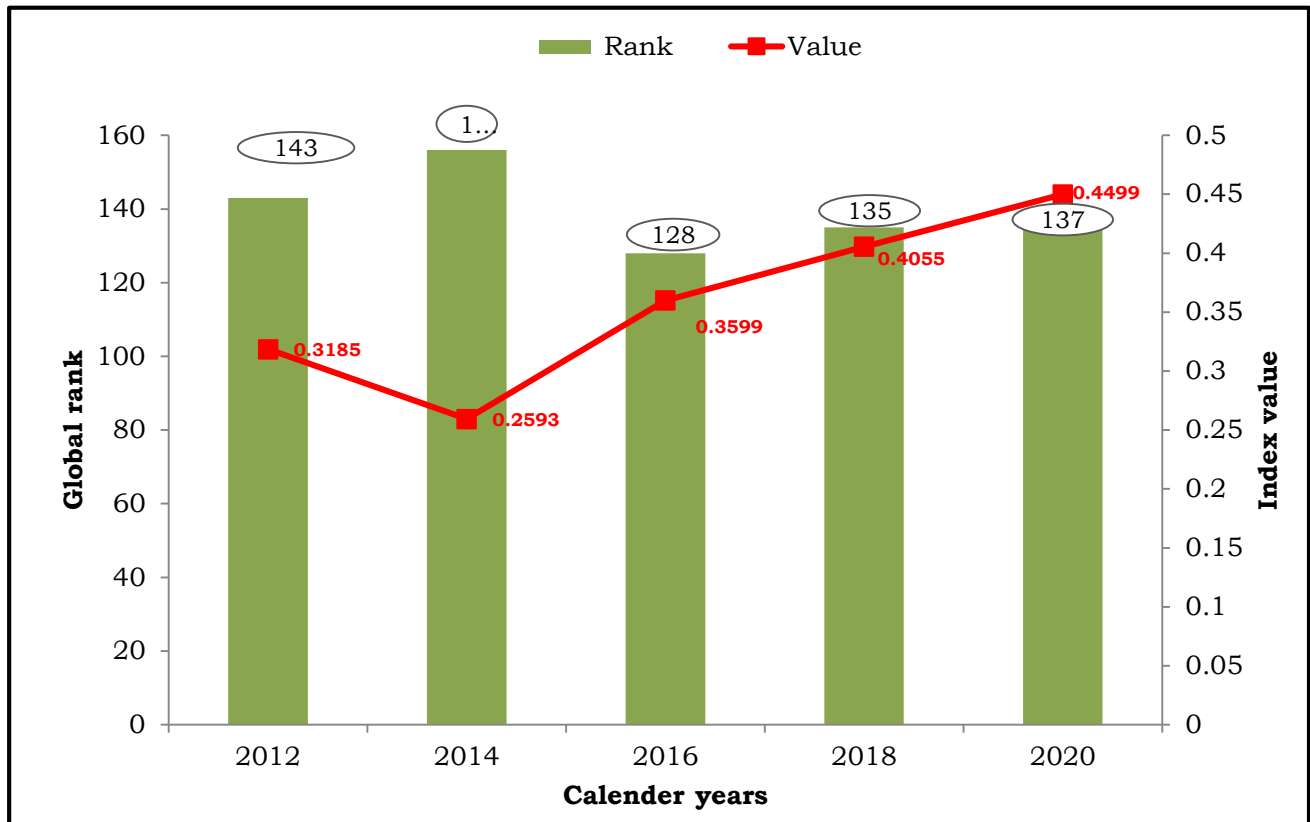
Source: UN E-Government Survey Reports

Figure 6.1.2: Uganda's E-government index by components; 2012-2020
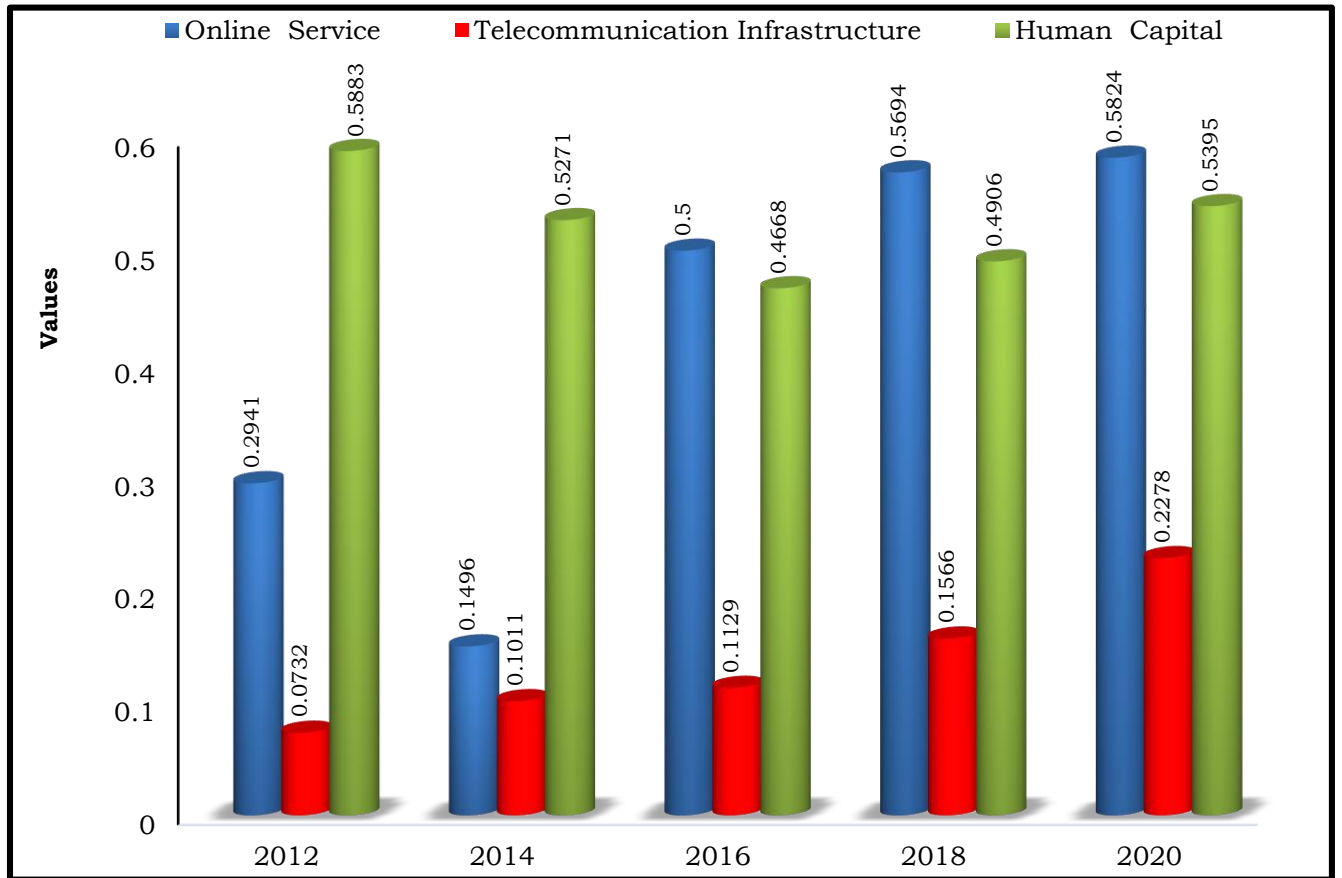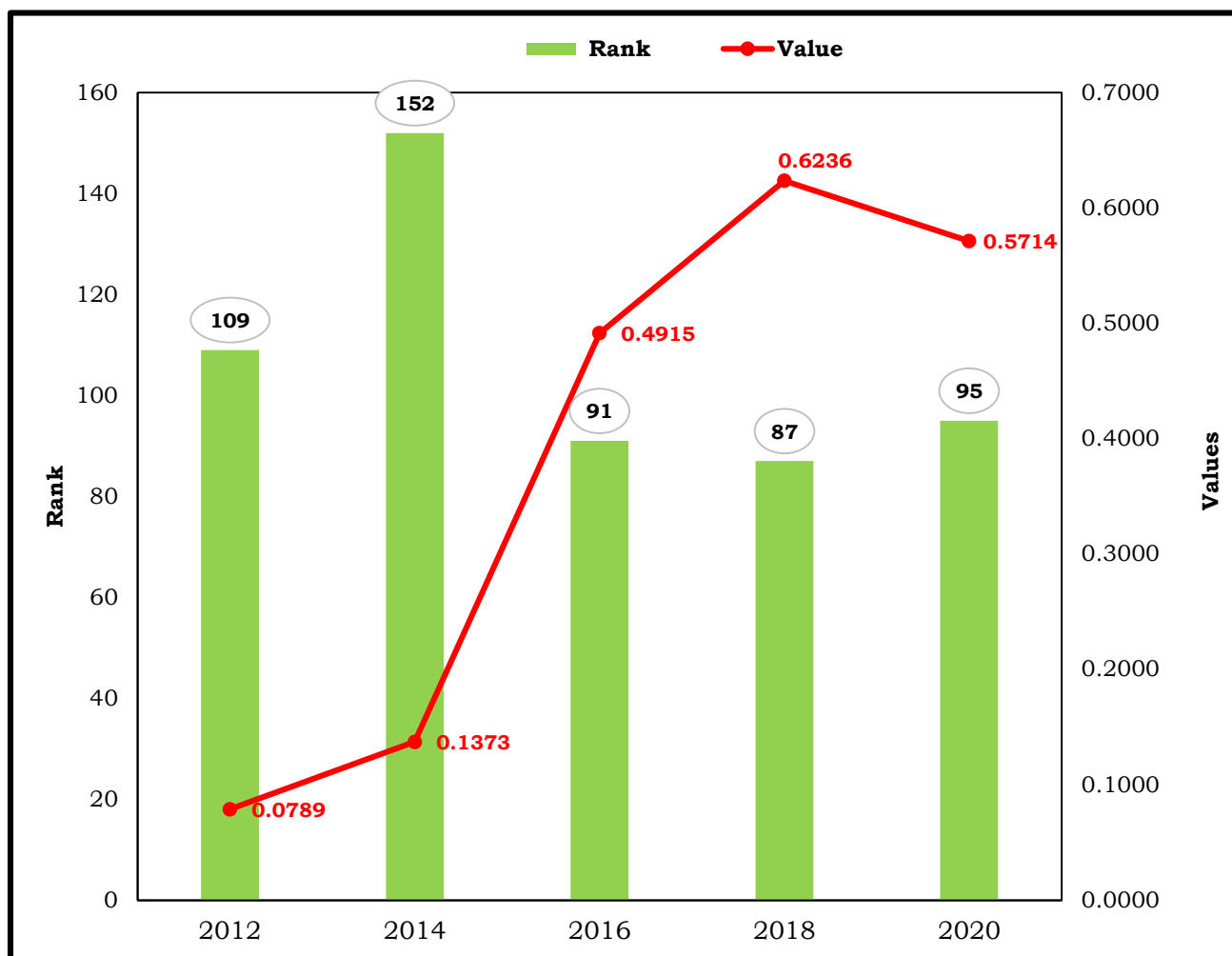

Source: UN E-government Reports

6.2 E-Participation Index

Uganda declined by eight positions in e-participation ranking from 87th in 2018 to 95th out of 193 countries in 2020. The e-Participation Index declined from 0.6236 in 2018 to 0.5714 out of 1.0000 in 2020 (figure 6.2.1).

Figure 6.2.1: Uganda's e-Participation Index; 2012-2020

*Source: UN E-government Reports*

6.3 ICT Development Index (IDI)

The ICT Development Index (IDI) is composed of ICT access, ICT use and ICT skills components. The IDI value ranges from one to ten.

Uganda improved by six positions from rank 158th in 2016 with a score of 1.9, to rank 152nd out of 176 countries in 2017 with a score of 2.19 out of 10 (Figure 6.3.1).

In 2017, Uganda's ICT Development Sub-indices scores out of 10, were as follows; ICT access (2.45), ICT use (1.87) and ICT skills (2.29) (Figure 6.3.2).

Figure 6.3.1: Uganda's ICT Development Index; 2013-2017
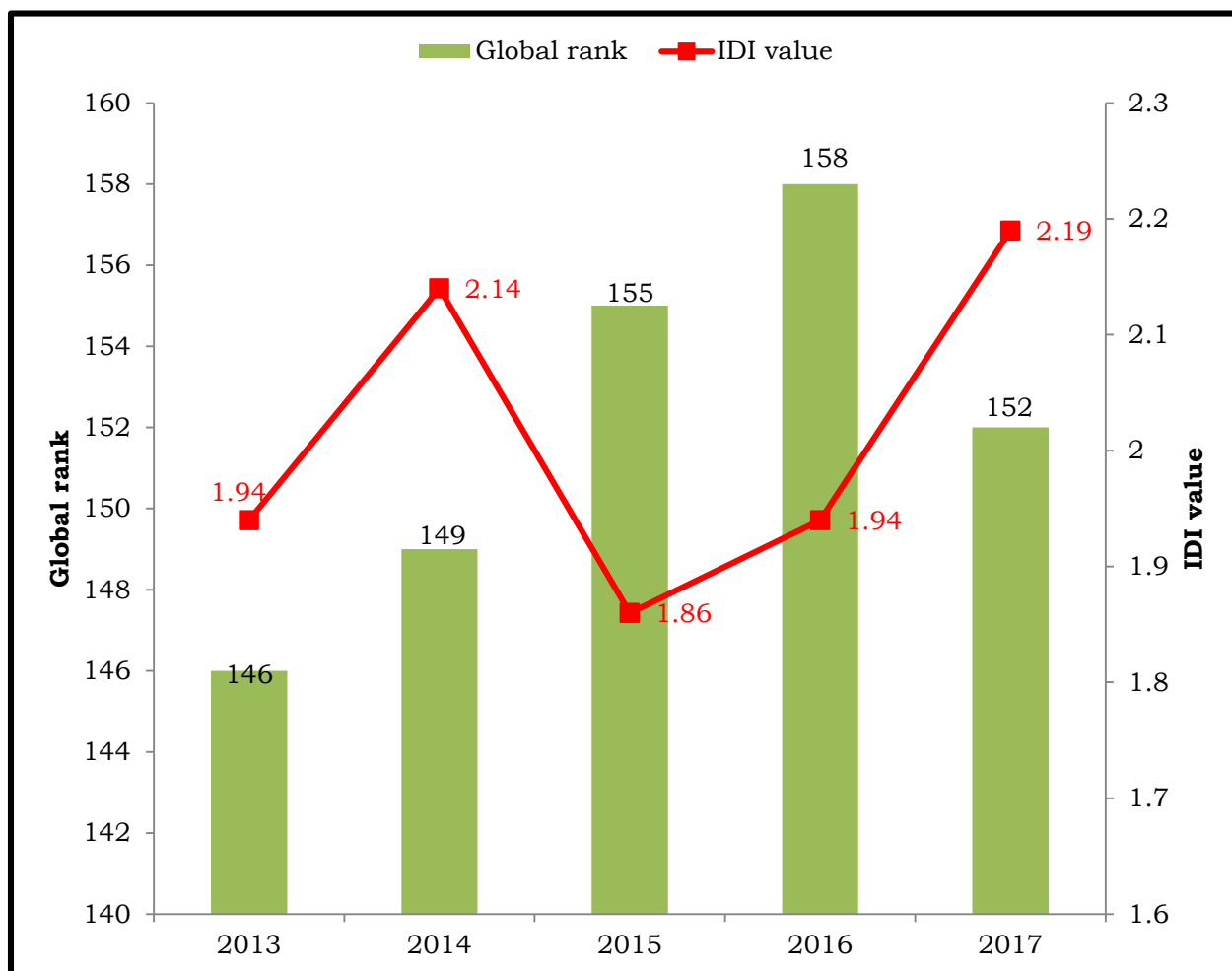
Source: Measuring Information Society reports by ITU

Figure 6.3.2: Uganda's ICT Development Sub-indices; 2017

IDI ACCESS SUB-INDEX

2.46

Fixed-telephone subscriptions per 100 inhabitants
0.89

Mobile-cellular telephone subscriptions per 100 inhabitants
55.07

International internet bandwidth per Internet user (Bit/s)
5509.90

Percentage of households with computer
7.60

Percentage of households with Internet access
8.90

IDI USE SUB-INDEX

1.87

Percentage of individuals using the Internet
21.88

Fixed (wired)-broadband subscriptions per 100 inhabitants
0.26

Active mobile-broadband subscriptions per 100 inhabitants
33.71

IDI SKILLS SUB-INDEX

2.29

Mean years of schooling
5.70

Secondary gross enrolment ratio
26.10

**Tertiary gross enrolment ratio**
4.48

Source: ITU database

6.4 Global Cybersecurity Index (GCI)

The Global Cybersecurity Index is a composite index combining 25 indicators with regard to five pillars that include Legal, Technical, Organisational, Capacity Building and Cooperation.

GCI score ranges from zero to one. Out of the 193 UN member states assessed in 2018, Uganda ranked the 65th globally in Cybersecurity and the 7th in Africa with a score of 0.621 from the 50th rank out of 134 member states assessed in 2017 and a score of 0.536 out of 1 (Figure 6.4.1).

*Figure 6.4.1: Uganda's Cybersecurity Index; 2015-2018*
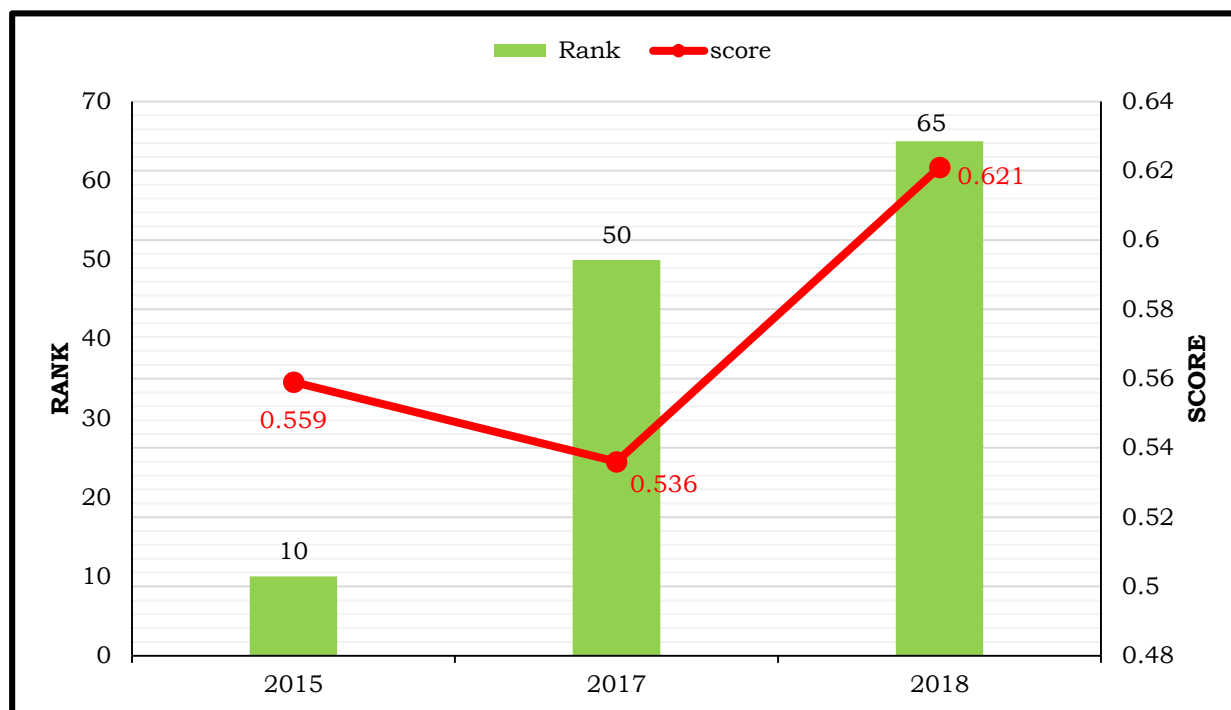
Source: Global Cybersecurity Index reports by ITU

6.5 National Cyber Security Index (NCSI)

National Cyber Security Index has 3 categories, 12 capacities and 46 indicators. The NCSI Score shows the percentage the country received from the maximum value of the indicators and it ranges from 0 to 100%.

As at 26th October 2018, out of the 160 countries assessed, Uganda ranked the 52nd in National Cyber Security Index with a score of 50.65%. The scores for the 12 capacities assed are as follows; Cyber security policy development (29%); Cyber threat analysis and information (80%); Education and professional development (78%); Contribution to global cyber security (17%); Protection of digital services (80%); Protection of essential services (50%); E-identification and trust services (67%); Protection of personal data (25%); Cyber incidents response (50%); Cyber crisis management (20%); Fight against cybercrime (78%); and Military cyber operations (0%).

Figure 6.5.1: Uganda's NCSI Fulfilment Percentage; 2018
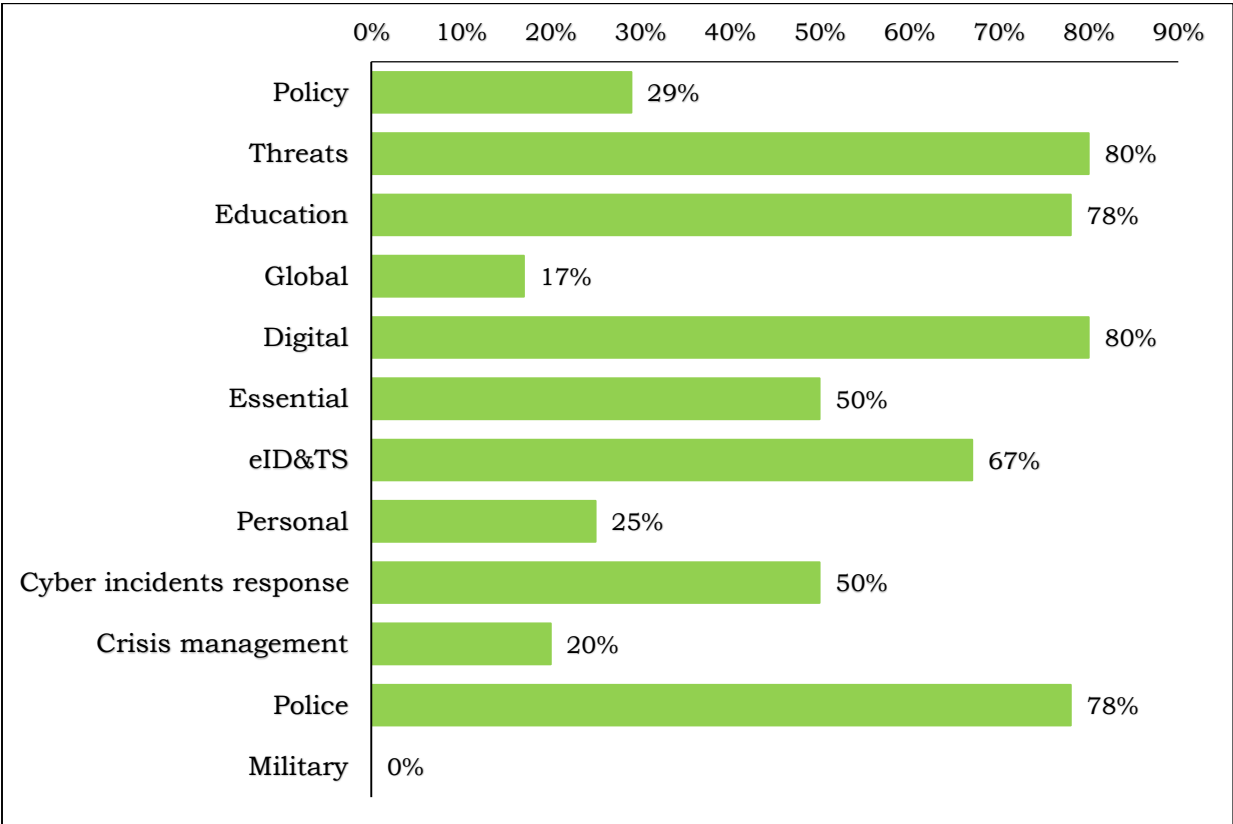
Source: Estonian e-Governance Academy Foundation