



ANNUAL REPORT 2021

FOSTERING DIGITAL TRANSFORMATION THROUGH BUILDING
A CONNECTED SOCIETY, ENABLING REGULATION,
PARTNERSHIP AND INNOVATION.

Our Vision

A Digitally Transformed Nation.

Our Mission

Building a connected society through enabling regulation, partnership and innovation.

Our Values

- Integrity
- Innovation
- Excellence

Table of Contents

List of Tables	iv	2.1.3	Fixed Terrestrial Links	11
Table of Figures	v	2.1.4	Digital Terrestrial Television Broadcasting Frequencies	12
Acronyms and Abbreviations	vi	2.1.5	FM Sound Broadcasting Frequencies	13
Acknowledgement	xi	2.1.6	Private Radio Networks	14
Executive Summary	xi	2.1.7	Maritime Services	14
Members of the Board of Directors	xii	2.1.8	Other Frequency Spectrum Assignments	14
Members of Universal Service Advisory Council	xiv	2.2	Management of Numbering Resources	15
The Management Team	xiv	2.2.1	Management of Telecommunication Numbering Resources	15
Message from the Chairperson, Board of Directors	xviii	2.2.1.1	Assignment of Telecommunication Numbering Resources	15
Message from the Director General	xx	2.2.1.2	National Numbering Plan	16
Preamble	xxii	2.2.1.3	Mobile Number Portability	17
Corporate Governance	xxii	2.3	Management of Dot KE Domains	18
Board of Directors	xxii			
Compliance with Code of Governance for State Corporations (Mwongozo)	xxiii			
Risk Management and Internal Control System	xxiii			
Risk Management	xxiii			
Internal Controls	xxiii			
Mitigating the COVID-19 Pandemic	xxiii			
ICT Sector Statistics at a Glance	xxiv			
The Strategic Plan 2018-23	xxv			
The Organization Structure	xxvi			

01

CHAPTER I: OPERATING ENVIRONMENT

1.1.	Macroeconomic Environment	1
1.1.1.	Global Economy	1
1.1.2.	Local Economy	1
1.2.	Information and Communication Technology Sector	1
1.2.1	Global ICTs	1
1.1.1.1	Mobile Cellular Services	3
1.1.1.2	Broadband Services	4
1.2.1	ICT Developments in East Africa	5
1.2.2	Local ICTs	6
1.2.2.1	Contribution of ICT Sector to GDP	6
1.2.2.2	Growth of the ICT Sector	7
1.3.	Future Outlook	8
1.3.1	Economic Outlook	8
1.3.2	Outlook in the ICT Sector	8

02

CHAPTER II: MANAGEMENT OF ICT RESOURCES

2.1	Radio Frequency Spectrum Management	9
2.1.1	Mobile Cellular Services	9
2.1.2	Fixed Wireless Access Systems	10

03

CHAPTER III: PROMOTING COMPETITION

3.1	Licensing and Type Approval	19
3.1.1	Telecommunications Services Licensing	19
3.1.2	Broadcasting Services Licensing	20
3.1.3	Electronic Transactions Services Licensing	20
3.1.4	Postal and Courier Services Licensing	20
3.1.5	Type Approval of Telecommunications Equipment	21
3.2	Trends in the Provision of ICT Services	22
3.2.1	Mobile Telephony Services	22
3.2.2	Mobile Money Services	25
3.2.3	Internet Services	26
3.2.4	Broadband Services	27
3.2.5	Fixed Network Voice Services	29
3.2.6	Postal and Courier Services	30
3.2.7	Broadcasting Services	31
3.2.7.1	Free-to-Air Broadcasting Services	31
3.2.7.2	Broadcasting Services Subscription	31
3.2.7.3	Broadcasting Signal Network Coverage	32
3.3	Tariffs and Competition	33
3.3.1	Fixed and Mobile Tariffs	33
3.3.2	Broadcasting Services Charges	34

04

CHAPTER IV: ENSURING COMPLIANCE

4.1	Telecommunications Inspections and Certification of Installations	35
4.2	Quality of Service Monitoring for Mobile Cellular Services	36
4.3	Radio-Communications Inspections	37
4.3.1	FM Radio Broadcast Station	38

Table of Contents

4.3.2	Digital TV Broadcast Stations	38
4.3.3	Land Mobile Stations	38
4.4	Postal and Courier Licensees Inspections	38
4.5	Frequency Monitoring and Interference Resolution	39
4.5.1	Frequency Monitoring	39
4.5.2	Radio Frequency Interference Resolution	39
4.5.3	Broadcast Content Monitoring	40
4.5.3.1	Compliance with Broadcast Content Standards	40
4.5.3.2	Local Content by Genres	41

05 CHAPTER V: MANAGEMENT OF CYBER SECURITY

5.1	Cyber Threat Monitoring	43
5.2	Cyber Threats Advisories	44
5.3	Cyber Security Awareness	44
5.4	Cyber Security Capabilities	44

06 CHAPTER VI: EMPOWERING AND PROTECTING THE CONSUMER

6.1	Consumer Empowerment	45
6.1.1	Child Online Protection	45
6.1.2	Consumer Advisory Information	46
6.2	Consumer Protection	46
6.2.1	Consumer Complaints	46
6.2.2	Enquiries	48

07 CHAPTER VII: UNIVERSAL ACCESS INITIATIVES

7.1	Widespread Access to ICTs	51
7.1.1	Voice Infrastructure and Services Project – Phase I	51
7.1.2	Mobile Network Infrastructure and Services Project – Phase II	51
7.1.3	Education Broadband Connectivity	52
7.1.4	Automation of Occurrence Book and Crime Management System	52
7.2	Capacity Building	52
7.3	Other Initiatives	52
7.3.1	Access Gap Geoportal System	52

7.3.2	Broadcasting and Postal and Courier Services Baseline Survey	52
7.3.2.1	Broadcasting Baseline Survey	52
7.3.2.2	Postal and Courier Baseline Survey	52
7.3.3	Access Gap Report 2021	52
7.3.3.1	Voice and Narrowband Data Network Coverage	53
7.3.3.2	Combined Voice and Broadband Network Coverage	53

08 CHAPTER VIII: CAPACITY BUILDING, IMPROVEMENT OF SYSTEMS AND WORKING ENVIRONMENT

8.1	Human Resource Instruments and Establishment	54
8.2	Capacity Building	54
8.2.1	Organizational Learning	54
8.2.2	Building Capacity in the Industry	56
8.2.3	Knowledge Transfer	57
8.2.4	Research, Innovation and Knowledge Management	57
8.2.4.1	Research	57
8.2.4.2	Innovation	57
8.2.4.3	Knowledge Management	58
8.3	Working Environment	58
8.3.1	Occupational Health Safety	58
8.3.2	Employee Wellness	58
8.3.3	Environmental Sustainability	59
8.3.4	Gender Mainstreaming	59
8.3.5	Disability Mainstreaming	59
8.3.6	Campaign Against HIV/AIDS	59
8.3.7	Prevention of Alcohol, Drug and Substance Abuse	59
8.4	Ethics, National Cohesion and Values	59
8.5	Automation of Internal Processes	59
8.5.1	Business Process Re-Engineering of Licensing Management Processes	59
8.5.2	Implementation of a Bulk Mobile Message System	60

09 CHAPTER IX: CORPORATE AFFAIRS

9.1	Corporate Communication	60
9.1.1	Publicity Activities	60
9.1.2	Stakeholder Engagement	60
9.1.3	Corporate Social Responsibility and Sponsorship	60
9.2	International Liaison	61
9.2.1	Membership to Regional and International Organizations	61
9.2.2	Regional and International Engagement	61
9.2.3	Benchmarking	61
9.3	Public Consultations	61

Table of Contents

10 CHAPTER X: PROCUREMENT AND FINANCIAL STATEMENTS

10.1	Procurement	62
10.2	Financial Statements	62
10.2.1	Statement of Directors' Responsibilities	62
10.2.2	Statement of Financial Performance for the Year Ended 30 th June 2020	64
10.2.2.1	Sources of Revenue	65
10.2.2.2	Expenditure	65
10.2.2.3	Surplus Funds	65
10.2.3	Statement of Financial Position as at 30th June 2020	66
10.2.3.1	Assets	67
10.2.3.2	Liabilities	67
10.2.4	Statement of Changes in Net Assets for the Year Ended 30 th June 2020	68
10.2.5	Statement of Cash Flows for the Year Ended 30 th June 2020	68



List of Tables

Table 1.1	Summary of Economic Indicators	6
Table 2.1	Mobile Cellular Transceivers	9
Table 2.2	Fixed Wireless Access Systems	10
Table 2.3	Fixed Links	11
Table 2.4	Cumulative Digital TV frequency assignments	12
Table 2.5	Additional Assignments for FM Broadcasting Frequencies	13
Table 2.6	New Private Radio Networks	14
Table 2.7	Other Frequency Spectrum Assignments	15
Table 2.8	Assigned Numbering Category by Resources	16
Table 2.9	Cumulative Numbering Resource Assignments as at 30 th June, 2021	16
Table 3.1	Number of Telecommunications Licensees by Category	19
Table 3.2	Cumulative Number of Broadcast Licenses by Category	20
Table 3.3	Licensed Postal and Courier Operators	21
Table 3.4	Type Approval/Acceptance Applications Handled	21
Table 3.5	Mobile Telephony Subscriptions as at the End of the Financial Year	23
Table 3.6	Mobile Voice and SMS Traffic	25
Table 3.7	Mobile Money Subscriptions and Agents as at the end of the Financial Year	25
Table 3.8	Internet Subscriptions as at the end of the Financial Year	26
Table 3.9	Number of Broadband Subscriptions by Category	27
Table 3.10	Available/Lit International Bandwidth	27
Table 3.11	International Used Bandwidth	28
Table 3.12	Fixed Network Subscriptions	29
Table 3.13	Postal and Courier Network Indicators	30
Table 3.14	Free-to-air Broadcasting Services	31
Table 3.15	Number of Subscriptions for Broadcasting Services	31
Table 3.16	Digital Terrestrial Population Coverage (%)	32
Table 3.17	Average Tariffs in KES.	33
Table 3.18	Broadcast Signal Distribution Charges in KES per Site per Mbit/s	34
Table 4.1	Number of Inspections	35
Table 4.2	Number of On-site Inspections Conducted	37
Table 4.3	Number of Frequency Monitoring Cases	39
Table 4.4	Frequency Interference Cases Reported and Resolved	39
Table 4.5	Percentage Compliance with Broadcast Content Standards	40
Table 4.6	Local Content by Genre (Percentage)	41
Table 5.1	Cyber Threat Detection	43
Table 5.2	Summary of Cyber Threat Advisories	44
Table 6.1	Number of Consumer Complaints by Type	47
Table 6.2	Number of Enquiries by Type	48

List of Tables

Table 7.1	Distribution of Sub-locations by County	51
Table 7.2	Percentage Population Voice (2G) Mobile Network Coverage	53
Table 8.1	Summary of Trainings	54
Table 8.2	Number of Participants Trained in the Postal and Courier Sub-sector	57
Table 10.1	Top Ten Contracts Awarded	62

Table of Figures

Figure 1.1	Global ICT Indicators	2
Figure 1.2	Mobile Cellular Subscriptions per 100 inhabitants, 2020*	3
Figure 1.3	Active Mobile Broadband Subscriptions per 100 Inhabitants	4
Figure 1.4	Global Active Broadband Subscriptions by Regions	5
Figure 1.5	ICT Developments in East Africa	5
Figure 1.6	Information and Communication GDP and Growth	7
Figure 2.1	Fixed Wireless Access Systems	10
Figure 2.2	Fixed Links	11
Figure 2.3	Cumulative Digital TV Frequency Assignments	12
Figure 2.4	Additional Assignments for FM Broadcasting Frequencies	13
Figure 2.5	Ported Numbers	17
Figure 2.6	Registered Domain Names	18
Figure 3.1	Mobile Subscriptions Market Shares by Operator	23
Figure 3.2	Voice and SMS Traffic Trend	24
Figure 3.3	Available vs Used Bandwidth Capacity	28
Figure 3.4	Population Coverage	32
Figure 3.5	Trends of Pay-As-You-Go Voice Tariffs	34
Figure 4.1	Overall Compliance by Operator	36
Figure 4.2	Number of Inspections	38
Figure 4.3	Local Content by Genre (%)	42
Figure 6.1	Number of Enquiries by category	50
Figure 7.1	2G Network Coverage and Access Gap – 31 st May 2021	53
Figure 7.2	Combined Broadband (3G and 4G) Network Coverage, 31 st May 2021	53
Figure 8.1	Number of Staff Trained Across Various Categories	55
Figure 10.1	Sources of Revenue for the FY 2019/20	65

Acronyms and Abbreviations

Abbreviation	Definition
2G	Second Generation
3G	Third Generation
4G	Fourth Generation
4IR	Fourth Industrial Revolution
5G	Fifth Generation
AC	Administrative Council
ADA	Alcohol and Drug Abuse
AFRALTI	African Advanced Level Telecommunications Institute
AGPO	Access to Government Procurement Opportunities
AI	Artificial Intelligence
ARICEA	Association of Regulators of Information and Communication for Eastern and Sothern Africa
ARSK	Amateur Radio Society of Kenya
ASP	Application Service Provider
AtoN	Air to Navigation
ATU	African Telecommunications Union
AVR	Automatic Voltage Regulator
BPR	Business Process Re-Engineering
BSD	Broadcast Signal Distributor
BTS	Base Transmitter Stations
BUC	Block Upconverter
CA	Communications Authority of Kenya
ccTLD	Country Code Top-Level Domain
CB	Citizens Band
CBC	Competency-Based Curriculum
CCTV	Closed-Circuit Television
CIRT	Computer Incident Response Team
CIS	Commonwealth of Independent States
CoC	Central Office Code
CoP	Child Online Protection

Acronyms and Abbreviations

Abbreviation	Definition
COVID-19	Corona Virus Disease of 2019
CPE	Customer Premises Equipment
CSP	Content Service Provider
CSR	Corporate Social Responsibility
CTO	Commonwealth Telecommunications Organization
DAP	Digital Access Programme
DDOS	Distributed Denial of Service
DNIC	Data Network Identification Code
DSL	Digital Subscriber Line
DTH	Direct To Home
DTT	Digital Terrestrial Television
DVB	Digital Video Broadcasting
EACC	Ethics and Anti-Corruption Commission
EACO	East African Communications Organization
E-CSP	Electronic Certification Service Providers
EIA	Environmental Impact Assessment
EMCA	Environmental Management and Coordination Act
ERP	Enterprise Resource Planning
FCDO	Foreign Commonwealth and Development Office
FM	Frequency Modulation
FN	Fixed Numbers
FTA	Free-To-Air
FY	Financial Year
Gbps	Gigabits per second
GDP	Gross Domestic Product
GHz	Gigahertz
GMDSS	Global Maritime Distress Safety System
GMPCS	Global Mobile Personal Communications by Satellite
GSM	Global System for Mobile Communication

Acronyms and Abbreviations

Abbreviation	Definition
GSMA	Global System Mobile Association
HF	High Frequency
HPA	High Power Amplifier
HSE	Health, Safety and Environmental
ICANN	Internet Corporation for Assigned Names and Numbers
ICT	Information and Communications Technology
IDTV	Integrated Digital Television
IIN	Issuer Identification Number
IMO	International Maritime Organization
IPSAS	International Public Sector Accounting Standards
IoT	Internet of Things
IP	Internet Protocol
ISACA	Information Systems Audit and Control Association
ISPC	International Signaling Point Codes
ITU	International Telecommunication Union
JKUAT	Jomo Kenyatta university of Agriculture and Technology
KEC	Kenya Education Cloud
KE-CIRT/CC	Kenya National Computer Incident Response Team/Coordination Centre
KECOSO	Kenya Communications Sports Organizations
KENIC	Kenya Network Information Centre
KICA	Kenya Information and Communications Act
KICD	Kenya Institute of Curriculum Development
KMA	Kenya Maritime Authority
KPIs	Key Performance Indicators
LAN	Local Area Network
Ltd	Limited
LTE	Long Term Evolution
MB	Megabyte
MHz	Mega Hertz

Acronyms and Abbreviations

Abbreviation	Definition
MMSI	Maritime Mobile Service Identity
MNC	Mobile Network Codes
MNDC	Mobile National Destination Code
MNO	Mobile Network Operator
MNP	Mobile Number Portability
MTN	Mobile Telephony Network
NAS	National Addressing system
NCC	Network Colour Codes
NCPD	National Council for Person's with Disability
NEMA	National Environmental Management Authority
NFP	Network Facilities Provider
NPKI	National Public Key Infrastructure
NPRC	Number Portability Routing Codes
NPS	National Police Service
NSPC	National Signaling Point Codes
OPEX	Operational Expenses
OSHA	Occupational Safety and Health Administration
OTT	Over the Top
PABX	Private Automatic Branch Exchange
PAYG	Pay-As-You-Go
PAPU	Pan African Postal Union
PCK	Postal Corporation of Kenya
PDTP	Presidential Digital Talent Programme
PFM	Public Finance Management
PII	Personally Identifiable Information
PLC	Public Limited Company
PLWD	People Living with a Disability
POC	Postal Operations Council
PPADA	Public Procurement and Asset Disposal Act
PPE	Personal Protective Equipment

Acronyms and Abbreviations

Abbreviation	Definition
PRN	Premium Rate Number
PSTN	Public Switched Telephone Network
R&D	Research and Development
RSK	Radio Society of Kenya
SC	Short Codes
SCAC	State Corporations Advisory Committee
SDGs	Sustainable Development Goals
SHF	Super High Frequency
SIM	Subscriber Identity Module
SMS	Short Message Service
SOPs	Standard Operating Procedures
SPAS	Staff Performance Appraisal System
TFN	Toll Free Numbers
TKL	Telkom Kenya Limited
TLD	Top-Level Domain
TRXs	Transceivers
TV	Television
UHF	Ultra-High Frequency
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UPS	Uninterruptible Power Supply
UPU	Universal Postal Union
USAC	Universal Service Advisory Council
USF	Universal Service Fund
VHF	Very High Frequency
VoIP	Voice over Internet Protocol
VSAT	Very Small Aperture Terminal
WHO	World Health Organization
WIMAX	Worldwide Interoperability for Microwave Access
WRC	World Radiocommunication Conference

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Executive Summary

The Authority is required under Section 22(1) of the Kenya Information and Communications Act (KICA), 1998, to prepare a report of its operations within three (3) months after the end of each Financial Year (FY). In compliance with this, the Authority has prepared this Annual Report for the FY 2020/21 which is based on activities and initiatives implemented during the 3rd year of its 4th Strategic for the period 2018-23.

Despite disruptions caused by the COVID-19 pandemic, the global ICTs have continued to grow substantially while playing a key role in mitigating the effects of the pandemic. Governments and businesses all over the world have increasingly adopted new digital technologies to not only curb the spread of the virus but also increase efficiency and productivity. As a result, most ICT sector indicators have recorded a growth both internationally and locally. This report shows that there has been growth in mobile cellular telephone subscriptions, fixed broadband subscriptions, active mobile broadband subscriptions and Internet/Data subscriptions.

In an effort to facilitate the growth of the ICT sector in Kenya, the Authority monitored the ICTs operating environment and undertook several activities geared towards management of scarce ICT resources. In addition, the Authority also promoted competition in the ICT sector, ensured licensee compliance with set parameters, managed cyber security, empowered and protected the consumers of ICTs as well as promoted universal access to ICTs for all in Kenya. The Authority also strengthened its institutional capacity, undertook stakeholder management initiatives and ensured cost effective procurement processes as well as prudent financial management. Some of the key achievements for the FY as outlined in this report include:

- Facilitated deployment of 4G services in the country through increasing 4G transceivers from 31,914 to 41,284;
- Processed and issued a total of 614 new licenses comprised of 474 Telecoms, 93 Broadcasting and 47 postal and courier. The 93 broadcasting service licenses consisted of 55 commercial free-to-air (FTA) television, 30 commercial FM radio, seven (7) community FM radio and one (1) subscription broadcasting service provider;

- Licensed five (5) Electronic Certification Service Providers (E-CSP). These E-CSPs ensure the integrity of digitally signed documents;
- Type-approved 518 models of telecommunication equipment;
- Facilitated universal access to ICT services in unserved and underserved areas across the country through commencing the implementation of Phase II Mobile Cellular Network Infrastructure and Services Project targeting 101 sub-locations in 17 Counties. The project which is aimed at providing both voice and data services is estimated to cover a total population of 269,842 is expected to be connected.;
- Inspected 763 telecommunications licensees to determine financial, documentary and operational compliance. Of these, 311 compliance certificates were issued to those that were compliant during the year;
- Monitored cyber threats through the National Kenya Computer Incident Response Team – Coordination Centre (KE-CIRT/CC) on a 24/7 basis and detected 158.4 million cyber threats compared to 110.9 million in the previous year;
- Issued 93,860 advisories on detected cyber threats to the affected organizations to mitigate cyber threats and promote trust in cyber space;
- Monitored the Quality of Voice Service (QoS) for the three (3) mobile network operators across 44 counties. The level of compliance for Airtel Networks Kenya Limited, Safaricom PLC and Telkom Kenya Limited was 65.5 per cent, 92.7 per cent and 67.5 per cent, respectively against a required threshold of 80.0 percent;
- Protected the consumers of ICTs through resolving 93.2 per cent of the complaints received during the year compared to a resolution rate of 78.86 per cent the previous year;
- Participated and represented the country in regional and international ICT sector policy forums;
- Undertook a Mid-term review of its 4th strategic plan to align it with the rapidly changing ICT environment. This resulted in the Authority revising some of its strategic objectives and increasing its strategic initiatives from 14 to 19 to propel the achievement of its three (3) Key Result Areas; and,
- Aligned the human resource management instruments to the Human Resources Policies and Procedures Manual for the Public Service.

Lastly, this report outlines the Authority’s adherence to the principles of economy, prudence, accountability, effectiveness, efficiency, equal opportunity, and transparency in its procurement processes and financial management. This is in line with the requirements of the Public Finance Management (PFM) Act, 2012; the Public Procurement and Asset Disposal Act (PPADA), 2015; and the Public Audit Act, 2015.

A detailed explanation of all the milestones and achievements made by the Authority during the FY 2020/21 are highlighted in this Annual Report.

Members of the Board of Directors

Section 6(1) of the KICA 1998 vests the management of the Authority with the Board of Directors. The Board consisted of the chairperson whose term expired on 17th April 2021, subsequently a new chairperson was appointed. The Board also comprised six (6) other members. The following members served in the Board:



Sen. Kembi Gitura, MGH
Chairman of the Board of Directors since 18th April 2021



Mr. Ngene B. Gituku, EBS
Past Chairman of the Board of Directors (23rd May 2014 to 17th April 2021)



Mrs. Mercy Wanjau, MBS
Acting Director General

Members of the Board of Directors



Ms. Esther Koimett, CBS
Principal Secretary, State Department of Broadcasting and Telecommunications, MoICT, I&YA



Dr. Julius Muia, CBS
Principal Secretary, The National Treasury



Dr. (Eng) Karanja Kibicho, CBS
Principal Secretary, Ministry of Interior and Coordination of National Government



Ms. Kentice Tikolo, OGW
Independent Director



Ms. Patricia Kimama
Independent Director



Prof. Levi Obonyo
Independent Director

Members of the Board of Directors



Ms. Yiphan Juliana Nashipae, MBS
Alternate Director to the Principal Secretary, State Department of Broadcasting and Telecommunications



Mr. Peter Wanjohi
Alternate Director to the Principal Secretary, Interior and Coordination of National Government



Mr. Chris G. Huka
Alternate Director to the Principal Secretary/National Treasury

Members of Universal Service Advisory Council

Section 102K of the KICA established the Universal Service Advisory Council (USAC), that advises the Authority and provides strategic policy guidance for the administration and implementation of the Universal Service Fund and perform any other functions as the Board may from time-to-time assign. The Council consists of a chairperson and eight (8) other members appointed by the Cabinet Secretary Ministry of ICT, Innovation and Youth Affairs. The term of the remaining three (3) council members lapsed on 10th August 2020 affecting quorum to transact business.

The Management Team



Mrs. Mercy Wanjau, MBS
Ag. Director General



Mr. Juma Kandie
Director, Human Capital and Administration



Mr. Matano Ndar
Director, Licensing, Compliance and Standards

The Management Team



Mr. Christopher Kemei
Director, Universal Service Fund



Mr. Christopher Wambua
Director, Consumer and Public Affairs



Mr. Michael Katundu
Director, Information Technology and Enterprise Resource Management



CPA Rosalind Murithi
Director, Risk Management and Internal Audit



Mr. Tom Olwero
Director, Frequency Spectrum Management



CPA Joseph Kimanga
Director, Finance and Accounts

The Management Team



CPA Maxwell M. Mosoti
Ag. Director, Competition Tariffs and
Market Analysis



Ms. Jane Rotich
Ag. Assistant Director, Procurement



Mr. Vincent Ngundi
Assistant Director, Cyber Security and
E-Commerce



Eng. Leo K. Boruett
Director, Multimedia Services



► The Kenya Communications (Amendment) Act, 2009, provides for the establishment of a Universal Service Fund (USF), administered and managed by the Communications Authority of Kenya. The purpose of the Fund is to support widespread access to ICT services, promote capacity building and innovation in ICT services in the country.

MESSAGE FROM
THE CHAIRPERSON, BOARD OF DIRECTORS

On behalf of the Board of Directors, Management and Staff of the Communications Authority of Kenya, I am pleased to present the Annual Report for the Financial Year ended 30th June 2021.

This report seeks to highlight the Authority's achievements and steps undertaken towards the continued actualization of our Mandate and Vision of creating a digitally transformed nation. The achievements outlined herein are attributed to the continued implementation of the objectives of the 4th Strategic Plan (2018-2023) aligned with the United Nations Sustainable Development Goals (SDGs), Vision 2030, the Big Four Agenda and the Digital Economy Blueprint.

The Authority continued to execute its mandate amidst the Corona Virus Disease-2019 (COVID-19) Pandemic that demonstrated the central role of ICTs in the economy. The year witnessed an upsurge in the utilization of ICTs by various sectors that was largely attributed to the evolving needs and demands of the consumers as a result of the COVID-19 crisis. This consequently had a positive impact in the country's digital economy as envisioned under the Digital Economy Blueprint: Powering Kenya's Transformation (2019).

The Authority takes cognizance of the fact that the expansion and growth of the digital economy bolsters the Authority's mandate and heightens expectations from ICT consumers. The implementation of the Authority's 4th Strategic Plan (2018-2023) therefore continues to play an instrumental role in steering the Authority towards building a connected society through enabling regulation, partnership and innovation in ICT's. In recognition of the dynamic and evolving nature of the industry, the Authority undertook a Mid-term review of the Strategic Plan to align it with the current developments and ensuing realities of COVID-19.

The rapid adoption and increased use of ICTs has widened our attack surface, resulting into an escalation of risks and challenges associated with the use of the cyberspace. This notwithstanding, the Authority reaffirms its commitment to implement and enforce the National Cyber

Security Management Framework through the National KE-CIRT/CC. In fulfillment of this mandate, the Authority launched the KE-CIRT cyber incidents reporting mobile application to enhance reporting of cyber security threats.

Towards bridging the digital divide and enhancing inclusivity, the Authority has prioritized the achievement of universal access to ICTs by all. In achievement of this, the Authority implemented and shall continue to implement various projects across the country mainly targeting the unserved and underserved populations.

The Authority therefore, reaffirms its commitment to create a conducive environment for optimal development of the ICT sector. This shall be achieved through continued effective regulation, partnerships and collaboration.

I would like to express my sincere gratitude to the Ministry of ICT, Innovation and Youth Affairs, ICT service providers, strategic partners, all other stakeholders and the general public without whose support these achievements would not have been attained.

I further wish to acknowledge the dedicated service and commitment of the members of the Board, Management and the Staff of the Authority for their invaluable contribution and enthusiasm in supporting the achievement of our mandate. I look forward to a more vibrant, successful and transformative forthcoming year.



Sen. Kembi Gitura, MGH
Chairperson of the Board



MESSAGE FROM
THE Ag. DIRECTOR GENERAL

The growth of ICT sector in Kenya continued on an upward trend. This growth was attributed to increased uptake of ICT services marked by increased mobile telephony, Internet and mobile money subscriptions.

The total number of active mobile telephony subscriptions increased by 13.0 per cent to stand at 64.4 million as at 30th June 2021. This translates to a mobile penetration of 135.4 per cent. Internet subscriptions grew to 46.7 million from 41.5 million subscriptions while active mobile money subscriptions increased to 34.7 million from 30.5 million.

The Authority continued to facilitate the deployment of 3G and 4G services in the country which led to an increase in deployment of 4G transceivers. The 3G and 4G have become the dominant broadband network technology in Kenya and cumulatively covers 56.3 per cent of Kenya's geographical area and 96.3 per cent of the population.

To ensure that consumers are protected from poor quality services, the Authority monitored quality of voice service for the three (3) mobile network operators across 44 counties. The level of compliance for Airtel Networks Kenya Limited, Safaricom PLC and Telkom Kenya Limited was recorded as 65.5 per cent, 92.7 per cent and 67.5 per cent, respectively against a required threshold of 80.0 per cent.

With the increased internet access and uptake, the number of cybercrime incidents in the country has been on the upswing. The National KE-CIRT/CC detected 158.4 million cyber threats as at 30th June 2021, compared to 110.9 million in the previous year. In order to mitigate the negative effects of cybercrime activities in Kenya, the

Authority continued to discharge its responsibilities as the Country's trusted point of contact for cyber security matters.

The Authority also made effort towards the attainment of universal access to ICT services in the unserved and underserved areas across the country through embarking on the implementation of Phase II Mobile Cellular Network Infrastructure and Services Project. This phase will connect 101 sub-locations in 17 Counties with both voice and data services.

To ensure plurality and diversity of views in broadcasting, the number of broadcasting services accessible to Kenyans increased to 323 from 286 in the previous year.

These achievements point towards a positive future for the ICT sector. In this regard, the sector remains intrinsic to the country's economic growth.

The milestones achieved by the Authority could not have been realized without the support of the Management Committee and staff. I also wish to appreciate the Board of Directors and the Ministry of ICT, Innovation and Youth Affairs for their continued support.



Mrs. Mercy Wanjau, MBS
Ag. Director General



Preamble

The Authority was established in 1999, by the KICA to License and Regulate the ICT Sector. The Authority’s role in the industry has continued to diversify due to the dynamic nature of the Sector that has seen emergence of new sub-sectors necessitating amendment of the sector legislation through Kenya Information and Communication (Amendment) Act 2009 Kenya Information and Communication (Amendment) Act 2013.

The Authority achieves its mandate through the following key functions:

- (a.)Licensing of telecommunications, postal, courier and broadcasting systems and services;
- (b.)Management of the country’s frequency spectrum and numbering resources;
- (c.)Facilitation of development and management of a national cyber security framework;
- (d.)Facilitation of E-commerce development;
- (e.)Type approval of communication equipment;
- (f.)Management of competition within the Sector;
- (g.)Management and Administration of the Universal Service Fund;
- (h.)Regulating tariffs (retail and wholesale) for communication services; and
- (i.)Safeguarding of ICT consumer rights.

Corporate Governance

The Constitution of Kenya, the State Corporations Act, 1986 and the Code of Governance for State Corporations (Mwongozo), requires the Authority to ensure compliance with the principles and practices of good corporate governance. The Board is responsible for the corporate governance of the Authority. This involves ensuring a high level of effectiveness of the Board and compliance with the key principles of corporate governance such as transparency and disclosure, accountability, risk management, internal controls, ethical leadership and good corporate citizenship.

Board of Directors

Section 6(1) of KICA provides that the Board constitutes of a Chairperson; Principal Secretary State Department of Broadcasting and Telecommunications, Ministry of ICT, Innovations and Youth Affairs; Principal Secretary Ministry of Interior and Coordination of National Government; Principal Secretary, The National Treasury; seven (7) persons appointed by the Cabinet Secretary, Ministry of ICT, Innovations and Youth Affairs; and the Director General who is an ex-officio member of the Board and responsible for day-to-day management of the Authority.

Functions of the Board of Directors

The Board exercises the following duties set out in the Board Charter to be performed by the members individually and collectively:

- (a.)Exercising leadership, integrity and judgment in directing the Authority;
- (b.)Setting the vision, mission and values of the Authority;
- (c.)Developing strategies to achieve the Authority’s mandate;
- (d.)Determining key performance indicators (KPIs) of the Authority, setting targets and monitoring performance;
- (e.)Ensuring that internal structures and policies are in place;
- (f.)Identifying and managing key risk areas; and
- (g.)Ensuring preparation of annual financial statements and reports and disclosure of information to stakeholders.

Board Meetings

Section 8(1)(a) of the State Corporations Act, Cap 446, provides that Boards of every State Corporation shall meet at least four (4) times in every financial year. The Board held eight (8) Full Board meetings and six (6) Special Board meetings.

Board Committees

The Board, under Section 9 of the KICA is bestowed the power to delegate performance of some of its duties and functions to Board Committees that comprises members of the Board. The following Board Committees were constituted:

Finance Committee

This Committee provides oversight on all financial management issues at the Authority. It consists of six (6) members. The committee held a total of six (6) meetings.

Technical Matters Committee

This Committee deals with technical issues including granting approval for issuance of Licenses, review of the market structure and providing guidance on other regulatory interventions. It consists of six (6) members. The committee held a total of 11 meetings.

Staff and Administration Committee

This Committee handles human resource management and administrative matters. It consists of six (6) members. The committee held a total of eight (8) meetings.

Broadcasting Standards Committee

This Committee is responsible for setting media standards, regulating and monitoring compliance to the set standards. It consists of six (6) members. The committee held a total of six (6) meetings.

Board Audit and Risk Management Committee

This Committee is responsible for offering advisory and recommendations to the Board on governance, risk management and internal control processes of the Authority. It consists of five (5) members. The committee held four (4) meetings.

Compliance with Code of Governance for State Corporations (Mwongozo)

The Authority continued to ensure adherence to the principles of good corporate governance underpinned in Mwongozo. In this regard, the Authority facilitated the Board Evaluation Exercise conducted by the State Corporations Advisory Committee (SCAC). The Authority also held a Board induction exercise for the newly appointed Board members and convened Board meetings as required by Mwongozo.

Risk Management and Internal Control System

The Board and Management are key in setting the tone for adoption of a risk-based culture by ensuring that appropriate risk management systems are entrenched in the corporate strategy and operations. The Authority is continuously measuring the risk maturity level by monitoring the adequacy of internal controls to identify areas for improvement.

Risk Management

The Authority has in place a Risk Management Policy Framework, which defines the responsibilities of the Board Audit and Risk Committee as well as Management to enable effective risk identification, evaluation and management. The following key risks that could have financial, strategic and operational impact on the organizational performance, reputation and operations were identified: reputation; litigations; people/culture; non-compliance with licensees; procurement risk; USF project implementation; external interference;

uptake of technology; cyber and information security; consumer and stakeholders’ awareness. In recognition of these identified risks, the Authority reviewed the procedure manuals, strategies, risk register and aligned them to its Strategic Plan 2018-23.

Internal Controls

The Authority’s internal controls are designed to provide reasonable assurance regarding the achievement of objectives relating to efficiency and effectiveness of operations, reliability of financial reporting, and compliance with applicable laws and regulations. Towards this, Management has put in place systems which include policies and procedures that detail the operational and financial controls. The Authority continuously monitored adherence to these systems by undertaking audits in conformance to the Internal Audit Charter and International Auditing Guidelines and Standards.

Mitigating the COVID-19 Pandemic

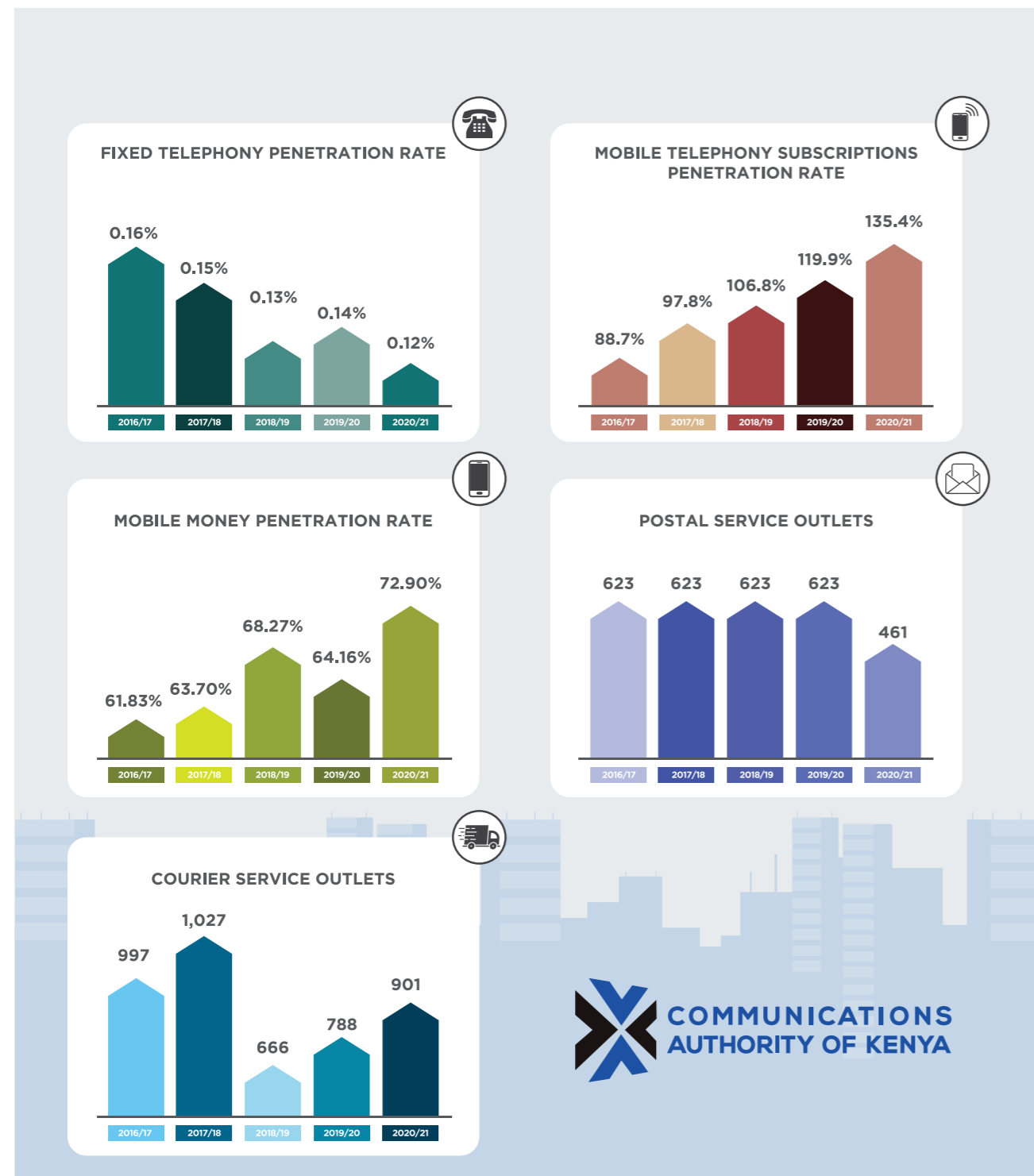
Following the declaration of COVID-19 as a global pandemic and confirmation of the first COVID-19 case in Kenya on 13th March 2020, the Government established the National Emergency Response Committee under Executive Order No. 2 of 2020 and instituted measures to curb the spread of the disease. These measures include; restrictions on travels (international and local), social distancing, public awareness and prevention, surveillance, diagnosis and treatment. In order to ensure a coordinated response to COVID-19 pandemic and implementation of protocols by World Health Organization (WHO) the role of ICTs became more significant during this period.

In recognition of the critical role ICTs would play in mitigating the spread of the pandemic, the Cabinet Secretary, Ministry of ICT, Innovation and Youth Affairs constituted the ICT Advisory Committee through Gazette Notice No. 3236 of 21st April 2020, to coordinate ICT specific responses to the effects of the COVID-19 pandemic and beyond. The Committee is chaired and hosted in the Authority.

The Committee developed a framework for identifying, supporting and scaling local ICT solutions that can support the country in its efforts to combat the COVID-19 pandemic effects. In line with the framework, the Committee identified additional 64 potential innovations for support and scale-up. These innovations were in the health, education, transport, agriculture and other sectors of the economy.

The Authority on its own motion and being alive to the central role that the critical sub-sectors play in responding to the pandemic, the Authority continue to implement a myriad of regulatory interventions including: toll/tariff free short code for messages; collaboration with Kenya Institute of Curriculum Development to air educational and informative programmes on all Free-to-Air Channels; introduction of a must carry rule for Edu TV to the Broadcast Signal Distributors Licensees; introduction of tariff free Public Service Announcement by the Broadcasters; cyber security measures on electronic and online platforms.

ICT Sector Statistics at a Glance



The Strategic Plan 2018-23

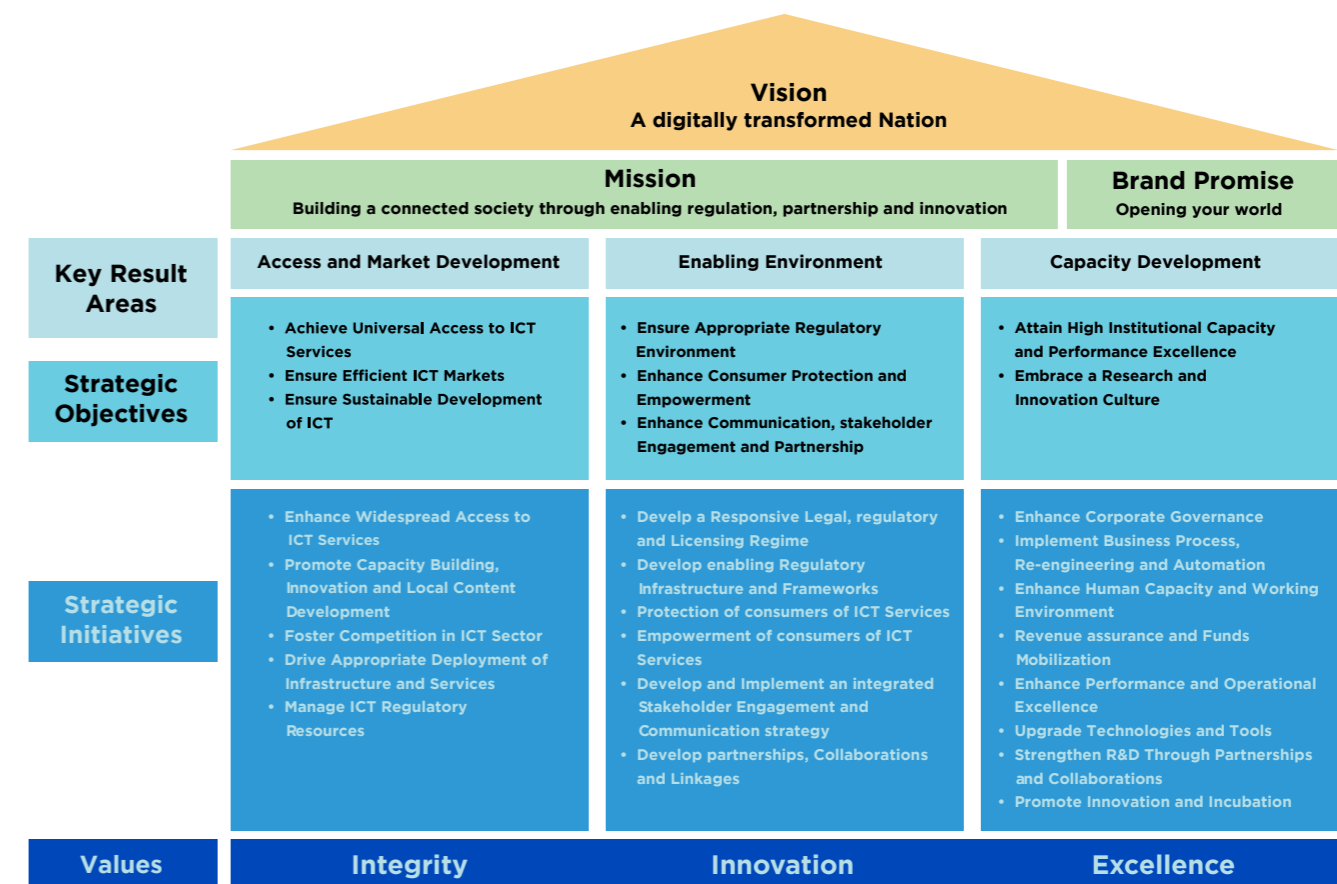
The Authority undertook a mid-term review of its 4th Strategic Plan for the period 2018-23. The review enabled the Authority to determine the level of implementation of the planned activities for the first two and half years as well as ensure that the Authority remained focused on its mandate by addressing the changing regulatory environment.

The revised Strategic Plan is aligned to the Vision 2030, Third Medium Term Plan (MTP III), Big Four Agenda, Africa Union Agenda 2063 and the United Nations (UN) Sustainable Development Goals (SDGs).

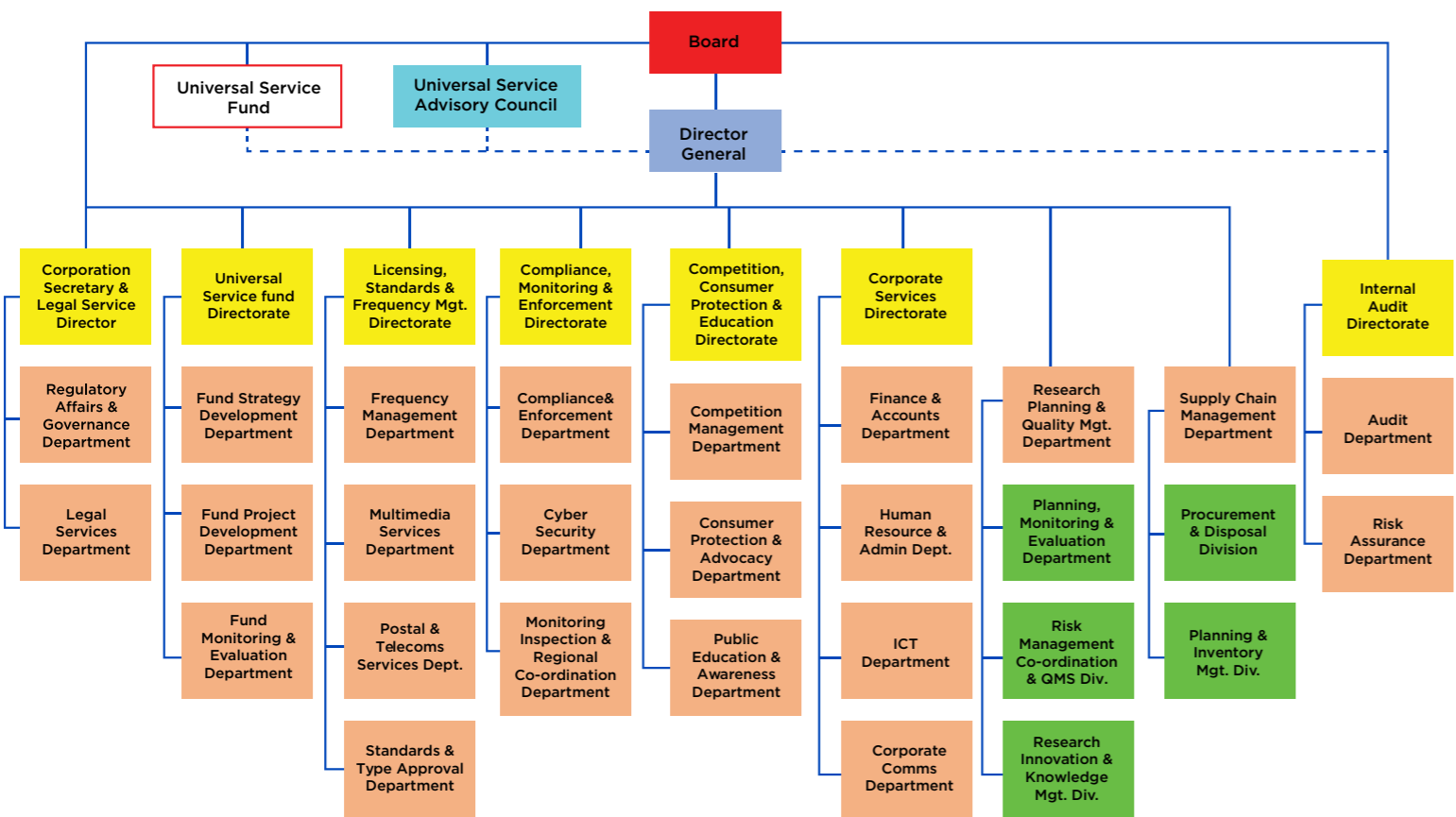
After the review process, the Authority's Vision, Purpose, Brand Promise, Core Values and Key Result Areas remained unchanged

However, the Strategic Objectives, Strategic Initiatives as well as the Activities were changed to reflect the emerging issues in the ICT sector, including an alignment to the National ICT Policy 2020. The revised strategic plan focuses the Authority efforts in three (3) Key Result Areas (KRAs) in order to achieve eight (8) strategic objectives through implementation of 19 strategic initiatives. This Annual Report is based on activities undertaken during the third year of implementation of the strategic plan all aimed at facilitating the growth and development of the country's ICT sector. A high-level summary of the Authority's revised 4th Strategic Plan 2018-2023 is outlined in the diagram below.

Revised Strategic Direction 2018 - 2023



The Organization Structure



Chapter 01 OPERATING ENVIRONMENT

Global economies are interdependent in nature and have linkages to various sectors in a country's economy. Understanding developments in the global and regional economies is, therefore, important in appreciating changes in various sectors in an economy. Changes in the Information and Communication Technologies (ICT) sector are paramount given the sector's role as an enabler of other sectors of the economy.

Digital technologies provide opportunities for countries to accelerate economic growth through connecting citizens to public and private sector services. Digital technologies enhance innovations and interactions between firms and their stakeholders; transform production of goods and services and improve productivity. These technologies continue to play a significant role in achieving sustainable human development; poverty reduction; national security and international competitiveness. This chapter focuses on the various global, regional and country-specific economic indicators, which might have informed various ICT trends and policies during the year.

1.1. Macroeconomic Environment

The performance of the ICT sector is influenced by both global, regional and local macroeconomic environments.

1.1.1. Global Economy

According to the 2021 Economic Survey, the global Gross Domestic Product (GDP) contracted by 4.2 percent in 2020 compared to a growth rate of 2.7 per cent recorded in 2019. The contraction is mainly attributed to the Coronavirus Disease of 2019 (COVID-19); pandemic-related developments such as resurgent of infections and uncertainty in the financial markets; and persistent transitory supply-demand mismatches. A significant decline in oil prices; and slowdown in economic activities due to the negative effects of containment measures instituted to mitigate the pandemic also contributed to the contraction in GDP.

Real GDP in advanced economies is estimated to have contracted by 5.8 per cent in 2020 compared to 1.7 per cent growth in 2019. The contraction resulting a decline in economic activities was driven by sharp declines in demand and supply of services due to the COVID-19 pandemic. Emerging market and developing economies contracted by 2.2 per cent in 2020 compared to a growth rate of 3.6 per cent in 2019. The economies with heavy reliance on tourism and industrial commodity exports as well as those that experienced large outbreaks of COVID-19 such as India, Mexico, Argentina and Peru, experienced sharp declines in domestic and external demand as well as weak investment due uncertainty brought about by COVID-19 pandemic.

Sub-Saharan Africa's real GDP is estimated to have contracted by 1.9 per cent in 2020 compared to 3.2 per cent growth in 2020. The contracted is attributed to COVID-19 pandemic, which negatively

affected a number of activities such as tourism earnings, international trade and debt burden levels. The decline in exported goods especially for oil exporting countries, increase in importation of medical supplies and postponement of direct investment due to uncertainty brought about by COVID-19 also contributed to the convulsion in the economy.

East African Community (EAC) real GDP contracted by 0.2 per cent from a growth rate of 6.2 per cent recorded in 2019. The contraction is also attributed to the COVID-19 pandemic, which negatively affected EAC members in many ways. The pandemic and associated mitigation measures contributed to decline in tourism earnings, falling commodity prices and waning financial flows. Disruptions in supply chains due the COVID-19 mitigation measures affected food production and trade in EAC.

1.1.2. Local Economy

Kenya's economy was adversely affected by COVID-19 pandemic and the consequent containment measures imposed both domestically and internationally. These measures significantly slowed down economic activities. As a result, real GDP is estimated to have contracted by 0.3 per cent in 2020 compared to a revised growth rate of 5.0 per cent in 2019 (Economic Survey 2019). As a result of the containment measures, economic performance of accommodation and food serving activities, education, professional and administrative services was dismal in 2020. The economy was somewhat supported by accelerated growths in agricultural production, construction activities and health services.

The agriculture sector benefitted from favourable weather conditions that prevailed for the better part of the year though the sector's growth was constrained by a contraction in forestry activities. The construction sector's growth was largely buoyed by the continued investment in public infrastructure during the review period as evidenced in a sharp increase in demand for construction materials. The growth in the health sector was mainly driven by the national and county governments' spending on the COVID-19 mitigation measures. In addition, the economy was shielded from a steeper slump by strong performances in financial and insurance, public administration and information and communication technology (ICT) activities.

1.2. Information and Communication Technology Sector

The local ICT sector is influenced by the performance in the global ICT arena.

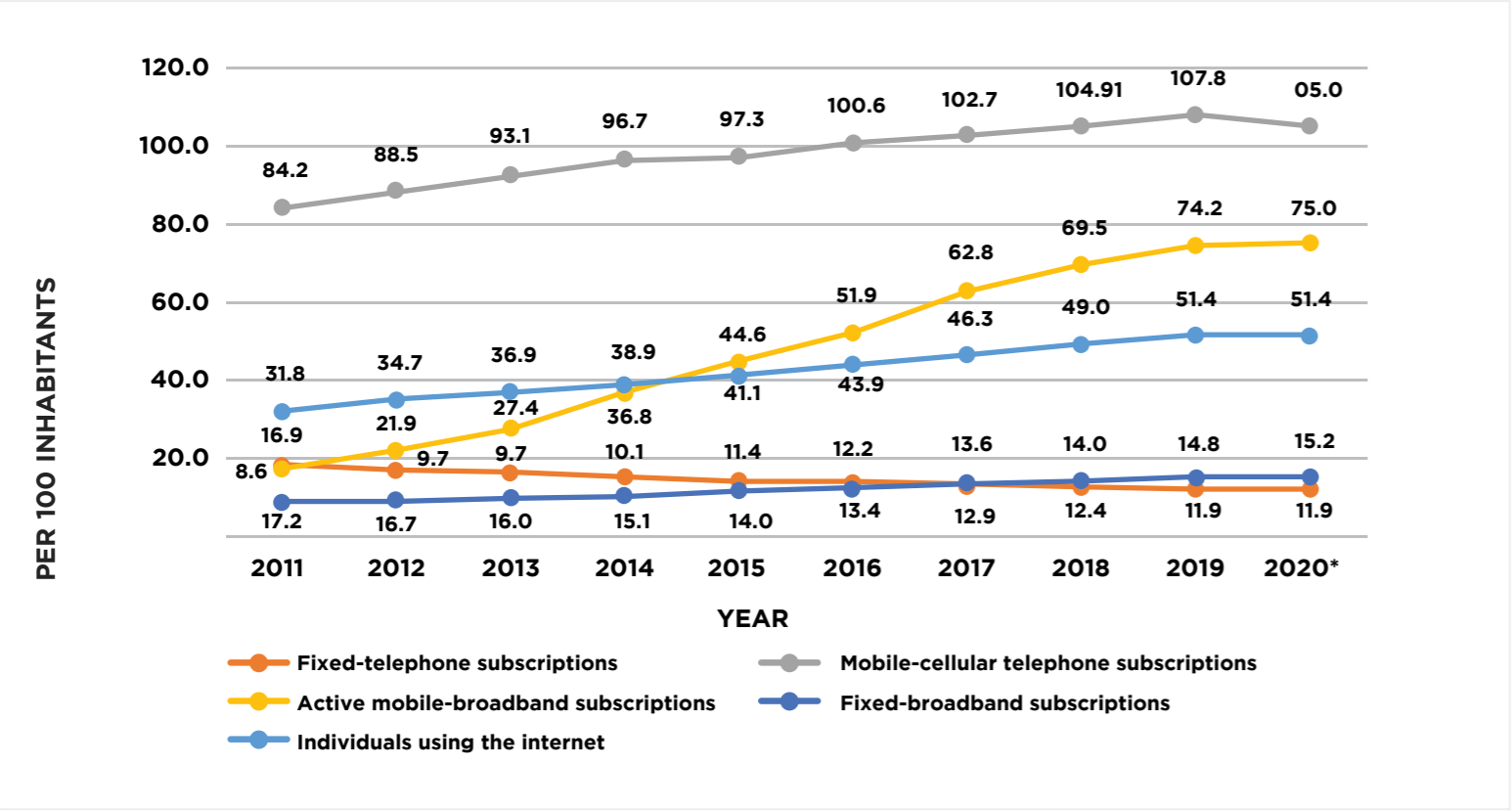
1.2.1 Global ICTs

Digital technologies facilitate development by providing opportunities for countries to accelerate economic growth and connecting

citizens to government services. The Global System for Mobile Communications Association's (GSMA)[Mobile Economy Report 2021] indicated that 5.2 billion people were subscribed to mobile telephony services as at 31st December 2020. Further the report estimates that there will be nearly half a billion new subscribers by 2025, most of which will come from Asia and Sub-Saharan Africa. In 2020, mobile technologies and services generated \$4.4 trillion of economic value added globally. ICTs have played a significant role in mitigating the effects of the COVID-19 and enabling socio-economic resilience in the face of disruptions brought about by the pandemic. The use of big data and artificial intelligence has contributed to interventions in public health and vaccine development. Governments, businesses and learning institutions globally have opted to use the Internet, video conferencing and other digital solutions in a bid to continue with their activities whilst curbing the spread of the COVID-19. Further, there has been increased uptake of e-commerce and digital financial services.

As the world emerges from the pandemic, connectivity will continue to be crucial in helping economies recover and become more resilient to future challenges. Fostering digital inclusion post COVID-19 will also enhance access to telecommunication services as well as keeping people, governments and businesses connected. This will ensure timely access to essential services for persons living in un-served and under-served populations, enhanced productivity and efficiency through 5G- and IoT-enabled digital transformation of industries, and new opportunities and market access for people and enterprises.

ICT indicators which include fixed telephone subscriptions, mobile cellular telephone subscriptions, fixed broadband subscriptions, active mobile broadband subscriptions and individuals using the Internet have progressively increased. Figure 1.1 shows the global trends in the various ICT indicators.



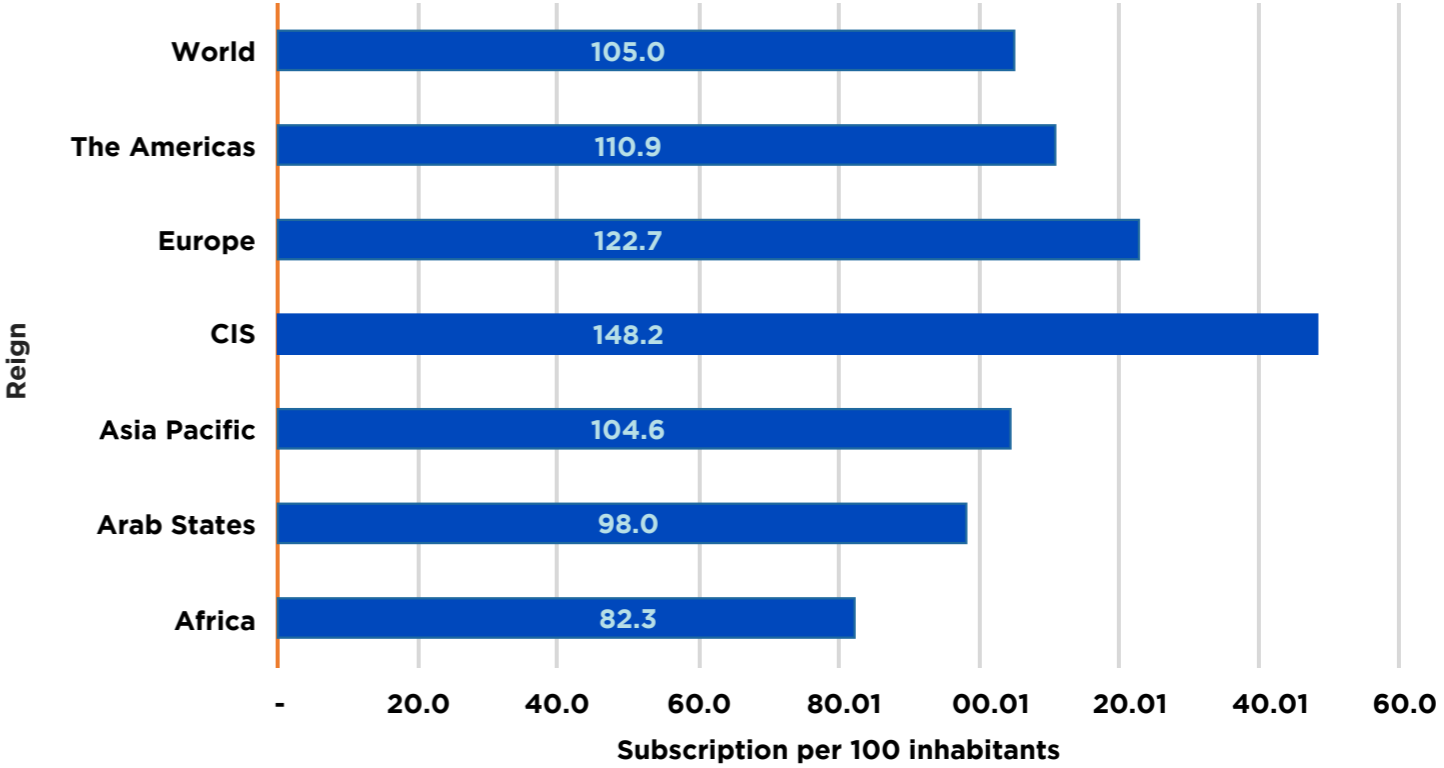
Source: ITU World Telecommunication/ICT Indicators database
Note: *Estimate

Figure 1.1 Mobile Cellular Services

1.1.1.1 Mobile Cellular Services

The global mobile-cellular subscriptions declined to 8.2 billion in 2020 from 8.3 billion recorded in 2019[ITU's Facts and Figures 2020]. This corresponds to 105 subscriptions per 100 inhabitants. The decline could be attributed to the disruptions related to the COVID-19

pandemic and other socio-economic forces. The Commonwealth of Independent States (CIS) recorded the highest penetration rate of 148.2 per cent while Africa recorded the lowest penetration rate of 82.3 per cent. Arab States, Asia and the Pacific, Europe and Americas registered penetration rates of 98.0 per cent, 104.6 per cent, 122.7 per cent and 110.9 per cent, respectively. This is shown in Figure 1.2



Source: ITU World Telecommunication/ICT Indicators database
Note: *Estimate **Commonwealth of Independent States

² TU's Facts and Figures 2020

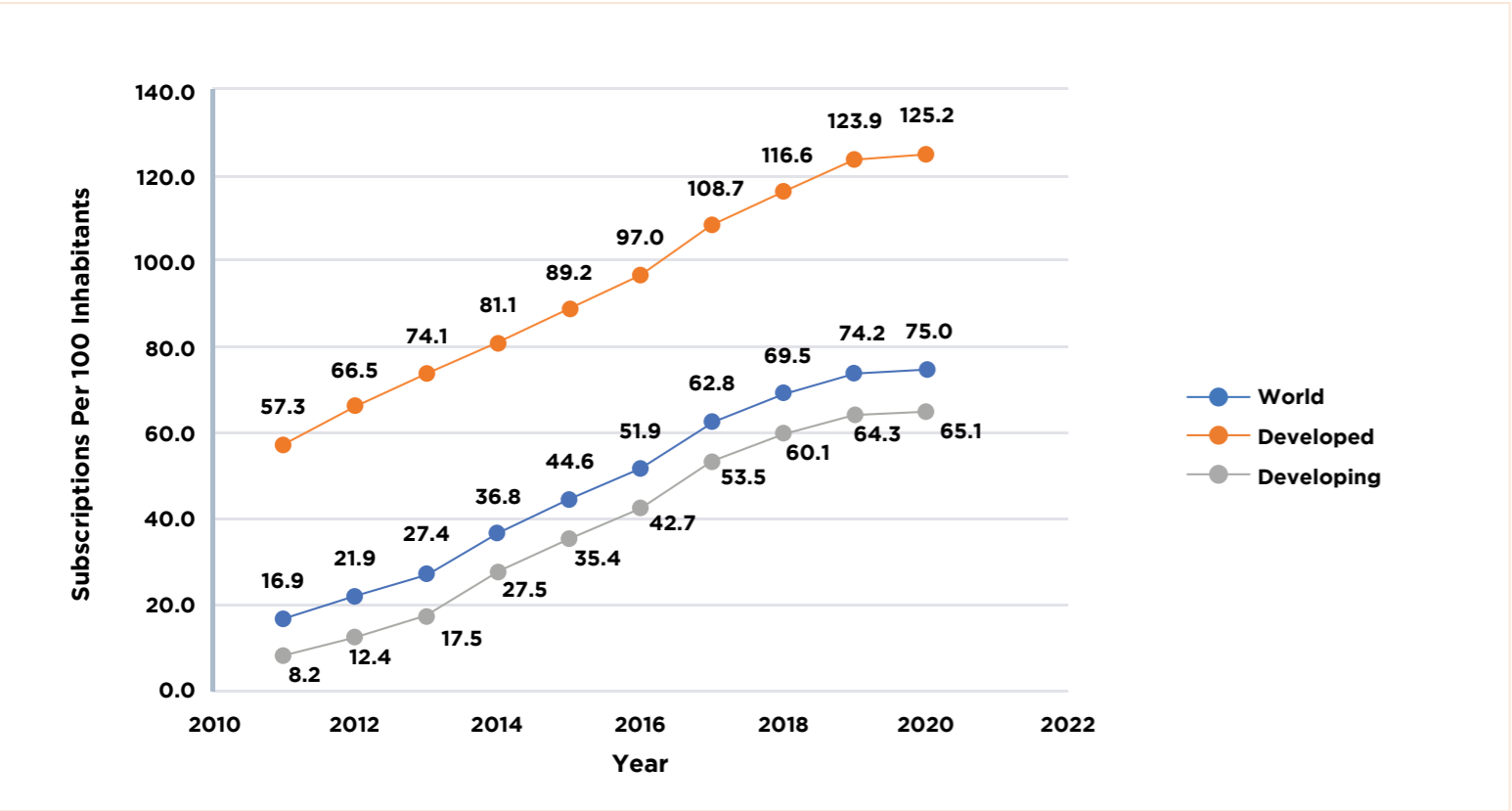
³ Regions are based on the ITU BDT Regions, see: <http://www.itu.int/en/ITU/Statistics/Pages/definitions/regions.aspx.html>

Figure 1.2 Mobile Cellular Subscriptions per 100 inhabitants, 2020*

1.1.1.2 Broadband Services

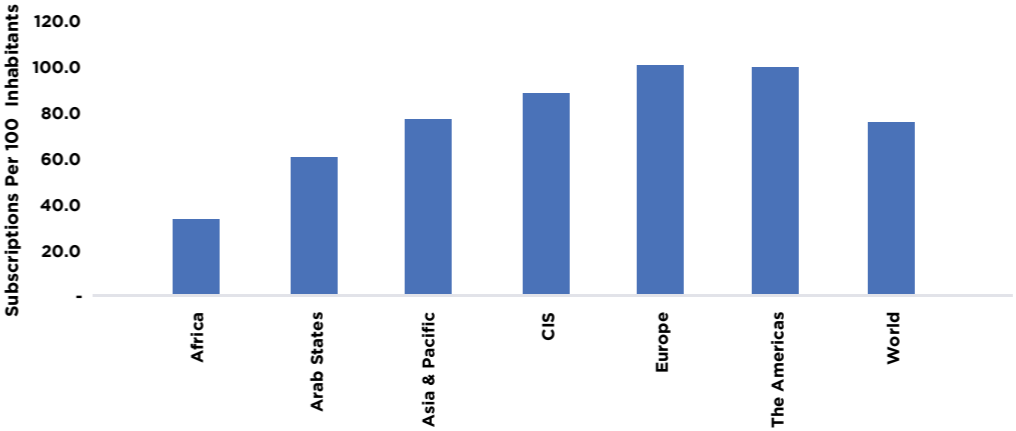
The global active mobile broadband penetration grew from 74.2 subscriptions per 100 inhabitants in 2019 to 75.0 per cent subscriptions per 100 inhabitants in 2020. Developed countries exhibited higher growth in mobile broadband subscriptions in comparison with developing countries. In the year 2020, the penetration rates for mobile broadband in developed countries stood

at 125.2 per cent up from 123.9 recorded in 2019, while developing countries penetration was recorded at 65.1 per cent up from 64.3 in 2019. The highest broadband subscriptions per 100 inhabitants were observed in Europe at 99.2 per cent while the lowest was recorded in Africa at 33.1 per cent. Active mobile broadband subscriptions per 100 inhabitants and Global active broadband subscriptions by region are shown in Figures 1.3 and Figure 1.4 respectively.



Source: ITU World Telecommunication/ICT Indicators database
Note: *Estimate **Commonwealth of Independent States

Figure 1.3 Active Mobile Broadband Subscriptions per 100 Inhabitants



Source: ITU World Telecommunication /ICT Indicators database
Note: * Estimate
**Commonwealth of Independent States

Figure 1.4 Global Active Broadband Subscriptions by Regions

1.2.1 ICT Developments in East Africa

ICT trends in East Africa indicate that as at December 2020, (<https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>.) Kenya leads the six (6) EAC Member States in two (2) out of the three (3) ICT development indicators of mobile cellular telephone and

internet penetrations. Uganda is ahead of the six (6) States in mobile broadband penetration while South Sudan is the lowest in term of mobile cellular telephony, Internet and broadband penetrations. This is shown in Figure 1.2.

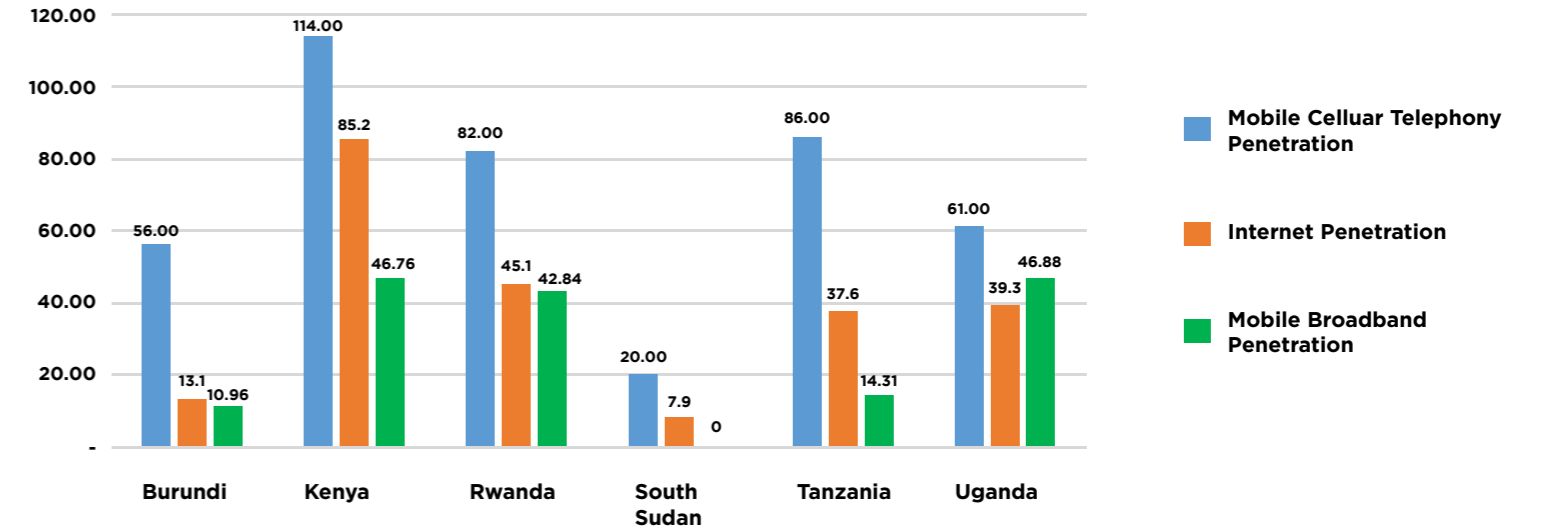


Figure 1.5 ICT Developments in East Africa

1.2.2 Local ICTs

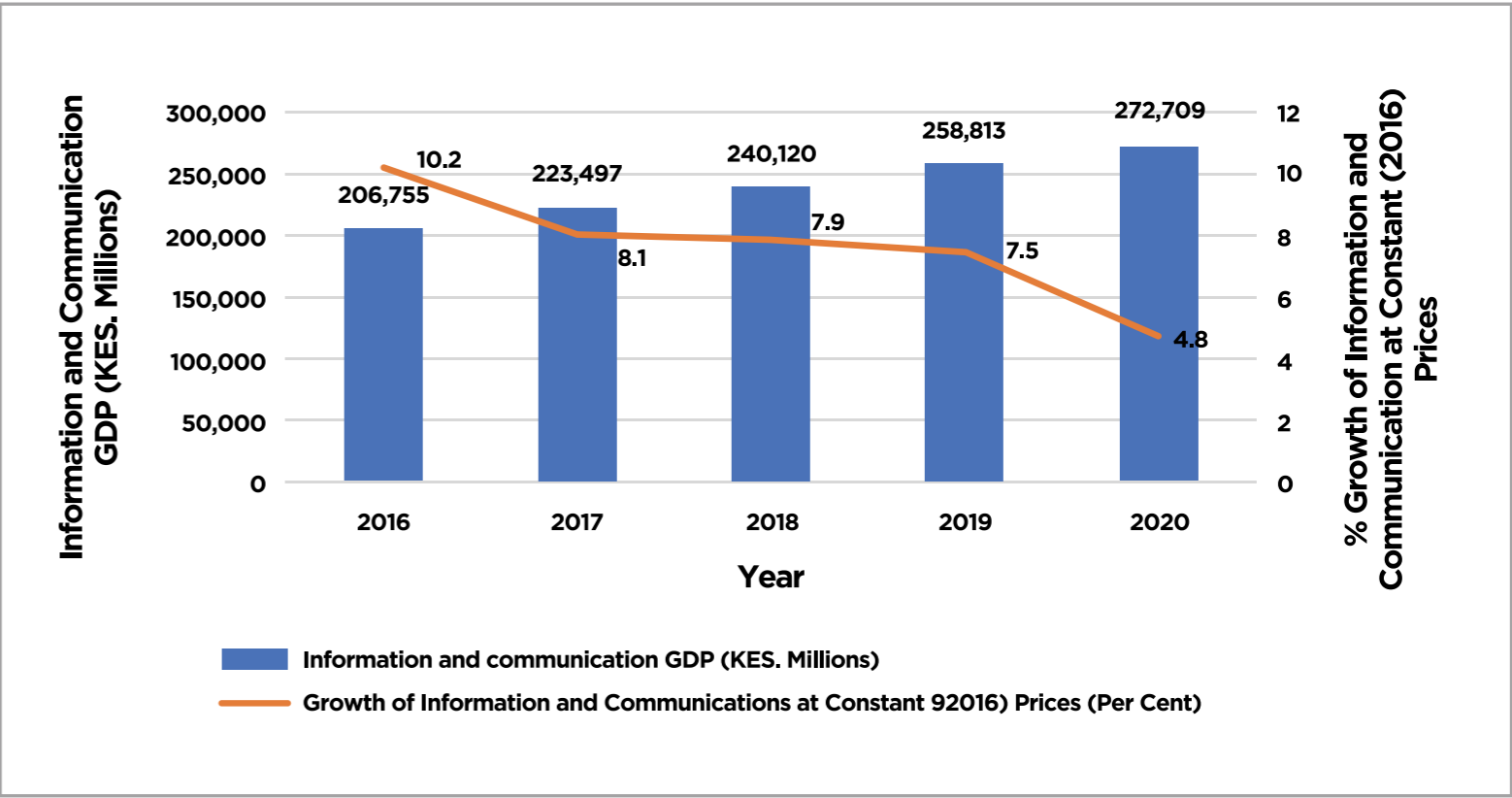
The growth of the ICT sector and its contribution to GDP is summarized in Table 1.1.

1.2.2.1 Contribution of ICT Sector to GDP

Table 1.1 Summary of Economic Indicators					
Indicator	2016+	2017+	2018+	2019+	2020*
Population (Millions)	43.3	45.3	46.4	47.6	48.7
GDP at market prices (KES. Billion)	7,594.0	8,483.4	9,340.3	10,255.6	10,753.0
Growth of GDP at constant prices (per cent growth)	4.2	3.8	5.6	4.9	-0.3
GDP Per Capita at Constant Prices (KES.)	171,472.	174,035.7	179,474.2	183,703.1	179,021.6
Information and Communication GDP- Current prices (KES. Million)	206,755	223,497	240,120	258,813	272,709
Information and communication as % of GDP	2.7	2.6	2.6	2.5	2.5
Growth of Information and communications at Constant (2016) Prices (per cent)	10.2	8.1	7.9	7.5	4.8
Private sector wage employment in information and communications ('000)	115.2	122.4	129.3	130.4	117.2
Public sector wage employment in information and communications ('000)	1.9	1.9	1.9	1.9	1.9
Consumer Prices, Annual Average [Index numbers February 2019=100]	86.7	93.6	240,120	103.2	108.7
CPI Annual Inflation Rate (Overall) %	6.3	8.0	4.7	5.3	5.4
+Revised *Estimate Source: Economic Survey 2021 NB: The differences in the table figures, compared to previous annual reports, are due to rebasing of National Accounts, revised data and new data sources.					

1.2.2.2 Growth of the ICT Sector

The contribution of the ICT sector to Kenya's GDP remained steady in 2020 at 2.5 per cent in comparison to the revised rate of 2.5 percent in 2019. The value addition from the ICT sector increased by 5.4 per cent in 2020 to KES 272.7 billion up from 258.8 billion recorded in 2019. However, the growth of the ICT sector declined in the year 2020 to stand at 4.8 per cent, down from the revised rate of 7.5 per cent recorded in 2019.



**This reduction in growth of ICT sector is attributed to decline in the publishing sub-category which is included in the calculation of the ICT indicator in the economic survey.*

Figure 1.5 Information and Communication GDP and Growth

⁴ <https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>.

1.3. Future Outlook

The future outlook in the economy and ICT sector are covered as follows:

1.3.1 Economic Outlook

According to the IMF’s World Economic Outlook Report of July 2021, the global economy is projected to grow by 6.0 per cent in 2021 and 4.9 per cent in 2022. The forecasted pickup in global growth relies on expected increase in fiscal policy support; improved health metrics due to speedy rollout of COVID-19 vaccines as well as easing of COVID-19 restrictions across the globe. Advanced economies are projected to grow by 5.6 per cent in 2021 and 4.4 per cent in 2022. Emerging markets and developing economies are forecasted to grow by 6.3 per cent in 2021 and 5.2 per cent in 2022. Growth in Sub-Saharan Africa is expected at 3.4 per cent in 2021 and 4.1 per cent in 2022.

Kenya’s economic performance in 2021 is projected to be less optimistic (Economic Survey 2021), owing to COVID-19 and consequent containment measures. The fiscal support, rollout of COVID-19 vaccines and easing of containment measures domestically and internationally are expected to drive economic recovery. These measures are expected to drive the projected growth of the Kenyan economy to 7.6 per cent in 2021 and 5.7 per cent in 2022.

1.3.2 Outlook in the ICT Sector

Digital transformation is expected to continue playing a key role in ensuring that governments strengthen their economies as well as build better and more inclusive societies. Globally, the increased adoption of 5G will lead to additional robotic automation and intelligence in the supply chains, as well as in customer service.

Locally, citizens are increasingly relying on the Internet to stay connected, work and access services remotely as more government services move to online platforms to enhance service delivery. It is expected that diverse innovations will support the roll out of digital financial services, e-health services, virtual conferencing and machine learning for research, e-agriculture, e-learning, e-commerce and

digital local content development. The uptake of these services will rely on high-speed, ultra-reliable, low-latency and massive machine-type communications that will drive the adoption of 5G.

Despite new technologies having opened a wealth of new possibilities for global development, there are a number of foreseen challenges particularly in cybersecurity and data privacy. It is therefore crucial for countries to work together to build resilient and secure infrastructure and develop strategies to mitigate these challenges.

CHAPTER II: MANAGEMENT OF ICT RESOURCES

The provision of ICT services requires efficient and optimal management of various ICT resources. The resources that are used to facilitate provision of ICT services include radio frequency spectrum, domain names and numbering resources.

2.1 Radio Frequency Spectrum Management

The radio frequency spectrum is a finite national resource that is held in trust and managed by the Authority. The management of frequency spectrum promotes its efficient use, facilitates new services and emerging technologies as well as fostering a conducive regulatory environment for the benefit of the public. This is done through planning, allocation, assignment and issuance of frequency licences for use in various services. These services include: mobile cellular, fixed wireless access, fixed terrestrial, satellite, private radio networks, aeronautical radio, amateur radio, radio alarm networks, citizen band radio, digital terrestrial television, FM sound broadcast and maritime services.

2.1.1 Mobile Cellular Services

The Authority continued to facilitate the deployment of 4G services in the country which led to an increase in deployment of 4G transceivers. This led to an increase in the uptake of 4G services by ICT consumers. The 2G transceivers increased marginally, while the 3G and 4G transceivers increased showing a stable growth in data services. The deployment of 2G, 3G and 4G transceivers in the country is as shown in Table 2.1.

The Authority also assigned additional frequencies in the 1800 MHz frequency band to Safaricom PLC and in the 2100 MHz band to Airtel Networks Kenya Ltd to enable them expand their networks in addressing the high uptake of mobile services due to the COVID-19 pandemic.

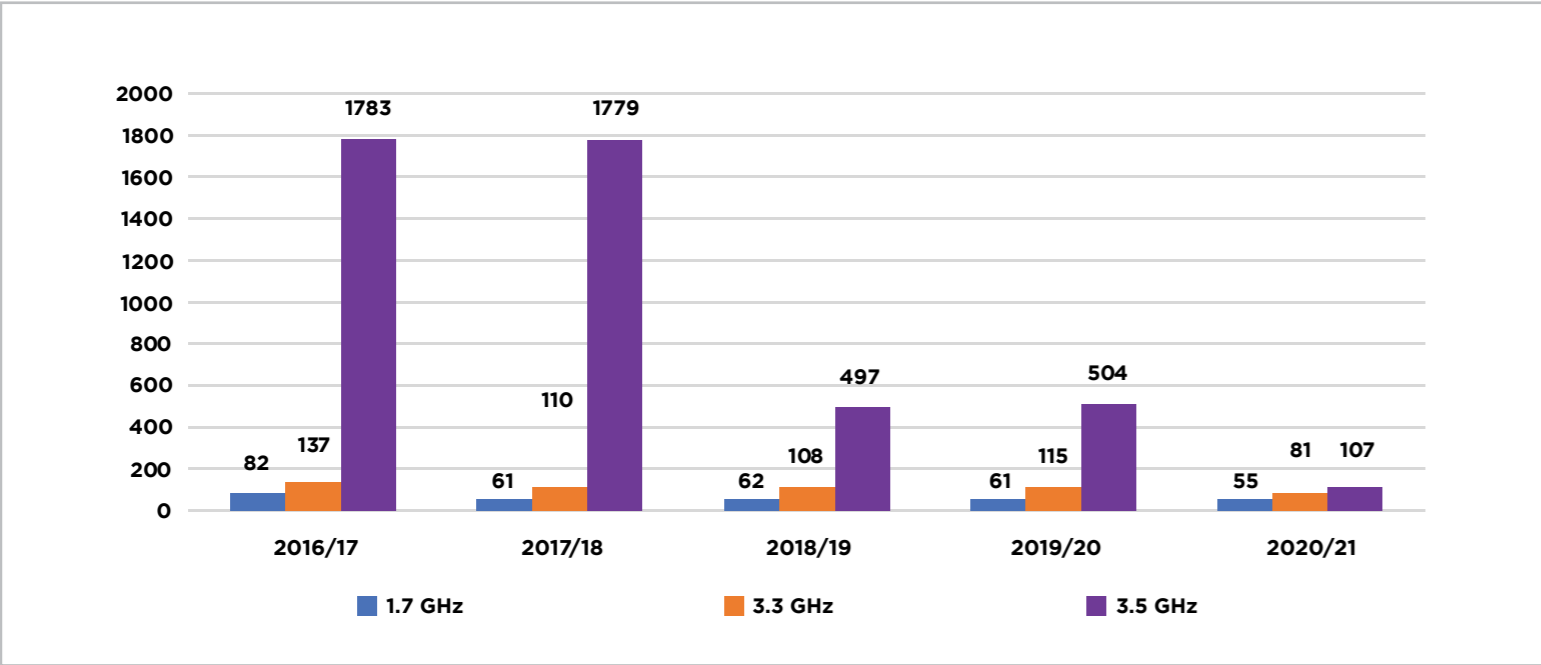
Table 2.1 Mobile Cellular Transceivers						
Operator	Technology	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2019/21
Telkom Kenya Ltd	2G	13,571	16,162	13,701	13,434	10,930
	3G	4,945	8,018	8,230	8,469	7,851
	4G	-	-	1,637	8,469	1,901
Airtel Networks Kenya Ltd	2G	18,407	23,060	25,744	27,393	38,008
	3G	6,580	7,752	12,118	13,937	19,564
	4G	255	1,260	2,844	3,145	8,134
Safaricom PLC	2G	105,582	115,028	122,422	112,491	105,425
	3G	31,191	37,787	46,642	57,441	76,407
	4G	3,618	6,209	13,263	20,300	31,249
Total	2G	137,560	154,250	161,867	153,318	154,363
Total	3G	42,716	53,557	66,990	79,847	103,822
Total	4G	3,873	7,469	17,744	31,914	41,284
Source: Communications Authority of Kenya						

2.1.2 Fixed Wireless Access Systems

Fixed Wireless Access (FWA) systems provide last mile wireless connectivity through radio links between two fixed points. This enables provision of wireless internet access to homes or businesses without laying fiber and cables. This kind of access helps network operators to offer broadband access to unserved and underserved areas in Kenya and bridge the digital divide.

There was a substantial decrease in the deployment of transceivers for fixed wireless access systems as illustrated on Table 2.2 and Figure 2.1. This is attributed to the proposal for the reuse of frequencies traditionally used for fixed wireless access systems to provide mobile services in line with the resolution of the World Radiocommunication Conference (WRC) 2019. The operators opted to reserve these bands in preparation for rollout of 5G services.

Table 2.2 Fixed Wireless Access Systems					
Frequency Band	Number of Transceivers				
	FY 2016/17	FY 2016/17	FY 2018/19	FY 2019/20	FY 2020/21
1.7 GHz	82	61	62	61	55
3.3 GHz	137	110	108	115	81
3.5 GHz	1,783	1,779	497	504	107
Total	2,002	1,950	667	680	243
Source: Communications Authority of Kenya					



Source: Communications Authority of Kenya

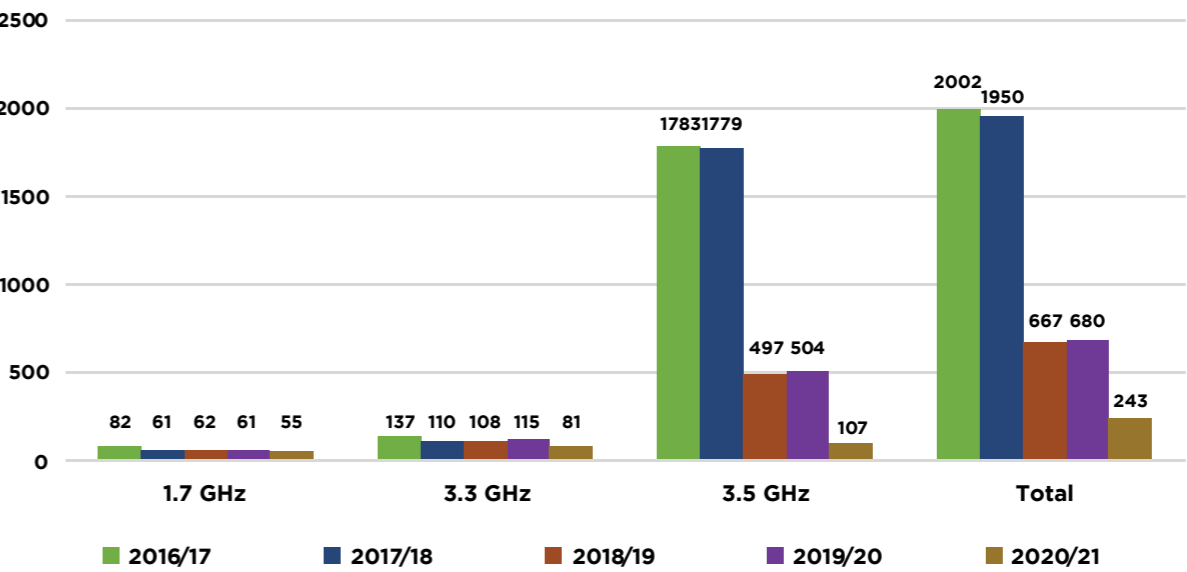
Figure 2.1 Fixed Wireless Access Systems

2.1.3 Fixed Terrestrial Links

Fixed links are used as backhaul links for mobile network services to provide secure communication between two sites (point-to-point communication). The Authority assigned a total of 1,191 and decommissioned 1,171 links, bringing the total number of installed

fixed links to 7,249. The stagnation in the growth of the number of fixed links was attributed to the high uptake of fiber links as backhaul to the mobile networks. Notably, there was a significant increase in the uptake for the 70/80 GHz band which is preferred for last mile connectivity. Table 2.3 and Figure 2.2 shows status of fixed links in the country.

Table 2.3 Fixed Links					
Frequency Band	FY 2016/17	FY 2016/17	FY 2018/19	FY 2019/20	FY 2020/21
5GHz	3,168	2,331	2,214	2,035	2,121
6GHz	72	73	67	52	81
7/8GHz	1,286	1,469	1,610	1,585	1,604
11GHz	12	12	12	12	6
13GHz	406	461	421	385	325
15GHz	2,731	2,385	2,589	2,436	2,304
18GHz	72	121	150	169	72
23GHz	488	436	407	317	299
38GHz	188	182	141	123	85
70/80GHz	-	3	9	152	352
Total	8,423	7,473	7,620	7,216	7,249
Source: Communications Authority of Kenya					



Source: Communications Authority of Kenya

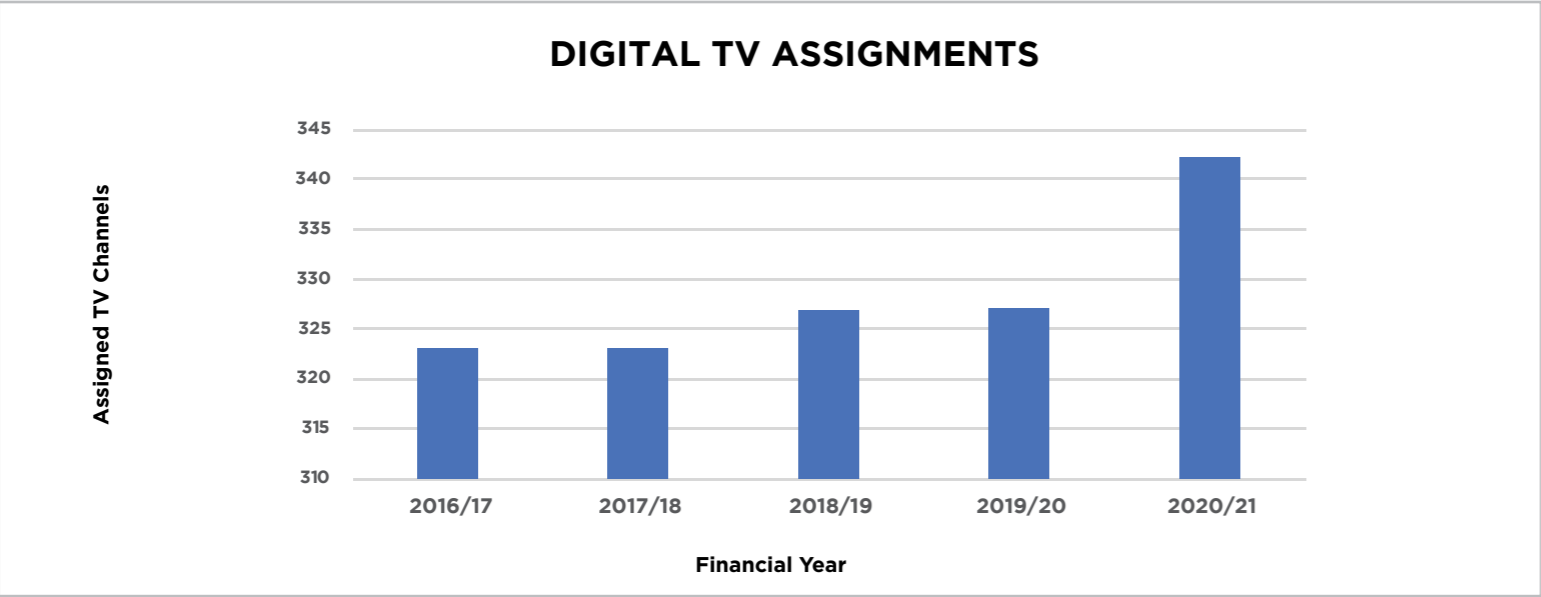
Figure 2.2 Fixed Links

2.1.4 Digital Terrestrial Television Broadcasting Frequencies

Digital Terrestrial Television (DTT) broadcasting refers to the

transmission of television signals in digital mode using terrestrial transmitters. The number of DTT frequency assignments increased to 342 as compared to 327 in the previous year as shown on Table 2.4 and Figure 2.3.

Table 2.4 Cumulative Digital TV frequency assignments						
	Signal Distributors	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
1	Africa Digital Network	38	38	38	38	38
2	Gotv Kenya	49	49	49	49	61
3	Lancia Digital Broadcasting	14	14	14	14	14
4	Pan Africa Network Group	121	121	125	125	125
5	Signet Signal Distributors	101	101	101	101	104
Total		323	323	327	327	342
Source: Communications Authority of Kenya						



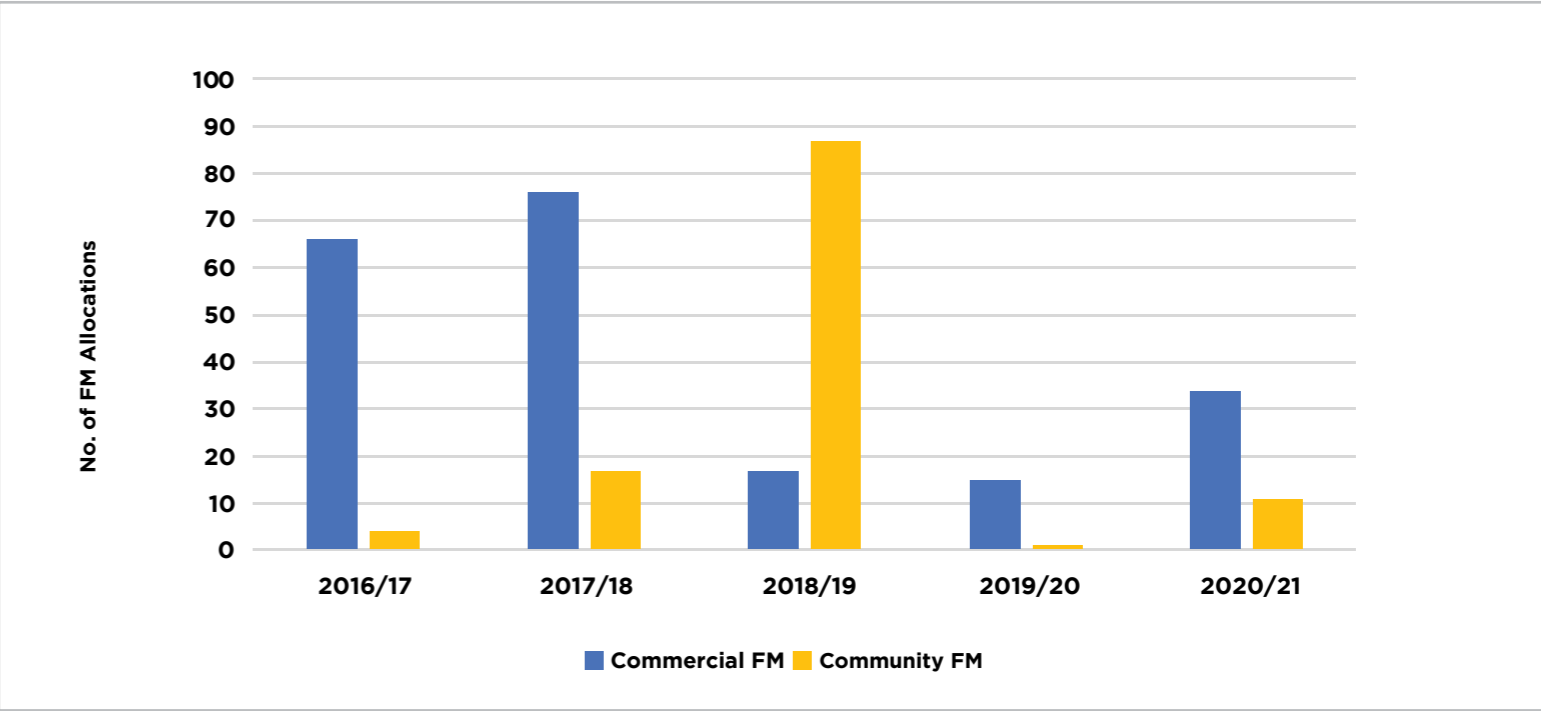
Source: Communications Authority of Kenya

Figure 2.3 Cumulative Digital TV Frequency Assignments

2.1.5 FM Sound Broadcasting Frequencies

The Authority allocated FM Broadcasting frequencies to 45 FM Stations which comprised of 34 commercial FM Stations and 11 Community FM station. The number of FM Broadcasting frequencies assigned during the last five years is summarised in Table 2.5 and Figure 2.4.

Table 2.5 Additional Assignments for FM Broadcasting Frequencies			
	Commercial FM Stations	Community FM Stations	Total
FY 2016/17	66	4	70
FY 2017/18	76	17	93
FY 2018/19	17	87	104
FY 2019/20	15	1	16
FY 2020/21	34	11	45
Source: Communications Authority of Kenya			



Source: Communications Authority of Kenya

Figure 2.4 Additional Assignments for FM Broadcasting Frequencies

2.1.6 Private Radio Networks

Private Radio Networks are used for communication within an entity. The Authority licensed 739 (VHF 737 and HF 2) new stations as shown in table 2.6.

Table 2.6 New Private Radio Networks						
Frequency Band	Station Type	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
VHF	Fixed	72	10	35	102	59
	Mobile /Portable	559	52	244	671	678
HF	Fixed	1	2	0	8	1
	Mobile /Portable	3	0	3	41	1
Total		635	64	282	822	739
Source: Communications Authority of Kenya						

2.1.7 Maritime Services

The Authority, in conjunction with Kenya Maritime Authority (KMA), manages the radio communication component of the maritime sector. This is undertaken through licensing of ship stations, assignment of maritime frequencies and Maritime Mobile Service Identity (MMSI) numbers for maritime vessels and Air to Navigation (AtoN) beacon identification. The Authority also assists KMA in maintaining the country's International Maritime Organization (IMO) member status; by ensuring all maritime frequency communication obligations are met.

In an effort to operationalize the Global Maritime Distress Safety System (GMDSS), the Authority assigned Telkom Kenya Limited (TKL) Kenya's second Accounting Authority Identification Code. This would enable TKL to be included in the Ship List V and thus recognized by Inmarsat, the satellite provider of the GMDSS for the activation of the MMSI numbers.

There were six (6) new MMSI assignments of which five (5) assignments were for maritime vessels while one (1) was for the Regional Maritime Coordination Centre Coast Station. This brings the total number of maritime vessel MMSI number assignments to 56. Two additional ship stations were licensed bringing the cumulative total to 21.

2.1.8 Other Frequency Spectrum Assignments

The Authority assigns frequencies across various bands to facilitate Satellite Systems, Aeronautical Radio, Amateur Radio, Radio Alarm Network and Citizen Band (CB) Radio. The details of assignments to these bands including the purpose of each category are outlined in Table 2.7.

Table 2.7 Other Frequency Spectrum Assignments							
License Category	Purpose	Authorization	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Satellite Systems	Provision widespread voice, data and broadcast services	Private Very Small Aperture Terminals (VSAT)	8	-	5	9	5
Aeronautical Radio	Provide ground-to-ground and air-to-ground communication services to aviation operators	Aircraft station licenses	594	673	579	406	817
Amateur Radio	Used for non-commercial exchange of messages, wireless experimentation, private recreation and emergency communication.	Amateur radio operator licenses	27	19	30	32	24
Radio Alarm Network	Wireless system aimed at detecting unauthorized access into a premise.	Alarm units	37,632	37,632	11,231	32,203	29,295
Citizen Band (CB) Radio	Allows short-distance person-to-person bi-directional voice communication, using two-way radios.	CB authorizations	0	0	0	0	2
Source: Communications Authority of Kenya							

2.2 Management of Numbering Resources

Numbering resources are alphanumeric characters for the unique identification for communication networks. This includes telecommunication numbering resources, addresses and domains names.

2.2.1 Management of Telecommunication Numbering Resources

The Authority assigns numbering resources to telecommunication service providers in order to facilitate interconnection between operators and enable provision of services to end-users.

2.2.1.1 Assignment of Telecommunication Numbering Resources

The Authority allocated four (4) Mobile National Destination Codes, four (4) Mobile Network Codes, 26 national signaling point and 110 Central Office Codes for use in telephony services. In addition, 1000 bulk SMS short codes were assigned to a new Mobile Virtual Network Operator (MVNO) and two (2) four-digit short codes were assigned to the Ministry of Health and the Nairobi Metropolitan Services. Table 2.8 shows assigned numbering by category resources.

Table 2.8 Assigned Numbering Category by Resources					
Number Category	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Mobile National Destination Codes *	13	9	9	9	4
Fixed Central Office Code **	140	374	1	0	110
Toll Free Numbers	10,000	10,200	0	47,000	100
Premium Rate Numbers	1	0	0	0	10
Bulk SMS Short Codes	0	2000	0	1	1,000
National Signaling Point Codes	2	1	0	58	26
Bulk SMS Short Codes International Signaling Point Codes	2	1***	0	0	0
Short Codes	3	4	6	10	2
Mobile Network Code	2	0	1	1	4
Mobile Number Portability Routing Code	2	0	0	0	0
Machine to Machine	0	0	10,000,000	0	0
Source: Communications Authority of Kenya *One (1) Mobile National Destination Code (NDC) is equivalent to 1,000,000 mobile telephony subscriber numbers. **One (1) Fixed telephony Central Office Code (CoC) is equivalent to 1,000 fixed telephony subscriber numbers. ***Assignment reclaimed					

2.2.1.2 National Numbering Plan

The Authority assigns telecommunication numbers to service providers in line with the national numbering plan. The numbering resources utilized in the provision of various services. Table 2.9 shows distribution of numbering resources by resource type with corresponding capacity and utilizations

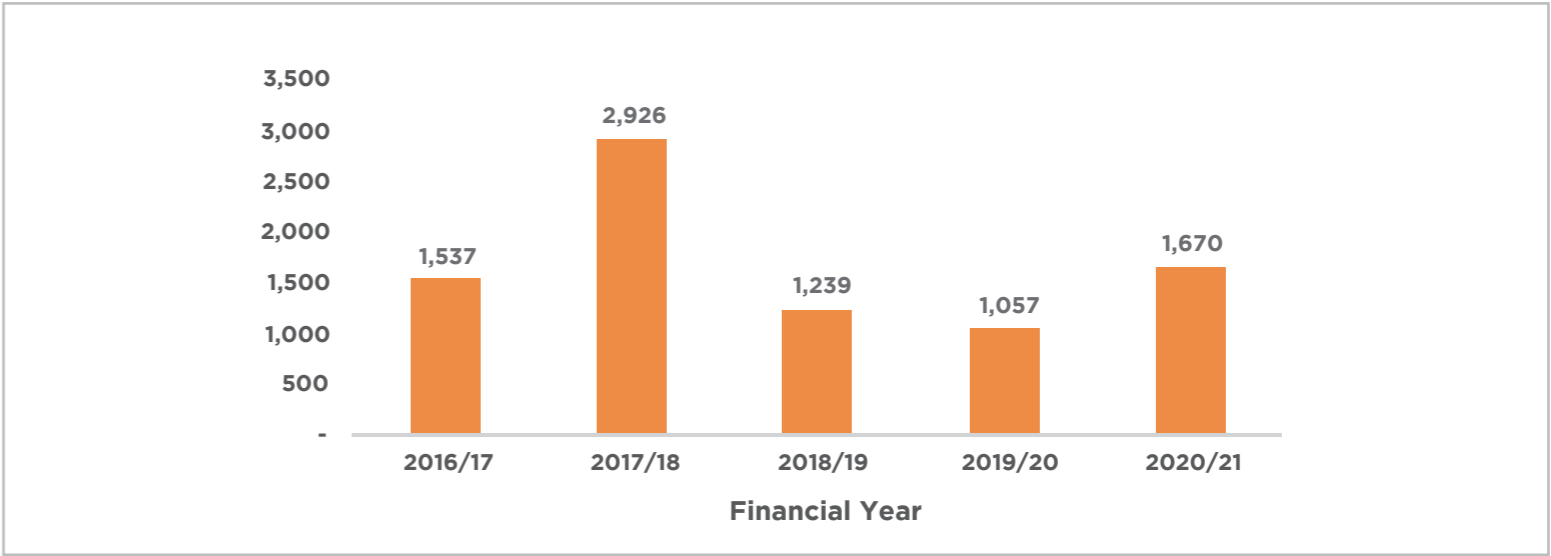
Table 2.9 Cumulative Numbering Resource Assignments as at 30 th June 2021					
Resource Type	Capacity	30 th June 2020		30 th June 2021	
		Assigned Resources	Per cent Assigned	Assigned Resources	Per cent Assigned
Mobile National Destination Codes (MNDC)	200,000,000	116,000,000	58.0	118,000,000	59
International Signaling Point Codes (ISPC)	16	10	62.5	10	62.5
5-Digit Short Codes (SC-5)	80,000	51,404	64.3	52,404	65.51

Table 2.9 Cumulative Numbering Resource Assignments as at 30 th June 2021					
4-Digit Short Codes (SC-4)	400	39	9.8	60	15
3-Digit Short Codes (SC-3)	20	12	60	12	60
Fixed Numbers (FN)	182,000,000	7,401,000	4.1	7,501,000	4.12
Mobile Network Code	100	10	10	4	14
Network Colour Codes (NCC)	8	3	37.5	3	37.5
Premium Rate Numbers (PRN)	1,000,000	138,000	13.8	139,000	13.9
Toll Free Numbers (TFN)	1,000,000	112,000	11.2	113,000	11.3
National Signaling Point Codes (NSPC)	16,384	506	3.1	532	3.2
Number Portability Routing Codes (NPRC)	100	9	9.0	9	9
Machine to Machine	100,000,000,000	10,000,000	0.0	10,000,000	0.01
Source: Communications Authority of Kenya *One (1) Mobile National Destination Code (NDC) is equivalent to 1,000,000 mobile telephony subscriber numbers. **One (1) Fixed telephony Central Office Code (CoC) is equivalent to 1,000 fixed telephony subscriber numbers. ***Assignment reclaimed					

2.2.1.3 Mobile Number Portability

Mobile subscribers continued to access and use the mobile number portability service. Whereas the adoption of this service has remained

low, a total of 1,670 numbers were ported as compared to 1,057 in the previous financial year representing an increase of 57.9 per cent. Figure 2.5 shows the trends in mobile portability for the past five financial years.



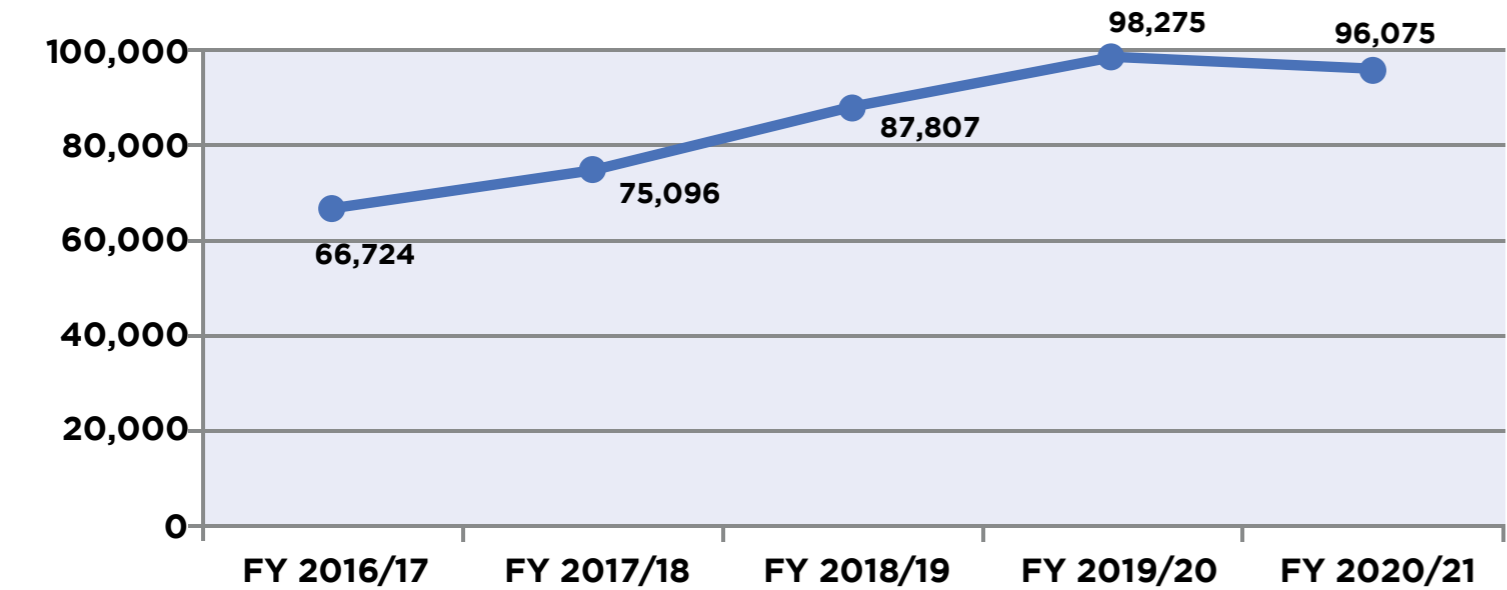
Source: Communications Authority of Kenya

Figure 2.5 Ported Numbers

2.3 Management of Dot KE Domains

The Authority is mandated to promote the use and adoption of the dot KE country code top-level domain (ccTLD). The Dot KE country code Top-Level Domain (ccTLD) is Kenya’s unique and authentic identity on the Internet. There is therefore need to support the adoption and use of the Dot KE ccTLD by promoting its usage as the default domain name of choice for Kenyans. The use of Dot KE domains also promotes cyber security by enhancing the level of data and intellectual property protection, while stimulating the growth of e-services (e-health, e-government, e-learning, e-agriculture among others).

The Kenya Network Information Centre (KENIC) is the licensed registry for the dot KE domain namespace. As at 30th June 2021, KENIC had registered a total of 96,075 Dot KE domain names, as compared to 98,275 in the previous year. The reduction in the number of domain names registered was attributed to the economic impact of the COVID-19 pandemic. The economic downturn as a result of the pandemic resulted in businesses prioritizing other aspects of their business as opposed to renewing their domains. Figure 2.6 shows the number of domains names.



Source: Communications Authority of Kenya

Figure 2.6 Registered Domain Names

CHAPTER III:
PROMOTING COMPETITION

The Authority is mandated to manage competition in different economic markets within the ICT sector. To facilitate a robust economic market, the Authority continued to implement various strategic initiatives such as licensing new entrants, ensuring availability of quality and affordable products and services, and promoting innovation.

3.1.1 Telecommunications Services Licensing

The Authority issued 474 licences. In addition, 198 licenses expired while 44 licences were renewed. This brings the total number of licensees to 3,168 as at 30th June 2021. Table 3.1 shows the telecommunication licensees.

3.1 Licensing and Type Approval

The Authority licenses providers of telecommunications, broadcasting, electronic transactions as well as postal and courier services. The Authority also type approves telecommunications equipment.

Table 3.1 Number of Telecommunications Licensees by Category					
License Category	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Telecommunications Contractors	517	593	677	651	677
Technical Personnel	502	561	542	537	504
Submarine Cable Landing Rights	3	3	3	3	3
International Gateway Systems and Services	12	12	12	12	12
Application Service Providers	207	240	290	330	388
Content Service Providers	323	364	424	481	598
Network Facility Providers Tier 1	3	3	3	3	3
Network Facility Providers Tier 2	23	24	27	32	35
Network Facility Providers Tier 3	25	30	34	42	58
Business Process Outsourcing	26	28	30	34	37
Telecommunications Vendors	515	552	594	649	691
Public Communication Access Centers	15	15	15	14	14
Dot KE Subdomain Registrars	61	67	76	100	138
Global Mobile Personal Communications by Satellite (GMPCS)	4	4	4	4	5
Electronic Certification Service Providers	-	-	-	-	5
Total	2,236	2,496	2,731	2,892	3,168
Source: Communications Authority of Kenya					

3.1.2 Broadcasting Services Licensing

The Authority licenses radio and television service providers to promote a diverse range of broadcasting services. In furtherance of this, the Authority issued a total of 93 broadcasting service licenses consisting of 55 commercial free-to-air (FTA) television, 30 commercial FM radio, seven (7) community FM radio and one (1) subscription

broadcasting service provider. Television licenses remained the most sought-after due to the availability of transmission capacity on the DTT platforms. Table 3.2 shows the cumulative number of broadcast licenses under the various broadcasting service categories.

Table 3.2 Cumulative Number of Broadcast Licenses by Category					
License Category	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Commercial FTA TV	78	97	132	174	229
Commercial FM Radio	1	31	55	76	106
Community FTA TV	1	3	4	8	8
Community FM Radio	1	4	12	14	21
Subscription Broadcasting Services	9	11	14	16	17
Subscription Management Services	3	4	4	4	4
Self-Provision Broadcasting Signal Distributor	3	3	3	3	3
Common-carrier Broadcasting Signal Distributor	2	2	2	2	2
Landing Rights	4	4	4	4	4
Total	102	159	230	301	394
Source: Communications Authority of Kenya *The table Subscription Broadcasting, Terrestrial Subscription Broadcasting, Satellite Subscription Broadcasting, Internet Protocol Television Broadcasting					

3.1.3 Electronic Transactions Services Licensing

The Authority licenced four (4) Electronic Certification Service Providers (E-CSP) namely: TechEdge Ltd.; CMCom Kenya Ltd.; Matrix Vision Systems Ltd.; and Hakisha Ltd. The E-CSPs will authenticate the signatory and ensure that the integrity of the document that has been signed electronically is maintained, giving all parties confidence in the document and transaction.

The Authority also licenced the ICT Authority as the Government Certificate Authority (GCA), to issue digital certificates to entities within the public sector. Some of the e-Government services that will be supported by the digital certification services include submission of tax returns, company registration, renewal of driver's licences, tracking status of passport/ID/job applications, amongst others.

3.1.4 Postal and Courier Services Licensing

The postal and courier services remain essential for the country's socio-economic development. The increased demand for door-to-door delivery services due to the COVID-19 pandemic led to an increase in the uptake of courier licenses.

The Authority licensed 43 national and four (4) international courier operators. The Authority revoked 10 national and 11 internationals courier licences due to non-compliance. This brings the total number of postal and courier licensees to 289. Table 3.3 presents the number of licensed postal and courier operators by category.

Table 3.3 Licensed Postal and Courier Operators					
License Category	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Public Postal Operator	1	1	1	1	1
National	144	170	178	207	240
International	41	45	50	55	48
Total	186	216	229	263	289
Source: Communications Authority of Kenya					

3.1.5 Type Approval of Telecommunications Equipment

The Authority authorizes telecommunications equipment intended for use in the country to ensure compliance with national and international regulatory standards and requirements, safeguard the integrity of public communications infrastructure and to protect consumers.

The Authority type approved a total of 518 models of various telecommunications equipment. This was a decline of 47.7 per cent from 991 models approved the previous year. The drop could be attributed to the normalization upon the continued use TradeNet single window import system. The number of type-approval/acceptance applications processed in the past five years is shown in Table 3.4.

Table 3.4 Type Approval/Acceptance Applications Handled					
Type of Equipment	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Data Routers	15	17	24	21	40
Gateway/Switches/PABX	30	26	28	382	133
PSTN/IP Server Equipment	3	17	9	0	45
Wireless Terminals/System	0	6	0	95	30
Transceiver-VHF/UHF	16	6	25	16	6
Transceiver-HF	1	0	2	0	0
Transceiver-Citizen Band (CB)	4	0	0	0	0
Low Power Wireless Terminals*	63	0	0	-	-
Satellite Terminal	1	6	24	7	0
Alarm Transmitter	1	1	0	1	0
Broadcast Equipment	2	7	48	38	12
VSAT Equipment (Transceiver, BUC, HPA, etc)	0	0	2	2	5
GSM Interface and BTS	9	0	13	38	15

Table 3.4 Type Approval/Acceptance Applications Handled					
VOIP Terminal	0	10	12	28	15
Telephone Set	0	3	0	16	2
GSM Mobile Phones	202	242	259	319	188
Fax Machine	24	8	11	4	9
Modem	3	12	0	3	5
DVB T2 receivers (Set-top boxes, IDTV and conditional access modules)**	26	4	11	-	-
DVB-C/IP/SAT receivers (Set-top boxes, IDTV and conditional access modules)	0	0	0	6	3
LTE Terminals	11	0	0	7	8
Microwave Equipment	3	6	17	15	2
Total	414	371	485	991	518
Source: Communications Authority of Kenya *Category is exempt from type approval/acceptance since the FY 2017/18 **Category is exempt from type approval/acceptance since the FY 2018/19					

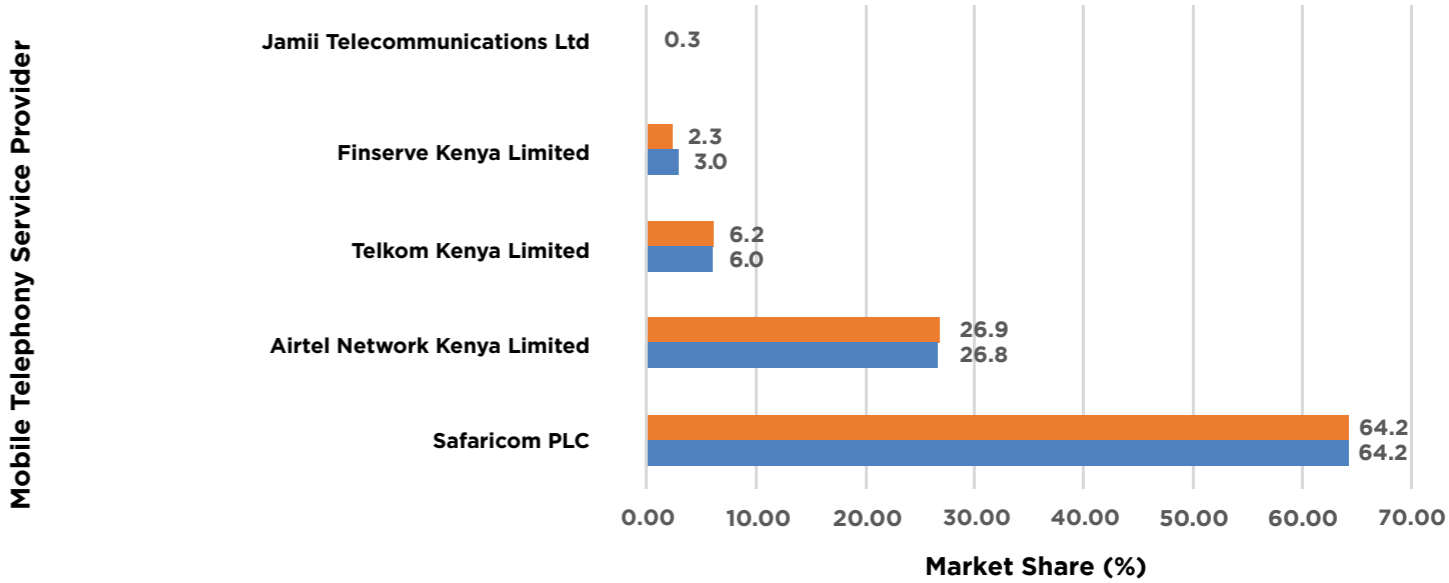
3.2 Trends in the Provision of ICT Services

3.2.1 Mobile Telephony Services

The uptake of mobile telephony services has been on a steady upward trajectory over the years. The total number of active mobile telephony subscriptions increased by 13.0 per cent to stand at 64.4 million as at 30th June 2021. Telkom Kenya Limited recorded the highest growth

of 16.5 per cent to record 4.0 million subscriptions. Safaricom PLC and Airtel Networks Kenya Limited's subscriber base grew by a similar margin of 13.1 per cent to stand at 41.4 million and 17.3 million respectively. Conversely, Finserve Kenya Limited's subscriber base dropped by 12.0 per cent from 1.7 million to 1.5 million subscribers. The Jamii Telecommunications Limited subscriptions stood at 196,301. Table 3.5 provides a distribution of subscriptions by operator.

Table 3.5 Mobile Telephony Subscriptions as at the End of the Financial Year					
Operator	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Safaricom PLC	29,228,896	29,780,048	33,118,553	36,587,136	41,373,138
Airtel Networks Kenya Limited	6,179,182	9,744,440	12,837,025	15,307,422	17,327,290
Telkom Kenya Limited	2,898,511	3,995,365	4,235,632	3,441,362	4,009,758
Finserve Kenya Limited	1,864,838	1,959,009	1,882,440	1,696,312	1,495,535
Jamii Telecommunications Limited	DNA	DNA	DNA	DNA	DNA
Sema Mobile Services	263	112	DNA	DNA	DNA
Mobile Pay Limited	87,786	90,062	94,416	DNA	DNA
Total	40,259,476	45,569,036	52,168,066	57,032,232	64,205,721
Source: Communications Authority of Kenya / DNA - Data Not Available					

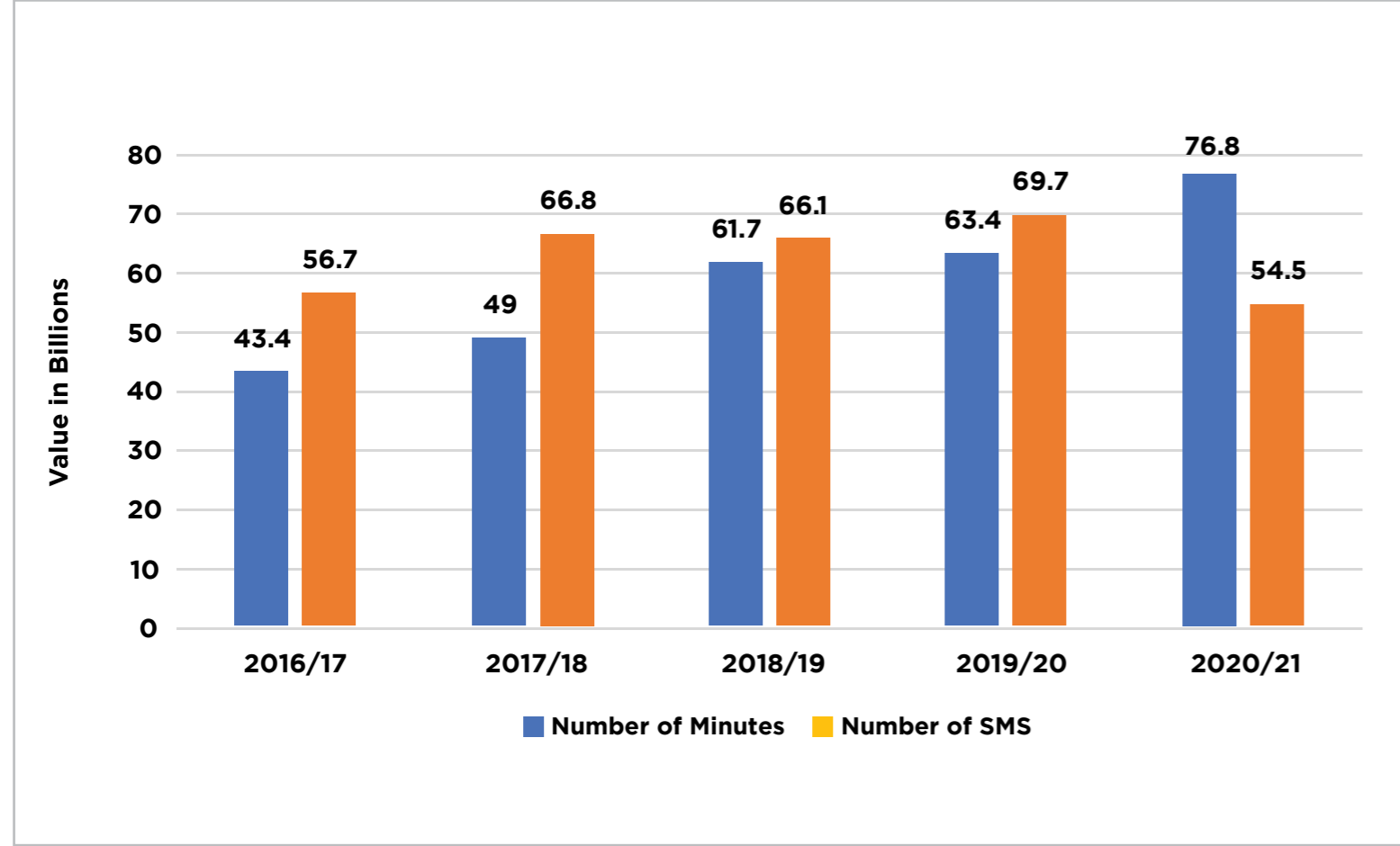


Source: Communications Authority of Kenya

Figure 3.1 Mobile Subscriptions Market Shares by Operator

The total volume of local mobile voice traffic rose to 76.8 billion minutes in FY 2020/21 from 63.4 billion minutes recorded in FY 2019/20. This represents a 21.2 per cent growth which could be attributed to the increased demand for voice services arising from restrictions in movements put in place to mitigate the spread of the

COVID-19. Conversely, the total number of local Short Messaging Service (SMS) decreased by 21.8 per cent to stand at 54.5 billion messages. The decline in SMS could be attributed to the continuing adoption of competing over-the-top (OTT) services. Figure 3.2 shows the trend in mobile voice and SMS traffic.



Source: Communications Authority of Kenya

Figure 3.2 Voice and SMS Traffic Trend

Table 3.6 Mobile Voice and SMS Traffic						
Mobile Voice Traffic		FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
On-net Calls in Minutes		37,775,948,439	44,024,755,088	54,914,778,317	56,273,419,535	67,542,508,332
Off-net Calls in Minutes	Mobile	5,516,441,769	4,895,887,311	6,767,792,350	7,051,429,229	9,208,734,031
	Fixed	89,632,702	74,500,816	56,486,171	61,462,861	65,885,730
Total Number of Calls Made in Minutes		43,382,022,910	48,995,143,215	61,739,056,838	63,386,311,625	76,817,128,094
International Incoming Calls in Minutes		568,488,634	0	0	7	8
International Outgoing Calls in Minutes		462,006,950	6	17	15	2
Local SMS Traffic (Number of Messages)		56,698,425,774	66,838,027,325	66,103,922,628	69,698,701,144	54,510,222,940
Source: Communications Authority of Kenya						

3.2.2 Mobile Money Services

The use of digital financial services has precipitated shifts in the way individuals, enterprises and Government transact business. The COVID-19 pandemic accelerated the uptake of digital financial services to facilitate economic activities while reducing social contact. In a bid

to cushion citizens from the effects of the pandemic, the Government encouraged cashless payments by zero-rating mobile money transfer and payment fees for transactions valued under KES 1,000 from March to December 2020. As a result, the total active mobile money subscriptions increased to 34.7 million from 30.5 million. Similarly, the total number of mobile money agents rose to 283,357 from 223,184. This is shown in Table 3.7.

Table 3.7 Mobile Money Subscriptions and Agents as at the end of the Financial Year					
Subscriptions by Operator (Brand Name)	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Safaricom PLC (M-Pesa)	22,624,298	23,946,174	26,900,772	30,193,831	34,270,393
Telkom Kenya Limited (T- Kash)	194,445	63,023	76,061	13,999	121,744
Airtel Networks limited (Airtel Money)	1,530,645	3,619,415	3,681,194	310,359	272,570
Total	24,349,388	27,628,612	30,658,027	30,518,189	34,664,707

Table 3.7 Mobile Money Subscriptions and Agents as at the end of the Financial Year					
Safaricom PLC (M-pesa)	142,832	159,726	176,184	195,854	254,312
Telkom Kenya Ltd (T-Kash)	-	16,554	27,991	2,525	7,768
Airtel Networks Kenya Ltd (Airtel Money)	14,872	24,533	20,199	24,805	21,277
Total Mobile Money Agents	157,704	200,813	224,374	223,184	283,357
Source: Communications Authority of Kenya					

3.2.3 Internet Services

Uptake of Internet services increased, especially following the Government directives on cessation of movement of persons in a

bid to contain the COVID-19 pandemic, which saw many services and interactions conducted online. The total number of Internet subscriptions grew to 46.7 million from 41.5 million subscriptions. Table 3.8 shows the internet subscriptions.

Table 3.8 Internet Subscriptions as at the end of the Financial Year					
Subscriptions	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Mobile data/Internet	29,205,204	40,743,570	49,532,380	40,832,642	46,002,220
Terrestrial wireless data/Internet	47,231	122,037	66,989	88,159	114,348
Satellite	693	1,165	1,243	1,698	1,240
Fixed Digital Subscriber Line (DSL)	2,715	1,254	1,014	997	449
Fixed Fibre Optic	54,700	135,964	213,199	351,332	439,002
Fixed cable modem (Dial Up)	99,971	101,508	132,072	176,589	178,645
*Other Fixed Data Subscriptions	-	7,352	7,408	804	645
Total	29,410,514	41,112,850	49,954,305	41,452,221	46,736,549

3.2.4 Broadband Services

The total number of broadband subscriptions rose to 27.5 million from 22.7 million representing an increase of 21.1 per cent. The broadband subscriptions are shown in Table 3.9.

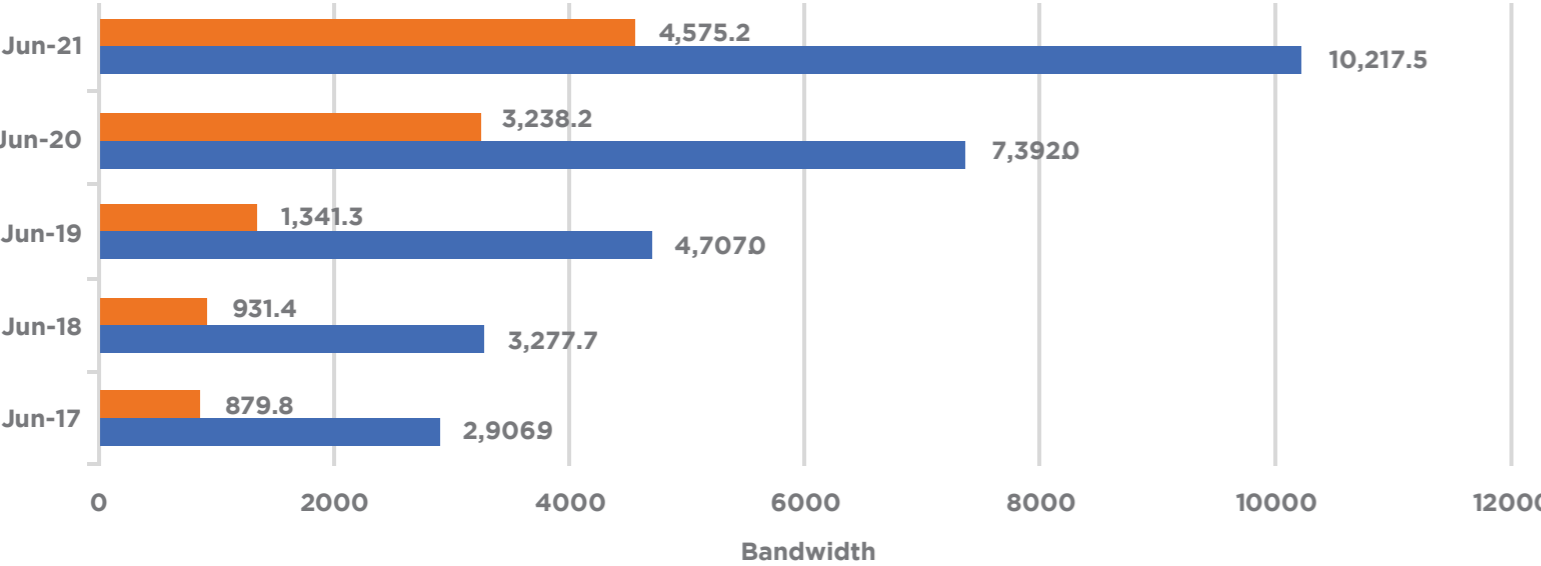
Table 3.9 Number of Broadband Subscriptions by Category					
Category	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Fixed Broadband (DSL, Satellite, Cable, Fibre and Other)	157,896	246,729	350,408	529,662	618,713
Fixed Wireless (WiMAX)	46,485	121,637	67,343	79,949	105,466
Mobile Broadband	15,342,699	20,170,696	21,780,859	22,084,104	26,757,648
Total	15,547,080	20,539,062	22,198,610	22,693,715	27,481,827
Source: Communications Authority of Kenya					

The total available Internet bandwidth capacity increased by 38.2 per cent to stand at 10,217.5 Gbps. Table 3.10 shows the breakdown of bandwidth capacity.

Table 3.10 Available/Lit International Bandwidth					
Lit International Bandwidth	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
SEACOM Capacity (Gbps)	2,020.0	2,220.0	2,840.0	2,940.0	3,920.0
TEAMS Capacity (Gbps)	702.0	702.0	702.0	1,618.0	1,618.0
EASSY Capacity (Gbps)	83.0	161.3	912.8	2,520.0	4,120.0
LION2 Capacity (Gbps)	101.4	188.7	247.0	308.5	554.1
Total Undersea Bandwidth Capacity (Gbps)	2,906.4	3,272.0	4,701.9	7,386.5	10,212.1
Satellite Bandwidth Capacity (Gbps)	0.5	5.7	5.6	5.5	5.3
Total Available Bandwidth Capacity (Gbps)	2,906.9	3,277.7	4,707.5	7,392.0	10,217.5
Source: Communications Authority of Kenya					

The total international bandwidth grew by 41.3 per cent from 3,235.2 Gbps in FY 2019/20 to 4,575.2 Gbps in FY 2020/21. The increase in the country's internet capacity and connectivity is timely, coming at a period when there is increasing growth in the demand for broadband technology. This driven by trends in the global economy, as high-quality, reliable broadband is increasingly used by many industries. This is likely to increase the countries overall competitiveness. Table 3.11 shows the international undersea bandwidth and international satellite bandwidth.

Table 3.11 International Used Bandwidth					
International Bandwidth Capacity.	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
International Undersea Bandwidth (Gbps)	879.5	926.8	1,336.2	3,235.6	4,572.6
International Satellite Bandwidth (Gbps)	0.3	4.6	5.13	2.6	2.6
Total Available Bandwidth (Gbps)	879.8	931.4	1,341.3	3,238.2	4,575.2
Source: Communications Authority of Kenya					



Source: Communications Authority of Kenya

Figure 3.3 Available vs Used Bandwidth Capacity

3.2.5 Fixed Network Voice Services

The total number of fixed network voice subscription dropped from 69,162 subscriptions to 57,997 subscriptions. This represented a drop of 16.1 per cent. The drop is attributed to continued decline of usage of fixed voice services by customers. Table 3.12 gives a summary of fixed network subscriptions for the past two years.

Table 3.12 Fixed Network Subscriptions					
Fixed Network Subscriptions	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Wananchi Group Kenya Limited	44,146	44,706	39,521	48,561	41,551
Safaricom PLC	340	751	1,067	998	1,144
Telkom Kenya Limited	26,821	23,099	21,693	19,100	14,691
Mobile Telephony Network (MTN) Kenya Limited	438	431	427	427	450
Others Fixed Service Providers	DNA	DNA	DNA	76	161
Total Subscriptions	71,745	68,987	62,708	69,162	57,997
Source: Communications Authority of Kenya					

3.2.6 Postal and Courier Services

The total number of postal and courier outlets decreased by 3.5 per cent during the period. The decrease was attributed to a reduction in the number of public postal operator outlets by 26.0 per cent, despite the number of private courier outlets increasing by 14.3 per cent. This is illustrated in Table 3.13.

Table 3.13 Postal and Courier Network Indicators						
Indicator		FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Public Postal Operator		1	1	1	1	1
Total Post Offices		623	623	623	623	461
Departmental Offices		447	447	447	447	346
Sub-Post Offices		146	146	146	146	81
Private Letter Boxes	Installed	450,472	430,350	430,350	430,350*	430,469
	Rented	373,892	382,901	382,901	382,901*	354,954
	Un-let	87,906	76,580	67,571	67,571*	90,977
Letter Posting Boxes		891	891	891	891	632
Public Counter Positions		480	480	532	480	720
Automated Public Counters		473	480	532	480	579
Non-Automated Public Counters		7	0	0	0	124
Stamp Vending Licensees		883	883	883	883	270
Stamp Vending Machines		38	38	38	38	75
Private Operator Outlets		997	1,027	666	788	901
Total Outlets (Post Offices + Private Operators Outlets)		1,620	1,650	1,289	1,411	1,362
Source: Communications Authority of Kenya						

3.2.7 Broadcasting Services

3.2.7.1 Free-to-Air Broadcasting Services

The number of commercial Free-to-Air (FTA) television stations on-air increased to 130 from 95 whereas that of community FTA television stations increased to four (4) from two (2). The increase was due to the implementation of local insertion by Signet Signal Distributors Ltd at various DTT transmitter sites which made it easier for regional broadcasters to roll out their services covering specific parts of the country. The commercial, community and public FM radio stations on-air remained unchanged. Table 3.14 shows the number of broadcasters on-air.

Table 3.14 Free-to-air Broadcasting Services					
Number of Stations	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Commercial FTA TV stations	66	66	85	95	130
Community FTA TV stations	1	1	1	2	4
Public FTA TV stations	2	3	3	3	3
Commercial FM Radio stations	139	131	131	131	131
Community FM Radio stations	25	38	42	42	42
Public FM Radio stations	15	13	13	13	13
Source: Communications Authority of Kenya					

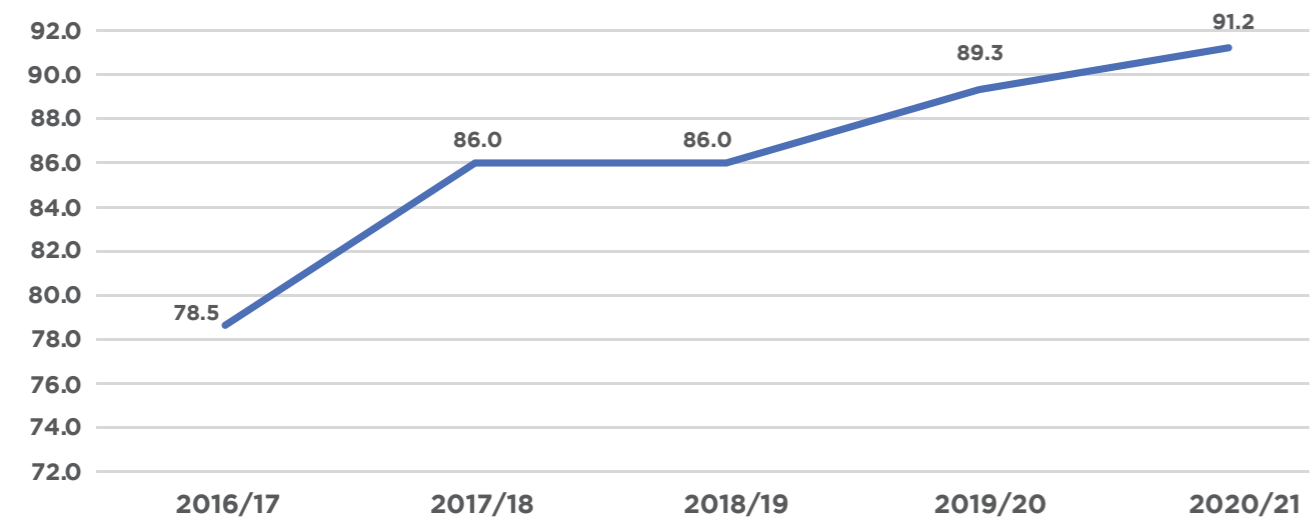
3.2.7.2 Broadcasting Services Subscription

Broadcasting service subscriptions rose to 5.7 million from 5.2 million representing a growth rate of 10.1 per cent. Digital terrestrial television remained the most popular means to televisions services due to its relatively low cost, satellite direct-to-home had the highest growth rate of 21.1 per cent. This could be attributed to demand for premium sports and entertainment channels available on the direct-to-home platforms. Table 3.15 shows the number of subscriptions for broadcasting services.

Table 3.15 Number of Subscriptions for Broadcasting Services					
Categories	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Digital Terrestrial Television (DTT)	3,788,417	3,809,244	3,620,831	3,813,126	4,056,520
Direct To Home (DTH)	-	995,012	1,209,799	1,266,989	1,533,745
Cable TV	-	153,462	171,936	73,417	85,232
Total	3,788,417	4,957,718	5,002,566	5,153,532	5,675,497
Source: Communications Authority of Kenya					

3.2.7.3 Broadcasting Signal Network Coverage

The percentage of the population that was covered by DTT signal increased from 89.3 per cent to 91.2 per cent. This was driven mainly by the upgrade of transmitter powers in Maralal, Kilifi, and Wajir as well as the commissioning of new DTT transmitters in Lodwar and Lokichogio. Figure 3.4 shows the trend on DTT population coverage.



Source: Communications Authority of Kenya

Figure 3.4 Population Coverage

Table 3.16 shows the per centage of population coverage by each Broadcast Signal Distributor (BSD) as at the end of FY 2020/21.

Table 3.16 Digital Terrestrial Population Coverage (%)					
	PANG	Signet	ADNL	Lancia	GoTV
FY 2018/19	55.85	61.21	78.63	39.72	75.36
FY 2019/20	58.37	63.98	81.65	39.98	78.31
FY 2020/21	63.10	76.36	83.26	43.27	80.39
Source: Communications Authority of Kenya					

3.3 Tariffs and Competition

The Authority monitors tariffs, promotions and special offers to ensure an efficient robust ICT market that is competitive and provides a variety of products and services to consumers.

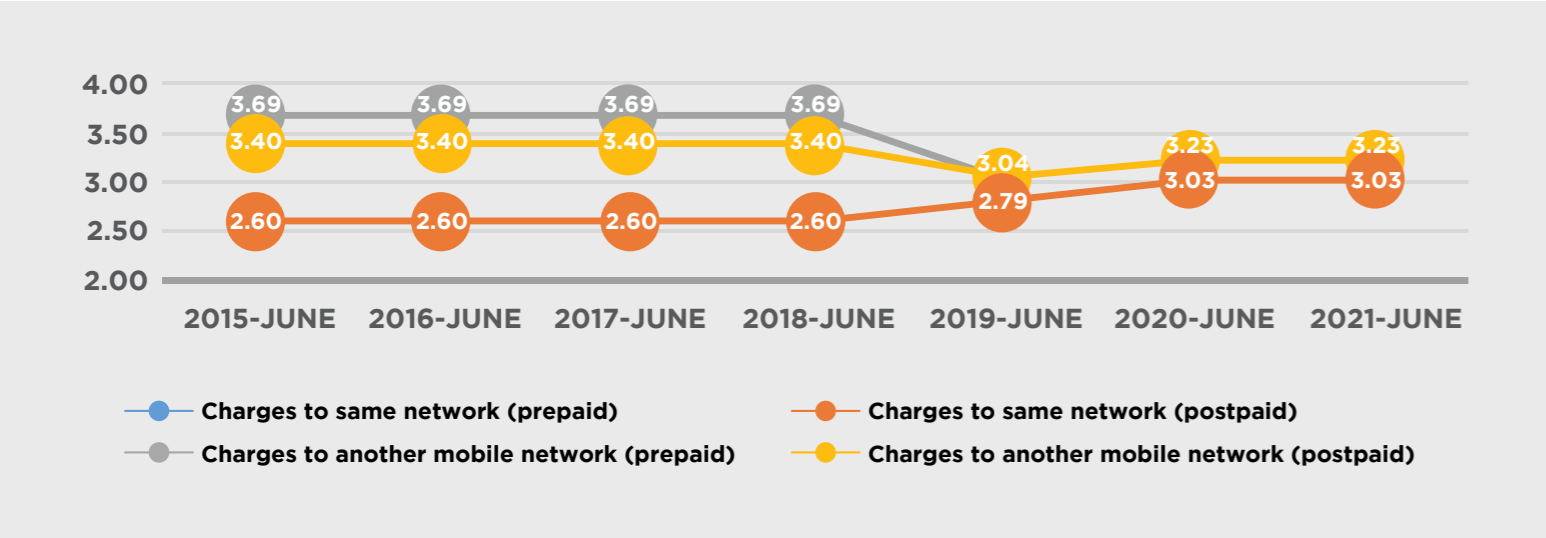
3.3.1 Fixed and Mobile Tariffs

The Authority received and reviewed a total of 53 tariffs comprising of 22 for new tariffs and 31 tariffs revisions. Additionally, the Authority received and processed a total of 62 applications for new promotions

and special offers. Notably, 42 per cent of the applications received for promotions and special offers were for data/Internet services. The average on-net and off-net Pay-As-You-Go (PAYG) rates per minute remained unchanged. Table 3.17 illustrates changes in the average PAYG retail tariffs for fixed and mobile communications services.

Table 3.17 Average Tariffs in KES.				
Mobile Tariffs	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Retail Mobile Communications				
Average On-net PAYG Rate per minute	2.67	2.79	3.03	3.03
Average Off-net PAYG Rate per minute	3.17	3.04	3.23	3.23
Average Price per SMS	1	1.1	1.1	1.1
Average Mobile Data Price per MB	4	4.3	2.26	2.26
Retail Fixed Communications*				
Average fixed-fixed	6	6	6	6
Average fixed-mobile	12	12	12	12
Source: Communications Authority of Kenya *Based on TKL household non-bundle Rate				

Figure 3.5 shows the trends of PAYG voice tariffs.



Source: Communications Authority of Kenya

Figure 3.5 Trends of Pay-As-You-Go Voice Tariffs

3.3.2 Broadcasting Services Charges

The Authority continued to monitor the implementation of the Broadcast Signal Distribution (BSD) charges. Table 3.18 shows the BSD charges in KES per Site per mbps.

Table 3.18 Broadcast Signal Distribution Charges in KES per Site per Mbit/s						
		KES per Site per mbps per Month				
		Phase 1 FY 2016/17	Phase 2 FY 2016/17	Phase 3 FY 2016/17	Phase FY 2016/17	Phase FY 2016/17
BSD	Nairobi	89,545	91,753	93,411	93,411	93,411
	Other Cities/Towns	37,311	38,306	39,074	39,074	39,074
	Rural	32,961	33,759	34,352	34,352	34,352
Satellite up linking, National	National	243,015	234,319	234,594	234,594	234,594
Satellite reception	Nairobi	668	697	723	723	723
	Other Cities/Towns	835	872	904	904	904
	Rural	835	872	904	904	904
Local insertion (per channel not per Mbit/s)		1,536	1,593	1,597	1,597	1,597
Source: Communications Authority of Kenya						

CHAPTER IV
ENSURING COMPLIANCE

The Authority monitors and ensures that ICT service providers comply with the law. This is undertaken through inspections, monitoring and enforcement activities aimed at verifying compliance with license conditions, quality of service thresholds, installation standards and ensuring the integrity of public communications infrastructure. In this regard, the Authority carried out telecommunication inspections and certification of installations, monitored quality of service of mobile cellular services, radio-communications inspections, postal and courier inspections, frequency monitoring, broadcast content monitoring and enforcement activities.

Assessment of telecommunication licensees is carried out on a continuous basis to determine financial, documentary and operational

compliance. Financial compliance entails payment of the annual operating fee and the USF levy if applicable. Documentary compliance entails the submission of mandatory documents such as quarterly compliance returns, audited financial statements, current certificate of shareholding and valid tax compliance certificate. Operational compliance is determined by undertaking of periodic physical inspections across the country on a sampling basis with a focus on adherence to the terms and conditions of the Licence.

Licensees who fail to meet the minimum thresholds as required are subjected to regulatory actions such as notification to comply, levying of penalties, notification of intention to revoke the Licence and license revocation in that order.

4.1 Telecommunications Inspections and Certification of Installations

The Authority conducted 763 inspections focusing on adherence to the terms and conditions of the Licence compared to 659 done in the previous year. The increased inspections were as a result of intensified surveillance to ensure continued access and availability of communication services during the COVID pandemic period. The increased demand of use online services required constant surveillance and inspections of communication networks.

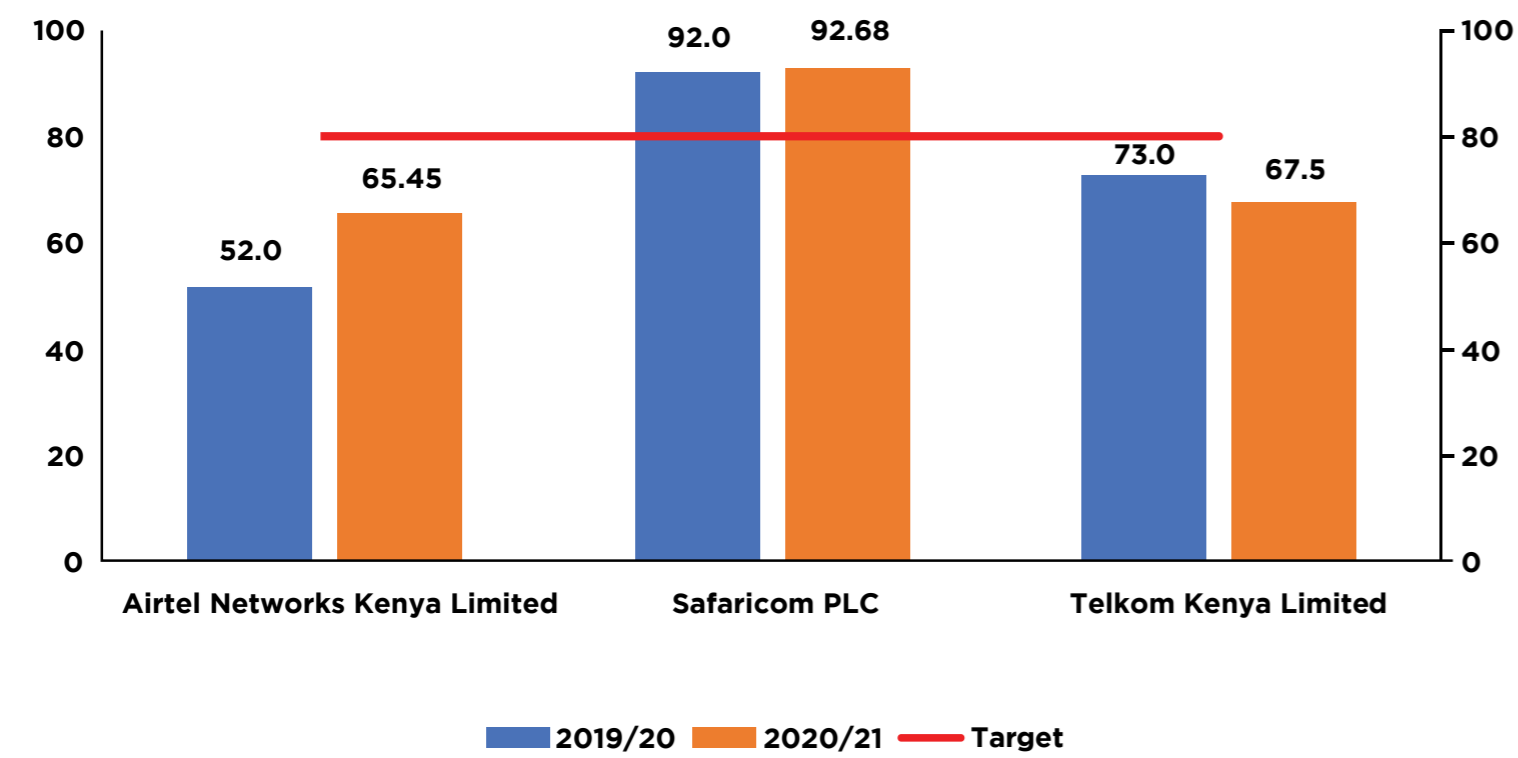
Based on the findings from these inspections, the Authority undertook regulatory interventions and remedial actions including communication with licensees to address the areas of non-compliance noted during the exercise. Further, a total of 374 licenses were issued with revocation notices for non-compliance informed by enforcement exercises from the previous financial year. A summary of the number of inspected licensees is illustrated in Table 4.1.

Table 4.1 Number of Inspections					
License Category	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Content Service Provider	48	33	20	34	31
Application Service Provider	45	30	50	33	52
Network Facilities Provider	8	7	10	7	18
Business Process Outsourcing	3	-	3	1	-
International System & Services	1	2	-	2	5
Telecommunications Contractor	2	7	70	23	20
Private VSATS	1	-	-	-	-
Dot KE Sub-domain Registrars	2	1	1	0	3
General (BTS Sites, Equipment vendors, SIM Card distributors, cybercafés and mobile money shops	1	49	594	547	634
Certification of Network Installations		7	4	12	0
Total	111	136	752	659	763
Source: Communications Authority of Kenya					

4.2 Quality of Service Monitoring for Mobile Cellular Services

The Authority monitors the quality of mobile cellular services provided by mobile network operators to ensure that consumers are protected. The Authority monitored quality of service for the three mobile

network operators across 44 counties. The level of compliance for Airtel Networks Kenya Limited, Safaricom PLC and Telkom Kenya Limited was recorded as 65.5 per cent, 92.7 per cent and 67.5 per cent, respectively against a required threshold of 80.0 per cent. Figure 4.1 provides a comparison for each operator compliance levels with the levels attained in the previous period.



Source: Communications Authority of Kenya

Figure 4.1 Overall Compliance by Operator

4.3 Radio-Communications Inspections

The Authority conducts on-site inspection of radio communication installations to verify compliance to frequency license conditions. The Authority conducted on-site inspection of 280 radio stations comprising of 73 land mobile stations and 207 broadcast stations (FM Sound -167 and Digital Tv - 40) as summarized in Table 4.2.

Table 4.2 Number of On-site Inspections Conducted					
Service/Year	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Land Mobile Networks	34	104	103	2	73
Broadcast Transmitters (Radio)	231	110	217	122	167
Broadcast Transmitters (TV)	DNA	38	84	37	40
Fixed Networks	345	300	405	421	0
Earth Stations	DNA	DNA	DNA	13	0
Total	610	552	809	595	280
Source: Communications Authority of Kenya					

4.3.1 FM Radio Broadcast Station

Sound Radio Broadcasting Services is mainly through FM broadcast transmitting in the frequency band 87.5 MHz to 108 MHz. During on-site inspection of FM transmitters, the following parameters were under consideration: authorization status of the transmitter; transmit frequency; installation of band pass filter; equipment type approval; effective radiated power; installation site (whether on authorized site); adherence to previous directives from the Authority.

The compliance levels for FM sound broadcasting installations were as follows: authorization status of the transmitter 99.3 per cent; installation of band pass filter 77.2 per cent; equipment type approval 80.1 per cent; effective radiated power 71.6 per cent; and installation site 99.3 per cent.

4.3.2 Digital TV Broadcast Stations

Television Broadcasting Services in Kenya comprises of DVB-T2 transmitters operating in the UHF frequency band. During inspection, the following parameters were under consideration: authorization status of the transmitter; transmit frequency; equipment type approval; effective radiated power; installation site (whether on authorized site); adherence to previous directives.

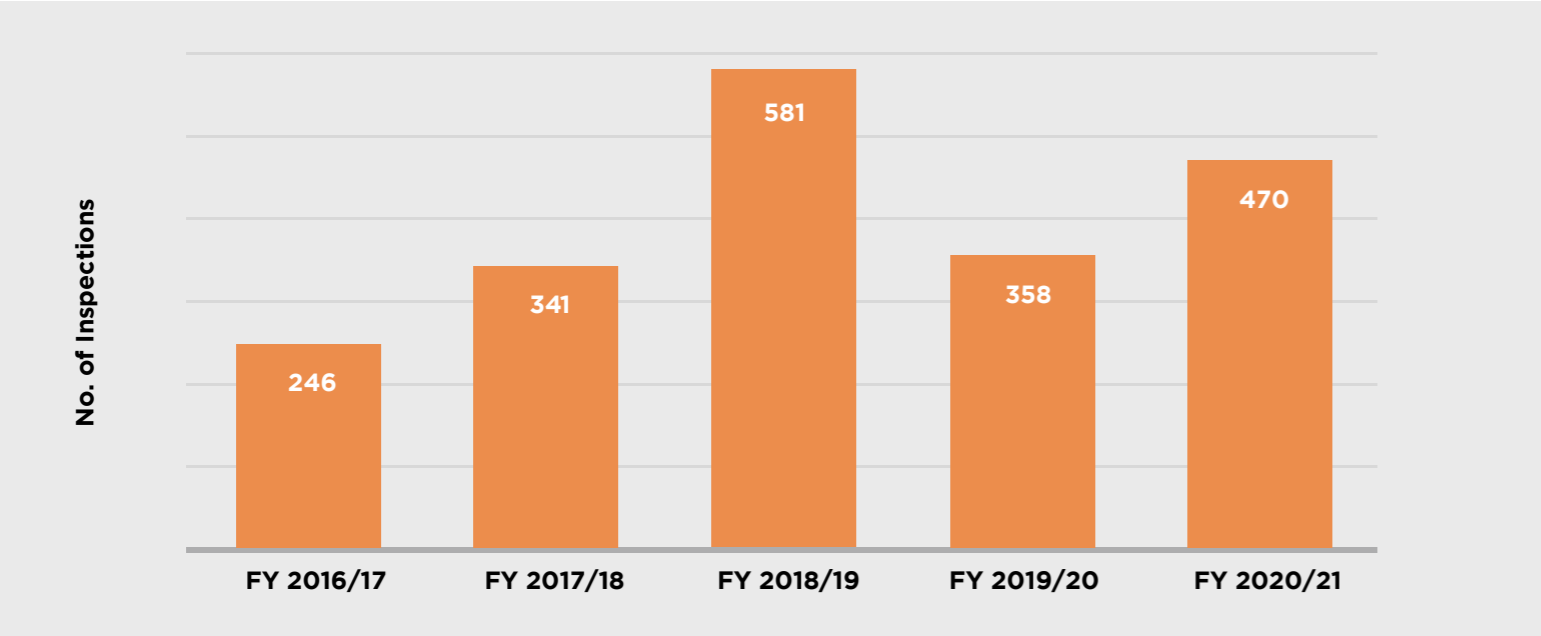
The compliance levels for DVB-T2 broadcasting installations were as follows; Authorization status of the transmitter 100.0 per cent; Equipment Type Approval 75.8 per cent; Effective Radiated Power 42.4 percent; and Installation Site 100.0 per cent.

4.3.3 Land Mobile Stations

Land Mobile services comprise the radiocommunication in the HF, VHF and UHF frequency bands. In the Land Mobile Service, the following parameters were under consideration: transmit frequency (ies); network configuration; and adherence to previous directives. The compliance level with respect to Land Mobile installations was 68.5 per cent.

4.4 Postal and Courier Licensees Inspections

The Authority inspected 470 postal and courier outlets comprising 169 Postal Corporation of Kenya outlets and 301 private courier outlets. This was an increase of 31.3 per cent compared to 358 inspections carried out in the previous year. All non-compliant licensees were issued with notices requiring them to remedy their areas of non-compliance, which included: charging unauthorised tariffs; failure to display tariffs and notices on prohibited items; failure to provide customer complaint forms; and lack of appropriate measures to safeguard customer items. Figure 4.2 shows the number of inspections.



Source: Communications Authority of Kenya

Figure 4.2 Number of Inspections

4.5 Frequency Monitoring and Interference Resolution

Radio Frequency monitoring is a spectrum management function, which helps in planning and licensing processes. This entails the measurement of the emitted spectrum of a transmitter and/or its antenna pattern, and is used to obtain detailed information on the technical and/or operational characteristics of radio systems.

Radio Frequency Monitoring is the principal activity carried out in the resolution of interference cases when they arise as well as identify those transmissions that do not conform to requirements either because the transmission is unlicensed or because of some technical non-compliance of the transmission with license conditions and/or regulations.

4.5.1 Frequency Monitoring

Frequency monitoring helps in planning and use of frequencies to avoid incompatible usage and identify sources of harmful interference. This involves undertaking field inspections to monitor frequencies utilisation before assignment. To ensure optimal utilization and updated records, the Authority has continuously invested in advanced frequency monitoring equipment and systems. These included the Upgraded Spectrum Management Systems such as fixed Very/Ultra/ Super High Frequency (V/U/SHF) spectrum monitoring station for Central and Eastern Kenya and the High Frequency (HF) Direction Finding (DF) station for Western Kenya. As a result, during the year number of cases requiring field inspections declined to only five. Table 4.3 shows the trend in number of cases.

Table 4.3 Number of Frequency Monitoring Cases					
Year	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
V/U/SHF	32	10	14	20	5
HF	2	5	3	1	0
Broadcast (TV & FM) (Surveillance)/Broadband	11	7	4	0	0
Total	45	22	21	21	5
Source: Communications Authority of Kenya					

4.5.2 Radio Frequency Interference Resolution

The Authority resolved 35 cases out of 49 representing a resolution rate of 71.4 per cent compared to 77.7 per cent in the previous year. Table 4.4 summarizes the number of frequency interference cases.

Table 4.4 Frequency Interference Cases Reported and Resolved										
Frequency Band/Service	FY 2016/17		FY 2017/18		FY 2018/19		FY 2019/20		FY 2020/21	
	Reported	Resolved	Reported	Resolved	Reported	Resolved	Reported	Resolved	Reported	Resolved
VHF, UHF and SHF	21	19	47	36	61	47	61	47	44	30
HF	3	0	5	3	0	0	0	0	0	0
Broadcasting	8	8	2	2	6	6	8	8	5	5
Total	32	27	54	41	67	53	69	55	49	35
Source: Communications Authority of Kenya										

4.5.3 Broadcast Content Monitoring

The Authority monitors broadcast content to ensure compliance with the broadcast content standards as stipulated in the Programming Code. This is aimed at development of Kenyan programmes, ensuring broadcast accessibility mechanisms for persons living with audio-visual disability for news, current affairs programmes, emergency announcements and events of national interest, promote childrens' programmes and ensure broadcasting of appropriate content during the watershed period (5.00 A.M – 10.00 P.M)..

4.5.3.1 Compliance with Broadcast Content Standards

The level of compliance with various content standards among the 64 broadcasters that were monitored are as shown in Table 4.5. A higher level of compliance was recorded on: local content quota; PLwD accessibility to broadcasting services; and limitations on advertisements. This can be attributed to an increased level of awareness as well as the Authority's enforcement activities. The Authority imposed sanctions and financial penalties on three (3) broadcasters for failing to meet the broadcasting content standards as outlined in the Programming Code.

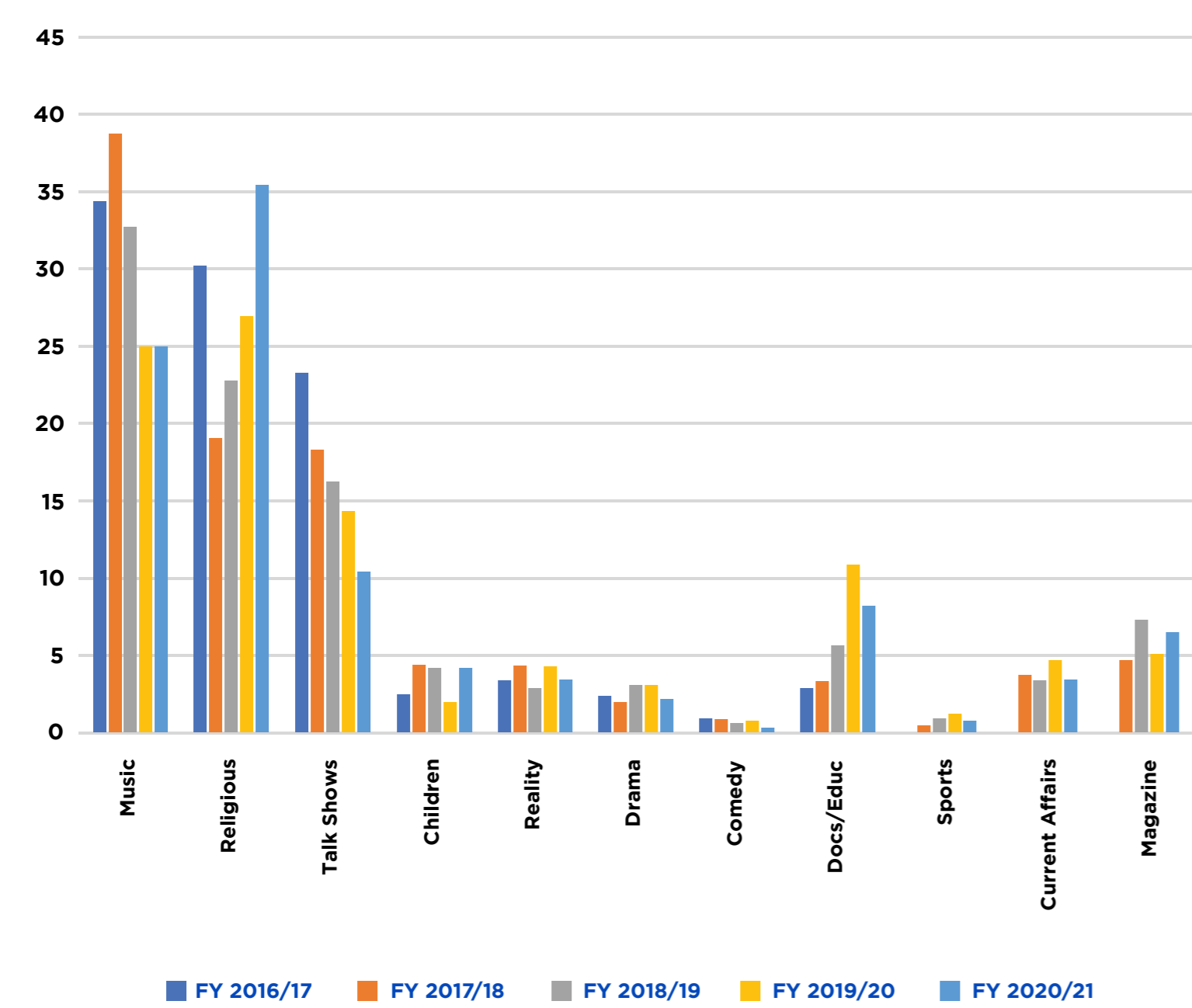
Table 4.5 Percentage Compliance with Broadcast Content Standards					
Parameter	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Compliance with the minimum 40% local content quota	64.6	80.9	75.5	92.3	92.2
Compliance with provision of broadcast accessibility for persons living with disabilities (PWD) - sign language inserts for current affairs, emergency announcements, and events of national importance	46.0	46.0	45.8	54.6	100
Compliance with limits on advertisement (i.e., airing no more than 10 minutes of advertisement in any 30 minutes programme segment)	97.9	96.0	100	100	100
Compliance with the requirement to air at least five (5) hours of children's local programming per week	10.4	12.5	8.5	27.5	18.1
Compliance with standards of good taste and decency by airing only appropriate content during the watershed period	95.8	96.0	100	98.0	98.0
Source: Communications Authority of Kenya					

4.5.3.2 Local Content by Genres

Music, religious programmes and talk shows dominated broadcast local content making up 70.8 per cent of the programmes aired. Religious programmes aired rose by 8.5 per cent. This could be attributed to a

shift in church services to television following the continued restriction in physical church attendance as part of the COVID-19 containment measures. The performance of various genres is shown in Table 4.6 and Figure 4.3.

Table 4.6 Local Content by Genre (Percentage)					
Genre (Air Time Allocation)	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Music	34.3	38.7	32.7	25.0	25.0
Religious	30.2	19	22.8	26.9	35.4
Talk shows	23.3	18.3	16.3	14.3	10.4
Children	2.5	4.5	4.2	2.0	4.2
Reality	3.4	4.4	2.9	4.3	3.5
Drama	2.4	2	3.1	3.1	2.2
Comedy	1	0.9	0.6	0.8	0.3
Documentary/Educational	2.9	3.3	5.7	10.9	8.2
Sports	-	0.5	1	1.3	0.8
Current affairs	-	3.7	3.4	4.7	3.5
Magazine	-	4.7	7.3	5.1	6.5
Source: Communications Authority of Kenya					



Source: Communications Authority of Kenya

Figure 4.3 Local Content by Genre (%)

CHAPTER V MANAGEMENT OF CYBER SECURITY

Kenya's transition to a digital economy has enhanced service delivery and fast-tracked innovation. Consequently, this has attracted the attention of cyber threat actors and widened the attack surface. This comes as malicious cyber threat actors take on various forms such as insiders, hackers, organized cyber criminals, cyber terrorists, and even state sponsored threat agents. These cyber threat actors are increasingly adopting complex and innovative ways of exploiting unsecured segments of different critical systems. The country is therefore facing the risk of escalation of data breaches and theft of proprietary information, financial loss, reputation loss, destruction of equipment, denial of services, unauthorized access to critical systems and theft of Personally Identifiable Information (PII).

It is the recognition of this rapidly changing and expanding cyber threat landscape, the Authority through the National Kenya Computer Incident Response Team - Coordination Centre (KE-CIRT/CC), has enhanced Kenya's national cybersecurity readiness and resilience through layered vigilance, timely and trusted information sharing among stakeholders; collaboration with key stakeholders in the cybersecurity value chain locally and internationally; research on emerging cyber threat trends, and enhanced cyber awareness and education geared at enhancing the national cyber hygiene levels. In line with this, the Authority undertook the following activities: monitoring, detection and analysis of cyber threats on 24/7 basis; issuance of advisories; as well as cyber security awareness and capacity building.

5.1 Cyber Threat Monitoring

The Authority monitors cyber threats on a 24/7 basis. In an effort to enhance its monitoring capabilities, the Authority improved its incident management systems, incident handling procedures and cyber incident reporting mechanisms. The National KE-CIRT/CC detected 158.4 million cyber threats as at 30th June 2021, compared to 110.9 million in the previous year. This surge in cyber threats directed at local targets was attributed to increased Internet penetration, uptake of E-commerce services and cloud-based services to support remote

working as well as a rise in the use of social media. Implementation of virtual working environments as response measures to the COVID-19 pandemic, the increased digitization of government services and functions through E-Government towards the realization of the Digital Economy Blueprint, increase in online banking, increased uptake of Internet of Things (IoT) devices, and the increased reliance of mobile devices also contributed to the increase in the cyber threats. This is as shown in Table 5.1. advisories; as well as cyber security awareness and capacity building.

Table 5.1 Cyber Threat Detection					
Cyber Threats Detected	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Malware*	4,146,435	16,306,547	40,893,141	101,651,143	122,524,531
Distributed Denial of Service	952,327	3,756,334	4,852,022	1,475,537	17,668,736
Web Application Attacks	2,656,675	3,743,638	6,109,184	7,662,793	16,236,587
System Vulnerabilities	0	6,158	47,913	108,596	1,974,698
Total	7,755,437	23,812,677	51,902,260	110,898,069	158,404,552
Source: Communications Authority of Kenya *The changes in data on Malware is as a result of the revision of the category to incorporate ransomware. Digital investigation cases have been separated.					

5.2 Cyber Threats Advisories

The Authority issued advisories on detected cyber threats to the affected organizations to mitigate cyber threats and promote trust

in cyber space. The total cyber threat advisories issued were **93,860** compared to **71,375** in the previous year. Table 5.2 shows a summary of cyber threat advisories.

Table 5.2 Summary of Cyber Threat Advisories					
Cyber Threat Advisories	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Malware*	94	1,848	6,715	7,784	5,531
Distributed Denial of Service	56	291	868	1,829	1,258
Web Application Attacks	14	149	1,735	687	1,420
System Vulnerabilities	0	1,881	38,320	60,593	85,487
Phishing	DNA	DNA	DNA	388	57
Cyber security best practice guides	DNA	DNA	DNA	94	107
Total	164	4,169	47,638	71,375	93,860
<i>Source: Communications Authority of Kenya</i> <i>Note: The changes in data on Malware is as a result of the revision of the category to incorporate ransomware. Digital investigation cases have been separated.</i>					

5.3 Cyber Security Awareness

The Authority joined the global cyber-security fraternity in celebrating the Global Cyber-security Awareness Month. The October Cyber Security Awareness Month focus was aimed at seeking to empower individuals and organizations to own their role in safeguarding their part of cyberspace through the global theme ‘Do Your Part. #BeCyberSmart’. The Authority ran a month-long cyber-security awareness campaign that involved sharing cyber-security best practices on its various online platforms, as well as hosting Virtual Cyber Town Halls on various cybersecurity topical issues. Further, the Authority continued to create awareness amongst organizations and the public through daily cyber advisories, bi-weekly Cyber-security Best Practice Guides, press statements on emerging cyber security concerns, and continuous cyber awareness geared at enhancing the national cyber hygiene via its various social media platforms.

5.4 Cyber Security Capabilities

To enhance cyber incident reporting and management, the KE-CIRT/ CC cyber management processes were assessed for compliance with Security Incident Management Maturity Model (SIM3) parameters as part of SIM3 certification process. In addition, a Cybersecurity Readiness and Resilience Measurement Tool was developed for use in assessment of the level of cyber readiness and resilience among critical infrastructure in the country. The Authority also launched an incident reporting mobile application, KE-CIRT App, which will enable seamless cybersecurity incident reporting and response. The application is available for free download on Google Play store and the Appstore iOS.

CHAPTER VI
EMPOWERING AND PROTECTING THE CONSUMER

The Authority ensures that ICT consumers are empowered and protected in order to safeguard their welfare. These includes their rights to quality and affordable services, as well as choice of goods and services offered. The Authority, therefore, has put in place mechanisms aimed at the provision of: information on their products and services, charges, terms and conditions; appropriate customer care and complaints handling; safe and secure communication services, child online protection; emergency communication service and the safeguard of consumer information.

6.1 Consumer Empowerment

In recognition of the changing consumer ecosystem arising from rapid technological advances and in line with the National ICT Policy Guidelines 2020, the Authority re-designed its consumer education and empowerment programme. This is aimed at enabling consumers to actively participate and exercise their rights and freedoms in the digital economy.

The proposed changes of the consumer education program recognizes that the world has increasingly turned digital, especially following the outbreak of COVID-19 in 2020, which has compelled most outreach activities to be held virtually as opposed to physical events.

Changes in the consumer ecosystem arising from, among others, rapid technological changes and the emergence of what is commonly referred to as the fourth industrial revolution (4IR), the launch of the Digital Economy Blueprint and the gazettement of the Revised National ICT Policy Guidelines, 2020, necessitated a re-look at the entire Consumer Protection Agenda.

The highlights of the re-designed Consumer Education Programme are: holding smaller events at sub-county level rather than the traditional major events to manage the risks associated with the COVID-19 pandemic; more disclosure of information to consumers through publishing of relevant consumer information from internal sources; leveraging more on digital assets such as social media platforms in

the dissemination of consumer education materials and information; and holding of events in partnership with selected strategic partners such as consumer organizations. Further, the consumer education and empowerment programme enable the Authority to understand ICT consumers’ experiences and increase collaborations with other stakeholders in consumer empowerment activities.

The Authority implemented consumer education programmes to empower consumers with information, knowledge and skills that enable them make informed decisions on use of ICTs. These programmes were executed under the following thematic areas:

6.1.1 Child Online Protection

The Authority launched the “Be The COP” Child Online Protection (COP) Programme in 2015. The 1st phase of the programme targeted capacity building for parents, guardians and teachers on responsible Internet usage by children. The programme also led to the development of the National Child Online Protection Framework. Building on the success of this programme, the Authority embarked on the 2nd phase of the campaign that seeks to directly empower children with skills, knowledge and values of a responsible digital citizen.

The Authority undertook a number of consumer outreach activities geared towards enhancing awareness by sharing relevant child online protection content in webinars, forums and TV interviews. The Authority created awareness on child online safety during the 2021 Safer Internet Day whose theme was “**Together for a better Internet**”. During the event, the Authority launched an interactive “**Be The COP**” guide, which was developed in partnership with Safaricom PLC, Airtel Networks Kenya Limited, Telkom Kenya Limited and Jamii Telecommunications Limited under the GSMA We Care Initiative. The interactive guide can be accessed through <https://cop.ke-cirt.go.ke> Furthermore, as part of the Safer Internet Day celebrations, the Authority podcast a series featuring COP stakeholders and focused on its role in child online protection as well as cybersecurity.



► Live TV Show and Panel Discussion during the Safer Internet Day Celebrations.

In an effort to increase stakeholders' knowledge and skills on Child Online Protection, the Authority continued with the roll out of the child online protection capacity building training programme. A total of 274 participants from diverse backgrounds including: Advocates of the High Court; officers from the Department of Children Services; officers from the Directorate of Criminal Investigations; officers from the Attorney General's Office; Cyber Security professionals; Media practitioners; Academia; Psychologists; Medical Practitioners among others were trained.

In order to enhance and strengthen the reporting framework on child online protection cases and incidences, the Authority commenced an inter-agency initiative for the development of harmonized Standard Operating Procedures (SOPs) for resolution of child online protection complaints, incidences and cases.

The Authority also participated in the following events: International Day of the Girl Child; World Children's Day; and forums on child online protection.

6.1.2 Consumer Advisory Information

The Authority disseminated consumer advisory information, including Child Online Protection Guides, Chukua Hatua and Kaa Macho campaign brochures during consumer education outreach activities, corporate events and licensees' forums. In total, the Authority distributed 40,130 consumer education materials in these forums and also through the Postal Corporation of Kenya outlets, Huduma Centers, Public Libraries and schools. Advisory information was also shared through the Authority's website and social media platforms.

6.2 Consumer Protection

In order to safeguard the interests of consumers in the ICT Sector, the Authority handled consumer complaints and enquiries. This involved resolution of various complaints relating to services provided by licensees as well as attending to enquiries on various ICT issues.

6.2.1 Consumer Complaints

The Authority received 1,623 complaints and resolved 1,512 representing a resolution rate of 93.2 per cent. A significant proportion of the complaints related to broadcasting content (74.4 per cent). Table 6.1 shows the complaints received by category and the resolution rate.



➤ Inter-agency Workshop on Harmonization of Child Online Protection Complaints, Incidences and Cases.



➤ Disseminating Consumer Education Materials, at Benonin Primary School, Baringo County.

Table 6.1 Number of Consumer Complaints by Type			
Category	Received	Resolved	Resolution Rate (%)
Defective Terminal Equipment	12	9	75.0
Quality of Service (Voice & Data)	80	60	75.0
Fraudulent Calls/SMS	24	23	95.8
Billing	63	47	74.6
Unfair Trading Practices	2	1	50.0
Confidentiality/Privacy Breaches	11	11	100.0
Service Provisioning Delays/Failures/Termination	32	30	93.8
Frequency Interference	9	2	22.2
Misleading Advertisements	2	2	100.0
Unauthorized Charges/Subscriptions	31	21	67.7
Inappropriate Media Content	1207	1191	98.7
Nuisance	4	2	50.0
Criminal use of services/facilities	20	15	75.0
Delivery Delays	21	8	38.1
Service Interruptions	34	29	85.3
Others	71	61	85.9
Total	1623	1512	93.2
Source: Communications Authority of Kenya			

6.2.2 Enquiries

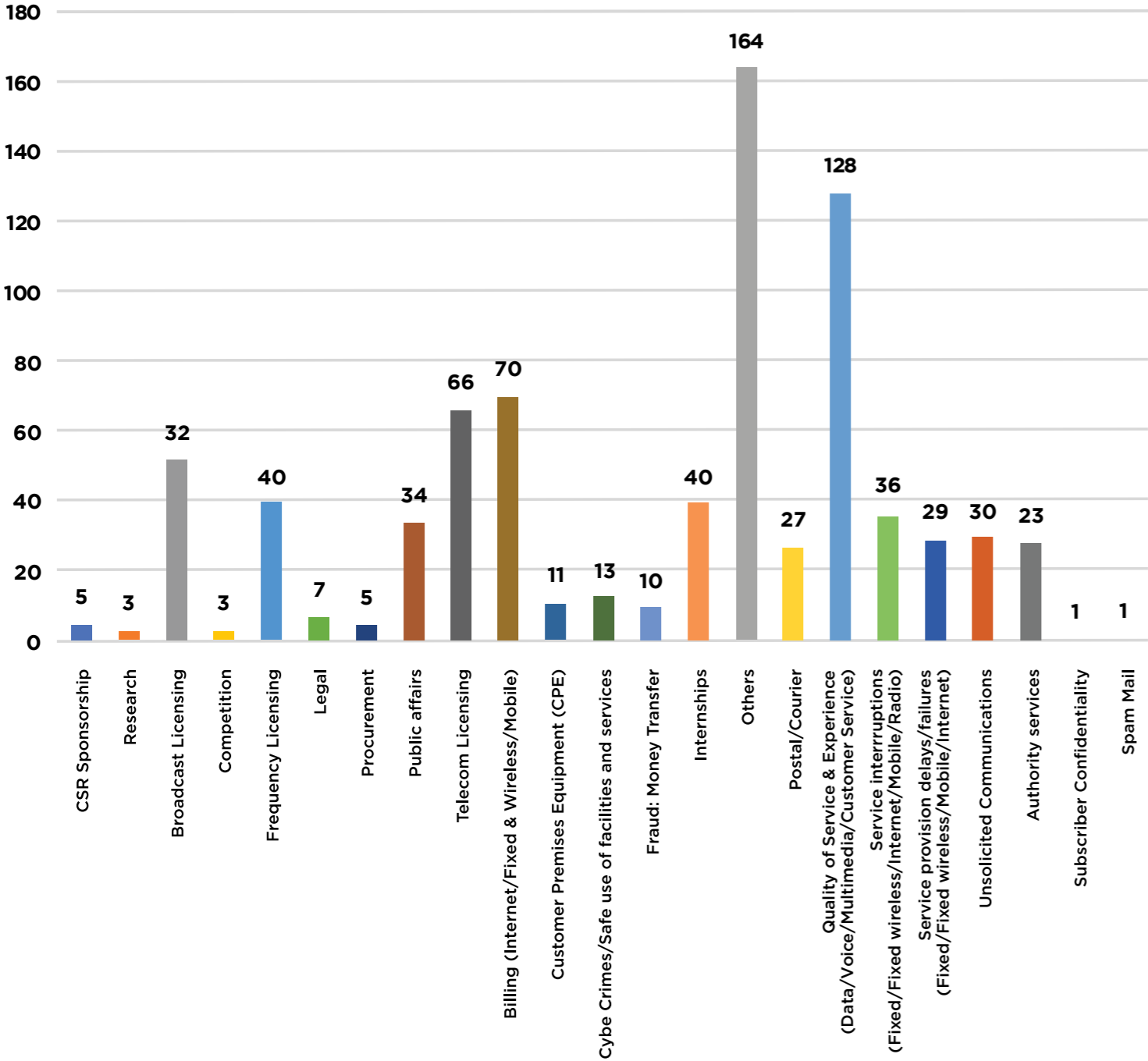
The Constitution and Access to Information Act, 2016 requires public institutions to provide access to information to the citizens. In this regard, the Authority handled various enquiries from the public. Public institutions are required to provide access to information to all

persons. Towards this end, the Authority handled various enquiries from the public. A total of 803 enquiries were received and addressed. Table 6.2 shows the number of the enquiries by category.

Table 6.2 Number of Enquiries by Type	
Type of Enquiry	Number
CSR Sponsorships	5
Research	3
Broadcasting Licensing	52
Competition	3
Frequency Licensing	40
Legal	7
Procurement	5
Public Affairs	34
Telecommunication Licensing	66
Billing (Internet/Fixed &Wireless/Mobile	70
Customer Premises Equipment	11
Cyber Crime/Safe use of facilities & services	13
Fraud: Money Transfer	10
Internships	40
Postal/Courier	27
Quality of Service & Experience (Data/Voice/Multimedia/Customer Service)	128
Service interruptions (Fixed/Fixed wireless/Internet/Mobile/Radio)	36
Service provisioning delays/failures: (Fixed/Fixed wireless/Mobile/Internet)	29
Unsolicited Communications:	30

Table 6.2 Number of Enquiries by Type	
Type of Enquiry	Number
Authority's Services	28
Subscriber Confidentiality	1
Spam mail	1
Others	164
Total	1623
Source: Communications Authority of Kenya	

Figure 6.1 shows the number of the enquiries by category.



Source: Communications Authority of Kenya

Figure 6.1 Number of Enquiries by Category

CHAPTER VII
UNIVERSAL ACCESS INITIATIVES

The Authority is responsible for management and administration of the Universal Service Fund (USF). The main objective of the Fund is to support widespread access to ICT services, capacity building and support technological innovations. ICT licensees are required to make a mandatory contribution of a maximum of 1 per cent of their gross annual turnovers to the Fund. Currently, the levy is charged at a rate of 0.5 per cent.

7.1 Widespread Access to ICTs

The Authority implemented projects aimed at promoting widespread access to ICTs. These projects included mobile network infrastructure and services, education broadband connectivity, Automation of the Occurrence book and the Crime Management System of the National Police Service. Further, the Authority updated the 2016 ICT access gaps report to inform the development of future access and digital inclusivity initiatives.

7.1.1 Voice Infrastructure and Services Project – Phase I

The Authority finalized additional eight (8) sub-locations, bringing the total sub-locations on air under Phase I to 75 out of the targeted 78 comprising the project scope. The eight (8) sub-locations are Badasa, Songa, Kituruni, Bonge, Gase, El-Rhamu, Kutaya and Parkati. The project is in its fourth of the five-year project term, having been initiated in 2017.

7.1.2 Mobile Network Infrastructure and Services Project – Phase II

The Authority embarked on implementation of Phase II Mobile Cellular Network Infrastructure and Services project targeting 101 sub-locations in 17 Counties. The project, which is aimed at providing both voice and data services, is estimated to cover a total population of 269,842. The project is being implemented by five (5) Network Facility Providers (2 Tier I and 3 Tier II) deploying the Passive and Active Infrastructure Components. The distribution of sub-locations by County are provided in Table 7.1.

Table 7.1 Distribution of Sub-locations by County	
County	Number of Sub-location(s)
1. Kilifi	1
2. Tana River	4
3. Lamu	1
4. Garissa	10
5. Wajir	3
6. Mandera	3
7. Marsabit	13
8. Isiolo	3
9. Kitui	5
10. Turkana	18
11. West Pokot	14
12. Samburu	6
13. Elgeyo Markwet	1
14. Baringo	6
15. Laikipia	3
16. Narok	2
17. Kajiado	8
Source: Communications Authority of Kenya	

7.1.3 Education Broadband Connectivity

The Authority continued with the implementation of Phase I of the Education Broadband Connectivity project. An additional five (5) schools in the project scope were finalized bringing the total number to 886 public secondary schools. To ensure continued provision of broadband to these schools, the Authority provided support in the form of operational expenses (OPEX).

Towards the finalization of Phase I of this project, the Authority monitored and evaluated 168 schools spread across 14 counties to determine its impact against the project’s objectives. The Authority established that the deployed broadband connectivity was a crucial service in integrating ICTs in learning and facilitating teaching. Connectivity was rated as being critical during the witnessed schools shut down following government measures to contain the spread of the COVID-19. Schools confirmed that the government, through the Ministry of Education, has migrated most of its services online including the modalities of capacity building for the teaching staff. This is aimed at facilitating effective utilization of education resources, effective implementation of the competency-based curriculum (CBC) system and uniform decision making. Effective and sustainable broadband connectivity to schools was therefore ranked as a key requirement to support uninterrupted students learning, capacity building for teachers and the effective execution of schools’ administration tasks.

7.1.4 Automation of Occurrence Book and Crime Management System

The Authority and the National Police Service (NPS) entered into a collaborative framework to support the National Police Service Information Management System aimed at automating the Occurrence Book and Crime and Criminal Records. This is in line with the USF objective of providing support for the introduction and expansion of communication services to schools, health facilities and other organization serving public needs.

The project is being undertaken on a pilot basis and will cover 106 police stations in Nairobi City County. The Authority supported the project through the provision of IT infrastructure including desktop computers, fingerprint scanners, webcam, UPS, Printers, LAN cabling and Internet connectivity for a period of one year. To this end the Authority has delivered 681 UPS, 370 Desktop computers, and 106 heavy-duty printers.

7.2 Capacity Building

The Authority collaborated with the Kenya Institute of Curriculum Development (KICD) to deploy an Open Education Resources Portal under “the Kenya Education Cloud” Project. The Open Education Resources portal will host digital learning content developed by KICD and other approved sources. The content will be available to the public for capacity building.

7.3 Other Initiatives

7.3.1 Access Gap Geoportal System

The Authority commenced development of a comprehensive geo-

mapping system that analyzes and updates ICT access gaps for identification of interventions on ongoing basis. This system is designed to capture, store, manipulate, analyze, manage, and present all types of geographically referenced data.

7.3.2 Broadcasting and Postal and Courier Services Baseline Survey

In line with USF strategic activities as envisaged in the Fund’s Strategic Implementation Plan 2017-2022, the Authority initiated the broadcasting and postal & courier services baseline surveys. The studies were aimed at informing the prioritization of USF initiatives in the two (2) sub sectors.

7.3.2.1 Broadcasting Baseline Survey

The Authority commissioned broadcasting baseline survey to identify gaps in service coverage and access to broadcasting services. The survey also aims at establishing challenges faced by Broadcasting operators in rolling out services, as well as identity factors that inhibit users from accessing broadcasting services.

The outcome of the survey will inform revisions to the relevant regulations and development of strategies to bridge the identified gaps, targeting both service providers and consumers. Further, the survey recommendations will inform interventions for usage deepening mechanisms including onboarding of more providers towards extending coverage to unserved and underserved areas, expanding the regulatory space to include emerging players, leveraging on technologies such as Next Generation Networks, 5G, AI and IoT and ensuring accessibility through enabling interventions for persons living with disabilities (PLWDs).

7.3.2.2 Postal and Courier Baseline Survey

The need to access Postal and Courier services is paramount in both urban and rural areas. The Authority therefore commissioned postal & courier baseline survey to identify gaps in service coverage and access to postal and courier services. This was in addition to the survey establishing challenges faced by postal and courier operators in rolling out services together with the challenges facing users in accessing these services.

The survey outcome will inform revisions to the relevant regulations and development of strategies to bridge the identified gaps, targeting both consumers and postal & courier service providers, to support the attainment of USF objectives. The survey recommendations will also inform the Fund’s strategies in supporting the sub-sector roll-out initiatives. These will include enhancing quality of service, mainstreaming business processes, accessing postal and courier services on digital devices and the effective adoption of emerging services in the e-commerce segments supported by the National Addressing system (NAS).

7.3.3 Access Gap Report 2021

The Authority through the technical assistance extended under the United Kingdom (UK) Digital Access Programme (DAP) delivered by the Foreign Commonwealth and Development Office (FCDO) finalized

the review of its 2016 ICTs Access Gap report. The review delivered an updated voice and data access gap 2021 report, financial models and associated strategies towards the furtherance of universal access to ICT services in Kenya.

7.3.3.1 Voice and Narrowband Data Network Coverage

The updated gap analysis revealed that 2G network has attained 96.6 per cent population and 56.5 per cent geographical coverage. The analysis further revealed that 3.4 per cent of the population have zero access to mobile voice communications services as shown in Figure 7.1.



Figure 7.1 2G Network Coverage and Access Gap 31st May 2021

The analysis established that 79 out of 7,149 sub-locations (using the 2016 sub-location boundaries) had zero coverage compared to 164 uncovered sub locations established in 2016. Additionally, 196 sub-locations were found to have less than 50.0 per cent population coverage, which is also more than half reduction from the 425 established in 2016. Table 7.2 details the comparison based on percentage coverage and the respective numbers of sub locations in 2016 and 2021.

Table 7.2 Percentage Population Voice (2G) Mobile Network Coverage		
Percentage Coverage	Number of Sub-locations	
	Access Gaps Study of 2016	Access Gaps Study of 2021
100	5,657	5,409
>90	485	988
50 - 90	425	477
Below 50	418	196
0	164	79
Source: Updated ICTs Access Gaps Report – 31 st May 2021		

7.3.3.2 Combined Voice and Broadband Network Coverage

According to the 2021 updated access gap study the status of the voice and broadband (3G and/or 4G) network coverage was almost matching that of voice/narrowband (2G) having attained a population coverage of 96.3 per cent as compared to 2G’s 96.6 per cent coverage. The combined 3G and 4G coverage, totalling 96.3 per cent is as displayed in Figure 7.2.



Figure 7.2 Combined Broadband (3G and 4G) Network Coverage, 31st May 2021

CHAPTER VIII

CAPACITY BUILDING, IMPROVEMENT OF SYSTEMS AND WORKING ENVIRONMENT

The Authority undertakes various initiatives to strengthen its institutional capacity as well as attract, maintain and retain a highly skilled and competent workforce in order to ensure efficient service delivery. These initiatives included alignment of its' human resource management instruments to the Human Resources Policies and Procedures Manual for the Public Service; building capacity of its workforce and industry; improvement of the working environment as well as modernization of its systems and internal processes.

8.1 Human Resource Instruments and Establishment

The Authority reviewed the human resource instruments to align with the Human Resource Policies and Procedures Manual for Public Service. The revised human resource instruments are Human Resource Policies and Procedures Manual; Career Guidelines; Organization Structure, Grading and Staff Establishment as well as Guidelines to the Staff Performance Appraisal System (SPAS). These instruments provide principles in the management and development of human resource capacity towards the achievement of various national and Authority's strategic goals, objectives and initiatives. The instruments also provide a framework for ensuring that the Authority is able to attract, maintain and retain a highly competent, skilled and motivated staff to efficiently and effectively deliver on her mandate.

To better meet the regulatory demands of the growing ICT sector, the staff establishment was increased from 287 to 390. Six (6) employees exited the service of the Authority thereby bringing the staff

complement to 259. The female to male ratio in the staff complements stood at 45:55, which is above the constitutional threshold of two-third gender rule aimed at ensuring gender equality and equity.

8.2 Capacity Building

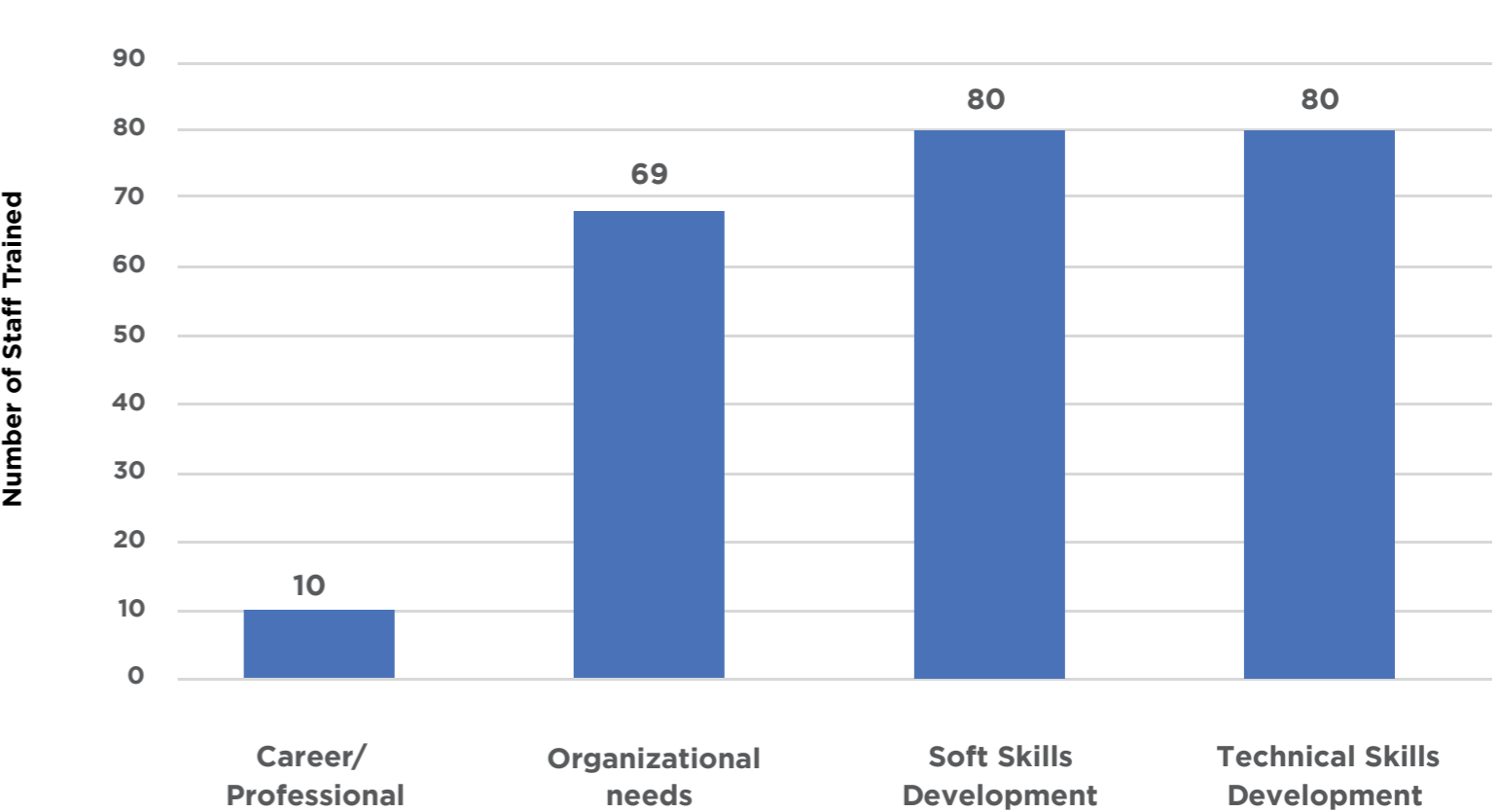
The dynamism and complexity of the ICT sector demands for constant updating of skills and knowledge amongst its players and regulators. To effectively regulate the sector, the Authority carries out capacity building for its staff and industry; encourages transfer of knowledge between the industry and academia as well as supports research, innovation and knowledge management initiatives.

8.2.1 Organizational Learning

The Authority undertook a skills gap analysis to inform the development of a competency development plan. This facilitated the roll out of staff training programmes aimed at improving employees' competence and motivation as well as enhance retention. The Authority implemented 19 training programmes based on individual and corporate needs, as well as emerging technological trends. The programmes focused on four (4) broad areas targeting technical skills development; soft skills development; organizational needs development; and career/professional development. Table 8.1 outlines the training programmes carried out.

Table 8.1 Summary of Trainings			
<ul style="list-style-type: none">Big Data & Artificial IntelligenceCyber security (Emerging Trends)Digital Broadcasting in a converged EnvironmentDigital ForensicMalware AnalysisPostal & Courier Standards OperationsPostal Addressing System, National Development & e-commerce	<ul style="list-style-type: none">Coaching & MentoringCommunication & Presentation SkillsContract ManagementLeadership & ManagementProject ManagementReport & Writing	<ul style="list-style-type: none">Behavioral & Emotional IntelligenceKnowledge ManagementPreparation & Evaluation of TendersStress & Personal Financial Management	<ul style="list-style-type: none">Continuous Professional DevelopmentPost Graduate Programmes
Source: Updated ICTs Access Gaps Report – 31 st May 2021			

A total of 239 staff were trained across the various categories as shown in Figure 8.1.



Source: Communications Authority of Kenya

Figure 8.1 Number of Staff Trained Across Various Categories

8.2.2 Building Capacity in the Industry

To support capacity building in the ICT sector, the Authority facilitated training on Certified Information System Auditor (CISA) for the National KE-CIRT/CC Cybersecurity Committee (NKCC) members. The members comprised sector CIRTs and administrators of critical national information infrastructure, including the energy, transport and financial sectors. The training was part of annual capacity building program for key actors in national cyber security management. The course was attended by 39 professionals drawn from various operators

in Cyber Security and Incident Reporting attended training facilitated by the Authority. The training was part of annual capacity building program for key actors in national cyber security management

The Authority carried out training, which targeted the media fraternity. The training was aimed at building the capacity of journalists and enhancing their understanding of the Authority’s mandate in promoting universal access to ICTs to unserved and underserved populations. A total of 24 journalists from 14 media houses participated in this capacity building initiative.



► Capacity Building for Journalists on the Role of the CA in Promoting Universal Access to ICTs.

The Authority facilitated capacity building in the postal and courier sub-sector through sponsoring training courses at the African Advanced Level Telecommunications Institute (AFRALTI). In this

regard, 169 participants from 14 postal and courier companies were trained on various subjects as shown in Table 8.2.

Table 8.2 Number of Participants Trained in the Postal and Courier Sub-sector		
	Course Title	Number of Participants
1	Postal & Courier Policy, Regulations and Licensing Procedures	17
2	Running a Courier Business	13
3	Customs Procedures for Postal & Courier Operators	21
4	Postal & Courier Standards and Operations	17
5	Postal & Courier Interconnection Principles	9
6	Customer Experience Management in Postal & Courier Industry	18
7	Quality of Service in Postal & Courier Operations	18
8	Postal & Courier Security Standards	18
9	National Addressing System	16
10	National Development and Ecommerce	22
	TOTAL	169
Source: Updated ICTs Access Gaps Report – 31 st May 2021		

The Authority trained members of the Communication Licensing Committee to build their capacity and knowledge on the relevant laws and regulations that govern issuance of licences. Further the Authority, sensitized 101 broadcasters on the broadcast content standards as specified in the Programming Code for Broadcasting Services to enhance compliance with broadcast content regulatory requirements.

8.2.3 Knowledge Transfer

In an effort to nurture young professionals, the Authority offered seven (7) graduates one-year ICT attachment under the Presidential Digital Talent Programme (PDTP). The Authority also offered industrial attachment opportunities to 31 students from various institutions of higher learning. The Authority was accredited as a pupilage centre by the Kenya School of Law as part of the advocates training programme. The pupilage will be for a period of three (3) months.

8.2.4 Research, Innovation and Knowledge Management

In recognition of the importance of research and innovation in regulation, the Authority collaborates with various institutions in carrying out ICT-centric research activities. This is geared towards

the realization of the country’s long-term development goals and addressing challenges affecting the ICT sector. The Authority carries out research, supports innovation activities and implements knowledge management initiatives.

8.2.4.1 Research

The Authority carried out research in the development of the licensing and shared spectrum framework for community networks. This framework will inform the licensing process of community networks and also enable efficient utilisation of the spectrum while protecting existing primary users from harmful interference.

8.2.4.2 Innovation

To enhance efficiency in addressing the escalating cyber-threats as a result of the rapidly changing and expanding cyber-threat landscape and in an effort to enhance the national cyber readiness and resilience, the Authority developed a cybersecurity incident reporting mobile application, KE-CIRT App. The application, which runs on both the android and the iOS platforms, enables seamless cybersecurity incident reporting and response.



► *Launch of the KE-CIRT Mobile Application.*

The Authority also partnered with the county government of Makueni during the Makueni ICT Innovation Challenge. A total of 30 innovation cases were received out of which 15 innovations were showcased.

8.2.4.3 Knowledge Management

The Authority has in place a knowledge management framework to identify, capture, store, and share its knowledge assets to meet the demands arising from the dynamic transformations in the ICT sector. To improve accessibility to updated information about developments in the ICT sector, the Authority acquired an additional 160 books and 36 journal titles.

8.3 Working Environment

In an effort to promote a conducive work environment that enhances productivity, efficiency and improved service delivery, the Authority complied with various statutory requirements spanning across health and safety, environmental sustainability, employee wellness, gender and disability mainstreaming, campaign against HIV/AIDS, prevention of alcohol, drug and substance abuse as well as leadership and integrity.

8.3.1 Occupational Health Safety

The Authority trained its Health and Safety Committee and Fire Marshals on first aid, fire and safety to enhance its ability to handle occupational safety and health at the work place. Further, staff were sensitized on first aid, fire and emergency as well as counter-terrorism. In an effort to keep its staff safe and to ensure work continuity during

the COVID-19 pandemic, the Authority enhanced its health and safety measures. These measures included: adoption of hybrid (remote and physical) work arrangement and installation of perspex workstation separators to achieve the requisite social distancing protocols. Other measures were: vaccination of staff against COVID-19, monitoring temperature and facilitating regular hand-washing and sanitizing for persons accessing the Authority's premises; provision of personal protective equipment (PPE) to staff; and fumigation of office premises, equipment and vehicles.

The Authority undertook several activities in safeguarding the Authority's personnel, installations and information in tandem with the security plan. These activities were implemented in conformity with the internal policies and other statutory requirements. These activities were; Annual dry riser testing as required under Occupational Safety and Health Administration (OSHA) 2007 (Revised) Legal notice No. 59 2007, Emergency fire drill to gauge response and preparedness of staff, Requisition and supply of fire extinguisher shades, Installation of Fire suppression systems, Security flood lights installation and Security undercover trenches at the monitoring stations, Replacement of faulty Automatic Voltage Regulator (AVR) for CCTV and Replacement of discharged fire suppression cylinders at server rooms and monitoring stations. The Authority was audited and found compliant with the HSE, Fire and Other Places of Work Rules (2007 revised).

8.3.2 Employee Wellness

The Authority provided a lactation room to enhance productivity and retention of nursing mothers returning from maternity leave. To enhance employee work-life balance, the Authority constructed

football, volleyball and basketball pitches. The Darts, Pool and Golf teams, were sponsored to participate in several tournaments.

8.3.3 Environmental Sustainability

The Authority collaborated with National Environmental Management Authority (NEMA) and other relevant partners towards promoting green ICTs and environmental sustainability initiatives. Section 60 of the Environment Management and Coordination Act, 1999, requires NEMA to seek written comments from lead agencies on Environmental Impact Assessment (EIA) reports submitted to it. In this regard, the Authority reviewed and provided comments on 20 EIA reports submitted by NEMA. The Authority was also audited on Environmental Sustainability and found to be compliant with the Environmental Management and Coordination Act (EMCA).

In cognizance of the growing interest in the emerging E-waste phenomenon, the Authority implemented mechanisms to ensure sound e-Waste management and compliance with Green ICT best practices. Towards this end, the Authority maintained its e-Waste bins within its premises to facilitate safe disposal of its discarded Waste Electrical and Electronics Equipment. In order to create more awareness on e-Waste, the Authority joined the world in celebrating the 3rd International E-Waste Day. In an effort to align its practices with best international practices, the Authority participated in the National E-waste Management Steering committee, EACO E-waste technical working group and ATU/ITU international fora on e-Waste management. The Authority also participated in the national environmental conservation campaign aimed at achieving 10 per cent forest cover by planting trees in its Headquarters and other remote stations.

8.3.4 Gender Mainstreaming

The Authority complied with the constitutional threshold of two-thirds gender rule affirmative action aimed at ensuring gender equality and equity. The female to male ratio in the staff complements stood at 45:55, which is above the constitutional threshold. Furthermore, staff were sensitized on gender issues whereas members of the Gender Mainstreaming Committee were trained in accordance with the guidelines by the State Department of Gender and Social Services.

8.3.5 Disability Mainstreaming

The Authority undertakes activities aimed at mainstreaming disability within the organization. Towards this end, the Authority was audited by the National Council for Person's with Disability (NCPD) on accessibility in its three (3) Regional Offices in Kisumu, Eldoret and Nyeri and found to be compliant with accessibility requirement to promote disability mainstreaming. Subsequently, the Disability Mainstreaming Committee was trained and staff were also sensitized in accordance with the guidelines by the NCPD. Further, the Authority engaged two (2) Persons Living with Disability on temporary terms of service.

8.3.6 Campaign Against HIV/AIDS

The Authority facilitated sensitization of staff on behavior change to address blood safety and post exposure prophylaxis, and stigma associated with HIV/AIDS as well as create awareness on non-communicable diseases and comprehensive HIV package and condom use demonstration.

8.3.7 Prevention of Alcohol, Drug and Substance Abuse

In acknowledging the negative impact that alcohol and drug abuse (ADA) has on public service delivery, the Authority implemented the following initiatives to mitigate on these effects. In this regard, the Authority with the facilitation of National Authority for the Campaign Against Alcohol and Drugs Abuse carried out a baseline survey to determine prevalence of the level of ADA and inform relevant intervention. Based on the findings of the survey, staff were sensitized on drugs and substance abuse prevention as well as management of depression. Further, the Authority continued to implement the Employee Assistance Programme through peer and external professional counseling.

8.4 Ethics, National Cohesion and Values

The Authority reviewed its two-year Corruption Prevention Plan and submitted the same to Ethics and Anti-Corruption Commission (EACC). Further, the Authority held patriotic day celebration on a quarterly basis to uphold national cohesion and values as prescribed in the Constitution. The Authority' staff also complied with the Leadership and Integrity Act, 2012 and Public Officers Ethics Act, 2003. The Authority also ensured that the staff adhered to the Code of Conduct which includes declaration of conflict of interest during meetings and declaration of gifts received; while the Integrity Assurance Committee was trained on its role of championing ethics at the workplace and employees sensitized on ethics and Integrity.

8.5 Automation of Internal Processes

Towards modernizing its internal processes and ensure efficient and effective public service delivery, the Authority implemented Business Process Re-Engineering (BPR) and upgraded the Bulk Mobile Message System.

8.5.1 Business Process Re-Engineering of Licensing Management Processes

The Authority in line with its ICT Roadmap 2018-2023 carried out Business Process Re-Engineering (BPR) of its Licensing Management Processes and Licensing Data Cleansing. The BPR involved a review and documentation of the licensing management processes of various functions within the Authority. These existing processes were re-engineered for eventual automation.

8.5.2 Implementation of a Bulk Mobile Message System

The Authority implemented a Bulk Mobile Message System that allows it to engage with stakeholders through text messages and short

CHAPTER IX
CORPORATE AFFAIRS

The Authority undertakes corporate communication and international liaison initiatives with a view to enhancing its relations with all its stakeholders, profile as well as brand visibility both locally and internationally. The Authority also carries out public consultation to enhance its regulatory decision making.

9.1 Corporate Communication

The Authority carries out corporate communication initiatives to improve its relations with stakeholders, create public awareness, enhance buy-in for its operational and regulatory decisions as well as to promote good corporate citizenship. These initiatives include publicity and stakeholder engagement, Corporate Social Responsibility (CSR), exhibitions and branding promotion.

9.1.1 Publicity Activities

The Authority engages the public through communication in the print and electronic media as well as its online platforms, in a bid to enhance visibility and brand promotion. In this regard, the Authority conducted live television interviews during the ICT Week, Kuza Awards and its 20th Anniversary celebrations. The Authority also issued press statements and notices on regulatory interventions and shared Quarterly Sector Statistics Reports.

9.1.2 Stakeholder Engagement

In order to proactively consider the needs of its stakeholders, foster collaboration and buy-in, the Authority has continued to hold engagement forums. To this end, the Authority held a stakeholder's meeting on the National Public Key Infrastructure. The stakeholders were drawn from various Ministries, Departments and Agencies.

The Authority held a stakeholder's workshop to discuss the USF initiatives towards formulating a collaborative framework aimed at enhancing effective implementation of the USF projects. The participants were drawn from various Ministries, Departments and Agencies. The Authority also engaged the National Government Administration Offices in seven (7) counties across three (3) regions to enlist their support in the roll out of the USF projects. These counties were Lamu, Garissa, Mandera, Wajir, Marsabit, Turkana and West Pokot.

codes. This system is used to send notifications, alerts and reminders to Licensees including filing of returns. The system was also used to facilitate voting during the 2021 Kuza Awards.

The Authority held various webinars focusing on innovation, cyber security, COP. These were aimed at sharing knowledge on innovative developments in the ICT sector and seeking linkages and collaborations to support regulatory interventions. The themes of the innovative webinars were: Fostering consultative regulation through linkages with stakeholders; Ensuring favourable regulatory environment for commercially viable innovations; Creating viable networks with equipment manufacturers; Strategies to mobile accelerate internet adoption and 5G planning. These were held in partnership with Google, Various Innovators, Huawei-Ericsson and GSMA for each theme respectively. The Authority also held a series of webinars on child online protection as well as the cybersecurity virtual townhalls.

9.1.3 Corporate Social Responsibility and Sponsorship

The Authority undertook a number of activities that were aimed at giving back to the society. The activities were provision of 245 desktop computers for 29 secondary schools in 11 counties and Internet connectivity to seven (7) schools. The Authority also provided water tanks to 37 schools to assist schools access clean water and also minimize students absenteeism. This includes 22 and 15 public schools in Isiolo and Baringo counties, respectively.

The Authority also offered diverse support to children's homes, special needs school and community-based organizations: Tumshangilie Mtoto Children's Home; Nairobi Children Garden Home and School; AIC Mahiga Children's Home; Ebukuya School for Hearing Impaired; Islamic Orphan Care Foundation; and Mathew-Twenty Five a Community Based Organization.

Towards promoting good corporate citizenship, the Authority sponsored the following events/institutions: Talanta Football Club; golf tournaments in five (5) clubs; Child Welfare Society; the Kenya Editor's Guild Annual Convention 2020; Media Council of Kenya; Annual Journalism Excellence Award; Mathare Film, Cultural and Youth Talent Festival; Sports Personality of the Year Awards; the Kenya Internet Governance Forum; Kalasha Awards; Information Systems Audit and Control Association (ISACA) Kenya Chapter Annual Conference; 4th Edition of the Eldoret City Marathon; and the Rediscover Nandi Road Race. The Authority leveraged on these events to exhibit and distribute education material.



Nyandarua High School Receiving Computers.

9.2 International Liaison

The Authority represents the government in various regional and international ICT bodies. In this regard, the Authority ensures that Kenya meets its obligations under regional and international treaties as well as agreements relating to provision of telecommunications, radio and postal services. The Authority maintained its membership, and participation in regional and international ICT forums to ensure Kenya is kept abreast with the current ICT trends, regulatory best practice and policy decisions.

9.2.1 Membership to Regional and International Organizations

The Authority maintained Kenya's membership in the following organizations: the International Telecommunication Union (ITU); Universal Postal Union (UPU); Commonwealth Telecommunications Organization (CTO); East African Communications Organization (EACO); Pan African Postal Union (PAPU); African Telecommunications Union (ATU); Association of Regulators of Information and Communication for Eastern and Sothern Africa (ARICEA); and the African Advanced Level Telecommunications Institute (AFRALTI).

9.2.2 Regional and International Engagement

The Authority retained Kenya's seat at the PAPU Administrative Council (AC) and continued with campaigns for the UPU Council of Administration (CA) and Postal Operations Council (POC) positions.

In addition, the Authority established partnerships in areas of mutual interest with: UK-Aid; US delegation on the WTSA-20; the Embassy of Israel; and UNCTAD among others. The Authority also participated in meetings organized by EACO, ATU, PAPU, AFRALTI, UPU, CTO, ICANN and ITU.

9.2.3 Benchmarking

The Authority hosted the National Telecommunications Commission, which is the telecommunications regulatory body of Sierra Leone. The Authority also held a regulator-to-regulator consultation with the Federal Communication Commission of the USA.

9.3 Public Consultations

The Authority undertook a number of public consultations towards ensuring inclusive regulatory decisions as well as recognizing the needs and interest of the public, the ICT sector and other actors. These consultations were on proposed: framework for assessment of quality Services for Broadcasting Services and Systems; Consumer Protection Guidelines; Guidelines for Network Redundancy, Resilience and Diversity on Information Communication Networks in Kenya; Guidelines on Features and Technical Specifications for Mobile Cellular Devices Imported into and Distributed in Kenya; Voice over Internet Protocol Guidelines; IPV6 Migration Strategy; Licensing and Shared Spectrum Framework for Community Networks in Kenya; Cellular Mobile Infrastructure and Services Phase II Project; and Updated ICT Access Gaps Study 2021.

CHAPTER X

PROCUREMENT AND FINANCIAL STATEMENTS

The Authority adheres to the principles of economy, prudence, accountability, effectiveness, efficiency, equal opportunity, and transparency in its procurement processes and financial management. This is in line with the requirements of the Public Finance Management (PFM) Act, 2012; the Public Procurement and Asset Disposal Act (PPADA), 2015; and the Public Audit Act, 2015.

10.1 Procurement

The Authority ensures that its procurement processes are fair, transparent and cost-effective. In line with this, the Authority had a

total procurement budget of KES 4,626,364,894.00, out of which KES 1,860,806,398.65 was procured. The top ten awarded tenders by value are as provided in Table 10.1

The Authority reserved and awarded tenders worth KES 176,059,190.00 under the Access to Government Procurement Opportunities (AGPO) against a targeted of KES 168,631,528.20. This targeted firms owned by Youths, Women and PLwDs. In addition, the Authority awarded tenders worth KES 314,223,165.71 to local entities against a target of KES 265,457,837.60 to support the growth and sustainability of the local industry.

Table 10.1 Top Ten Contracts Awarded			
No.	Description	Supplier Name	Contract Price
1	Contract for Provision of Telecommunication Cellular Mobile Network Infrastructure and Services in the Un-served and Underserved areas of Kenya – Phase 2	Alan Dick & Company	372,538,306.29
2	Contract for Provision of Telecommunication Cellular Mobile Network Infrastructure and Services in the Un-served and Underserved areas of Kenya – Phase 2	Safaricom PLC	295,044,453.00
3	Contract for Provision of Telecommunication Cellular Mobile Network Infrastructure and Services in the Un-served and Underserved areas of Kenya – Phase 2	ATC Kenya	252,630,381.00
4	Contract for Provision of Telecommunication Cellular Mobile Network Infrastructure and Services in the Un-served and Underserved areas of Kenya – Phase 2	Seal Tower	165,748,309.00
5	Provision of cleaning and general fumigation services at CA Centre and Kahawa Station	Ice Clean Care	31,320,000.00
6	Contract for Provision of Telecommunication Cellular Mobile Network Infrastructure and Services in the Un-served and Underserved areas of Kenya – Phase 2	Airtel Networks	26,939,327.00
7	Contract for Supply, Delivery, Installation, Commissioning and maintenance of Interactive Geo Portal system	ET Cetera Holdings Limited	24,740,630.00
8	Contract for provision of consultancy services to undertake baseline survey for broadcasting and postal courier services	Sigmund Peak International Ltd	24,641,100.00
9	Contract for Supply, Delivery and Installation of Software for the visually impaired to selected 56 E- Resource Centres	Matrix Vision Systems	24,001,485.81
10	Provision of ground and landscape maintenance for CA Center, CA Village, South B and Kahawa RSMS Stations	Newlook Construction	15,743,520.00
Source: Updated ICTs Access Gaps Report – 31st May 2021			

10.2 Financial Statements

The Authority’s financial statements for the period ended 30th June 2020 were submitted to the Office of the Auditor General within the statutory timeline of 30th September 2020. The summary of the Authority’s audited financial statement for the period ended 30th June 2020 is provided below.

10.2.1 Statement of Directors’ Responsibilities

Public Finance Management Act 2012 Section 84(O) of the Kenya Information and Communications Act of 1998 (CAP 411A), and the Public Audit Act 2015, require the Directors to prepare financial statements in respect of the Authority, which give a true and fair view of the state of affairs of the Authority at the end of the financial year/ period. The Directors are also required to ensure that the Authority keeps proper accounting records which disclose with reasonable accuracy the operations of the Authority. The Directors are also responsible for safeguarding the assets and funds of the Authority.

The Directors are responsible for the preparation and presentation of the Authority’s financial statements, which give a true and fair view of the state of affairs of the Authority as at the end of the financial year (period) ended on June 30, 2020. This responsibility includes: (i) maintaining adequate financial management arrangements and ensuring that these continue to be effective throughout the reporting period; (ii) maintaining proper accounting records, which disclose with

reasonable accuracy at any time the financial position of the Authority; (iii) designing, implementing and maintaining internal controls relevant to the preparation and fair presentation of the financial statements, and ensuring that they are free from material misstatements, whether due to error or fraud; (iv) safeguarding the assets of the Authority; (v) selecting and applying appropriate accounting policies; and (vi) making accounting estimates that are reasonable in the circumstances.

The Directors accept responsibility for the Authority’s financial statements, which have been prepared using appropriate accounting policies supported by reasonable and prudent judgements and estimates, in conformity with International Public Sector Accounting Standards (IPSAS), and in the manner required by the KICA Act, PFM act and the Public Audit Act. The Directors are of the opinion that the Authority financial statements give a true and fair view of the state of Authority’s transactions during the financial year ended June 30, 2020, and of the Authority’s financial position as at that date. The Directors further confirm the completeness of the accounting records maintained for the Authority, which have been relied upon in the preparation of the Authority’s financial statements as well as the adequacy of the systems of internal financial control.

Nothing has come to the attention of the Directors to indicate that the Authority will not remain a going concern for at least the next twelve months from the date of this statement.

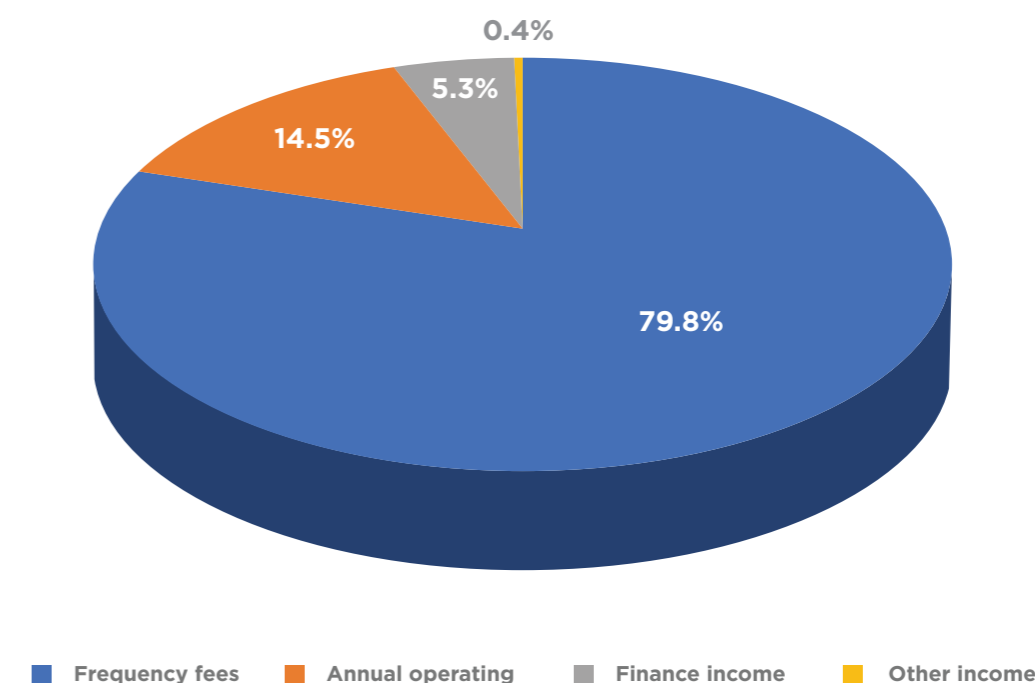
10.2.2 Statement of Financial Performance for the Year Ended 30th June 2020

	Note	2020 KShs '000	2019 KShs '000
Revenue from non-income transactions			
License Fees	6	9,080,424	8,525,314
Revenue from exchange transactions			
Finance Income	7	506,286	851,645
Rental Revenue from Facilities	8	3,883	4,204
Othe Income	9	13,269	2,931
		523,438	858,780
TOTAL REVENUE		9,603,861	9,384,094
EXPENSES			
Employee Costs	10	1,295,482	1,196,080
Remuneration of Directors	11	28,646	38,385
Depreciation and Amortization Expense	12	439,930	407,042
Repairs and Maintenance	13	149,026	248,025
General Expenses	14	1,519,145	1,962,978
Provision for Bad and Doubtful Debts	15	619,373	279,254
Specific Provision for Bad and Doubtful Debts	15	780,308	279,254
TOTAL EXPENSES		4,831,910	4,167,763
OTHER GAINS/(LOSSES)			
Gain on Sale of Assets	16	0	4
Gain/(Loss) on Foreign Exchange Transactions	17	(2,100)	1,415
Bad Debts Recovered/Reversal of Bad Debt Provision	17(b)	0	0
Surplus for the Year		4,769,841	5,217,750
Remission to National Treasury	28	4,292,857	4,695,975
Net Surplus for the Year		476,984	521,775

10.2.2.1 Sources of Revenue

In the FY 2019/2020 the Authority earned revenue totaling KES 9.603 billion. This was earned from; annual frequency fees KES 7.663 billion,

annual operating license fees KES 1.395 billion, finance income KES 506.286 million and other income of KES 38.838 million. Included in the other income is revenue from; application fees, type approval & registration, sale of tender documents and penalties levied during the year.



Source: Communications Authority of Kenya

Figure 10.1 Sources of Revenue for the FY 2019/20

10.2.2.2 Expenditure

During the FY 2019/2020 the total operating expenditure was KES 4.831 billion compared to KES 4.167 billion for the FY 2018/2019. The increase is mainly attributed to the provision for bad and doubtful debts.

10.2.2.3 Surplus Funds

The Authority made a provision of 90.0 per cent of the surplus for remittance to the National Treasury in the FY 2019/2020 of KES 4.292 billion.

10.2.3 Statement of Financial Position as at 30th June 2020

ASSETS	Note	2020 KShs ‘000	2019 KShs ‘000
Current Assets			
Cash and cash equivalents	18	7,641,600	10,000,681
Receivables from non-exchange transactions	19	310,284	1,112,216
Receivables from exchange transactions	20	595,883	646,386
Total Current Assets		8,547,767	11,759,284
Non Current Assets			
Property, plant and equipment	21	19,113,011	19,198,932
Intangible Assets	22	695,367	752,150
Total Non-Current Assets		19,808,379	19,951,082
TOTAL ASSETS		28,356,146	31,710,366
LIABILITIES			
Current Liabilities			
Provisional Dividend/Remittance SLU-plus	23	2,679,702	8,586,845
Trade and other Payables from exchange transactions	24	2,677,986	1,137,874
Payments received in advance	25	600,655	49,544
Total Current Liabilities		5,958,343	9,774,263
TOTAL LIABILITIES		5,958,343	9,774,263
Net Assets		22,397,803	21,936,103
Owners Equity	26	741,965	741,965
Accumulated SLU-plus	26	5,639,516	5,177,816
Revaluation Reserve	27	16,016,322	16,016,322
Total Net assets and Liabilities		22,397,803	21,936,103

Approval of the financial statements

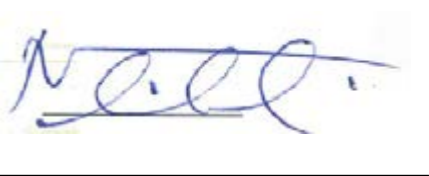
The Authority’s financial statements were approved by the Board on 24th September 2020 and signed on its behalf by:



Ag. Director General



Director Finance & Accounts



Board Chairman

Ag. Director General	Head of Finance	Chairman of the Board
Name: Mercy Wanjau	Name: Joseph M Kimanga	Name: Ngene Gituku
	ICPAK Member No. 4341	
Date: 24 th September 2020	Date: 24 th September 2020	Date: 24 th September 2020

10.2.3.1 Assets

The assets of the Authority as at 30th June 2020 stood at KES 28.356 billion which comprised of cash and cash equivalents KES 7.641 billion, receivables from non-exchange transactions KES 310.284 million, receivables from exchange transactions KES 595.883 million, property, plant and equipment KES 19.113 billion and intangible assets KES 695.367 million.

10.2.3.2 Liabilities

As at 30th June 2020 the Authority’s liabilities were KES 5.958 billion. This comprised provisional remittance KES 2.679 billion; Trade and other payables from exchange transactions of KES 2.677 billion; and payments received in advance KES 600.655 million.

10.2.4 Statement of Changes in Net Assets for the Year Ended 30th June 2020

	Note	Owners Equity KShs '000	Revaluation Reserve KShs '000	Accumulated Surplus KShs '000	Total Reserves KShs '000
At 1st July, 2018		741,965	-	12,418,194	13,160,159
Surplus for the Year		-	-	5,217,750	5,217,750
Remittance to Treasury - Provision	23	-	-	(4,695,975)	(4,695,975)
Prior Year Adjustments	26	-	-	237,847	237,847
Additional Remittance to Treasury - Paid		-	-	(8,000,000)	(8,000,000)
Revaluation Surplus	27	-	16,016,322	-	16,016,322
At 30th June, 2019		741,965	16,016,322	5,177,816	21,936,103
At 1st July, 2019		741,965	16,016,322	5,177,816	21,936,103
Surplus for the Year		-	-	4,769,841	4,769,841
Remittance to Treasury - Provision	23	-	-	(4,292,857)	(4,292,857)
Prior Year Adjustments	26	-	-	(15,284)	(15,284)
Additional Remittance to Treasury - Paid		-	-	-	-
Revaluation Surplus	27	-	-	-	-
At 30th June, 2020		741,965	16,016,322	5,639,516	22,397,803

10.2.5 Statement of Cash Flows for the Year Ended 30th June 2020

	Note	KShs '000	KShs '000
OPERATING ACTIVITIES			
Cash Generated from (used in) Operations	28	7,674,722	5,154,830
Remittance to National Treasury		(10,200,200)	(800,00)
Director's Fees		0	0
Net Cash Generated from (used in) Operations		(2,525,278)	(2,845,170)
INVESTING ACTIVITIES			
Purchase of Property, Plant and Equipment	21	(297,242)	(820,592)
Proceeds from Disposal of Assets	16	0	4
Interest Received	7	463,439	770,273
Net Cash Generated from (used in) Investing Activities		166,197	(50,315)
INCREASED/(DECREASED) IN CASH AND CASH EQUIVALENTS		(2,359,081)	(2,895,485)
CASH AND CASH EQUIVALENTS AT BEGINNING OF YEAR		10,000,681	12,896,166
CASH AND CASH EQUIVALENTS AT END OF YEAR		7,641,600	10,000,681

NOTES

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Communications Authority of Kenya Annual Report and Financial Statements 2020-2021

ANNUAL REPORT 2021



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