SECOND QUARTER SECTOR STATISTICS REPORT FOR THE FINANCIAL YEAR 2021/2022 (1ST OCTOBER – 31ST DECEMBER 2021)

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B2B Business to Business
B2C Business to Customer
C2B Customer to Business
C2G Citizen to Government
DTT Digital Terrestrial Television
DoS Denial-of-Service
EASSy Eastern Africa Submarine Cable Systems
FTTH/O Fibre-To-The-Home/Office
FY Financial Year
Gbps Gigabits per second
ICTs Information Communication Technologies
KE-CIRT/CC National Kenya Computer Incident Response Team/Coordination Centre
LION2 Lower Indian Ocean Network
Mbps Megabits per second
MoU Minutes of Use
MVNO Mobile Virtual Network Operator
NCC National Cybersecurity Centre
P2P Person to Person
SEACOM Sea Sub-Marine Communications Limited
SIM Subscriber Identification Module
SMS Short Messaging Service
TEAMS The East African Marine System
LTE Long Term Evolution
UMTS Universal Mobile Telecommunication System

PRELIMINARY NOTES

This report is based on data provided by licensees in the ICT sector as per their license conditions and obligations.

The information provided in this report is subject to review during the subsequent quarter in case of any revisions or updates from the licensees.

The Authority has developed and published a manual on definitions and methodologies of collecting and reporting administrative data on telecommunication indicators. The manual, which was prepared in consultation with the International Telecommunications Union (ITU), the UN specialized agency for ICTs, is available on https://ca.go.ke/wp-content/uploads/2020/03/ICT-Indicators-Manual-2019-.pdf

SUMMARY OF CORE ICT INDICATORS

This Second Quarter Sector Statistics Report for the 2021/22 Financial Year provides the performance and trends in the ICT sector for the period 1st October to 31st December 2021 in the following categories:

1. Telephony services
2. Internet services
3. Courier services
4. Broadcasting services
5. Frequency spectrum management
6. Electronic transactions and cyber space management

Indicator/Period	Q2 (Oct-Dec 2021)	Q1 (Jul-Sept 2021)	Quarterly Variation (%)
TELEPHONY SERVICES			
Subscription To Mobile Services			
Total Mobile (SIM) Subscriptions	65,085,720	64,897,016	0.3
Machine to Machine (M2M) Subscriptions	1,124,396	988,184	13.8
Mobile Money Transfer Services			
Number of Registered Mobile Money Agents	292,301	289,095	1.1
Mobile Money Subscriptions	35,209,037	34,586,848	1.8
Value of C2B Transfers in KES	1,307,459,065,680	1,196,391,334,211	9.3
Value of B2C Transfers in KES	900,566,999,062	817,677,356,335	10.1
Value of B2B Transfers in KES	2,153,147,988,436	1,960,759,312,250	9.8
Value of G2C Transfers in KES	969,063,644	1,885,367,083	-48.6
Value of C2G Transfers in KES	11,746,233,047	12,331,336,677	-4.7
Number of P2P Transfers	1,010,377,033	912,039,926	10.8
Value of P2P Transfers in KES	1,127,245,196,314	1,081,900,345,466	4.2

Total value of Deposits in KES	1,253,544,558,356	1,181,270,848,413	6.1
Domestic Mobile Traffic			
Mobile Voice Traffic (Minutes)			
On-Net Voice Traffic	18,139,390,640	17,927,846,457	1.2
Off-Net Voice Traffic	2,469,428,816	2,432,184,882	1.5
Mobile Network to Fixed Network	17,209,431	17,580,552	-2.1
Mobile SMS Traffic			
SMS On-Net	8,711,929,299	8,757,490,864	-0.5
SMS Off-Net	996,080,213	942,037,904	5.7
International Mobile Traffic			
Mobile Voice Traffic (Minutes)			
International Incoming Mobile Voice Traffic	123,872,762	118,387,308	4.6
International Outgoing Mobile Voice Traffic	158,350,092	125,205,854	26.5
Mobile SMS Traffic			
International Incoming SMS	8,450,242	8,342,976	1.3
International Outgoing SMS	5,126,004	5,149,482	-0.5
Roaming Traffic			
Out-bound Roaming Traffic			
Out-bound Roaming Incoming Voice Traffic (Minutes)	118,916,978	110,545,970	7.6
Out-bound Roaming Outgoing Voice Traffic (Minutes)	13,311,940	12,186,553	9.2
Out-bound Roaming Incoming SMS	37,452,333	38,105,963	-1.7
Out-bound Roaming Outgoing SMS	19,029,689	16,512,750	15.2
Data Volumes (MB)	54,017,039	42,851,348	26.1

In-bound Roaming Traffic			
In-bound Roaming Incoming Voice Traffic (Minutes)	39,735,330	38,474,939	3.3
In-bound Roaming Outgoing Voice Traffic (Minutes)	3,546,898	3,324,193	6.7
In-bound Roaming Incoming SMS	28,459,567	27,494,894	3.5
In-bound Roaming Outgoing SMS	1,356,208	1,583,318	-14.3
Data Volumes (MB)	91,010,910	35,761,153	154.5
Fixed Voice Subscriptions			
Fixed Line Subscriptions	13,626	14,068	-3.1
Fixed Wireless Subscriptions	1,174	1,187	-1.1
Fixed VoIP Subscriptions	46,296	44,876	3.2
Domestic Fixed Voice Traffic			
Fixed line-Fixed line	104,991	132,933	-21.0
Fixed Wireless-Fixed Wireless	276,125	285,129	-3.2
Fixed to Mobile	5,410,365	5,334,783	1.4
International Fixed Voice Traffic			
Incoming Fixed Voice Traffic	3,618,079	3,739,757	-3.3
Outgoing Fixed Voice Traffic	1,442,581	1,382,510	4.3
Outgoing Fixed VOIP	581,995	602,079	-3.3
DATA/INTERNET AND BROADBAND SERVICES			
Total Data/internet subscriptions	46,355,022	45,646,906	1.6
Total Broadband subscriptions	29,149,638	27,658,086	5.4
Total Available International Bandwidth (Gbps)	10,891.53	10,258.68	6.2

Total Used International Bandwidth (Gbps)	4,816.99	4,787.17	0.6
ELECTRONIC TRANSACTIONS AND CYBER SPACE MANAGEMENT			
.KE Domains	94,526	90,805	4.1
Total Cyber Threats Detected	129,001,520	143,040,599	-9.8
Total Cyber Threat Advisories	3,019,055	73,578	4,003.2
Total Investigation Category	175	247	-29.1
BROADCASTING SERVICES			
Commercial FTA TV Stations on Air	130	130	0.0
Commercial FM Radio Stations on Air	131	131	0.0
DTT Subscriptions	4,169,601	4,116,528	1.3
DTH Subscriptions	1,645,525	1,589,614	3.5
Cable Subscriptions	88,616	87,250	1.6
COURIER SERVICES			
Number of Letters (Up to 350 gms) Posted Locally	312,172	246,509	26.6
Total Courier Items Sent Locally	1,139,909	957,950	19.0
International Incoming Letters (Up to 350 gms)	99,827	83,132	20.1
International Outgoing Letters (Up to 350 gms)	348,418	344,835	1.0
FREQUENCY SPECTRUM MANAGEMENT			
Microwave links Deployed	237	240	-1.3
Fixed Links Decommissioned	9	364	-97.6
FM Sound Broadcasting	24	12	100.0

Frequencies Assigned			
POPULATION			
Total Population in Kenya (Millions)*	**48.7**	**48.7**	**0.0**

Source: Economic survey 2021

1. TELEPHONY SERVICES

1.1Mobile Services

1.1.1 Mobile (SIM) Subscriptions

The period October to December 2021 was marked by increased activity across mobile network platforms due to the festivities. As at 31st December 2021, the number of active mobile (SIM) subscriptions was 65.08 million compared to the 64.89 million subscriptions recorded by end of September representing a marginal increase of 0.30%. The continued slow uptake of mobile subscriptions as observed in the previous quarter resulted from the decommissioning of the USSD customer acquisition channel and absolute adoption of the App channel for SIM registration.

Figure 1 illustrates the trends in mobile subscriptions and penetration.

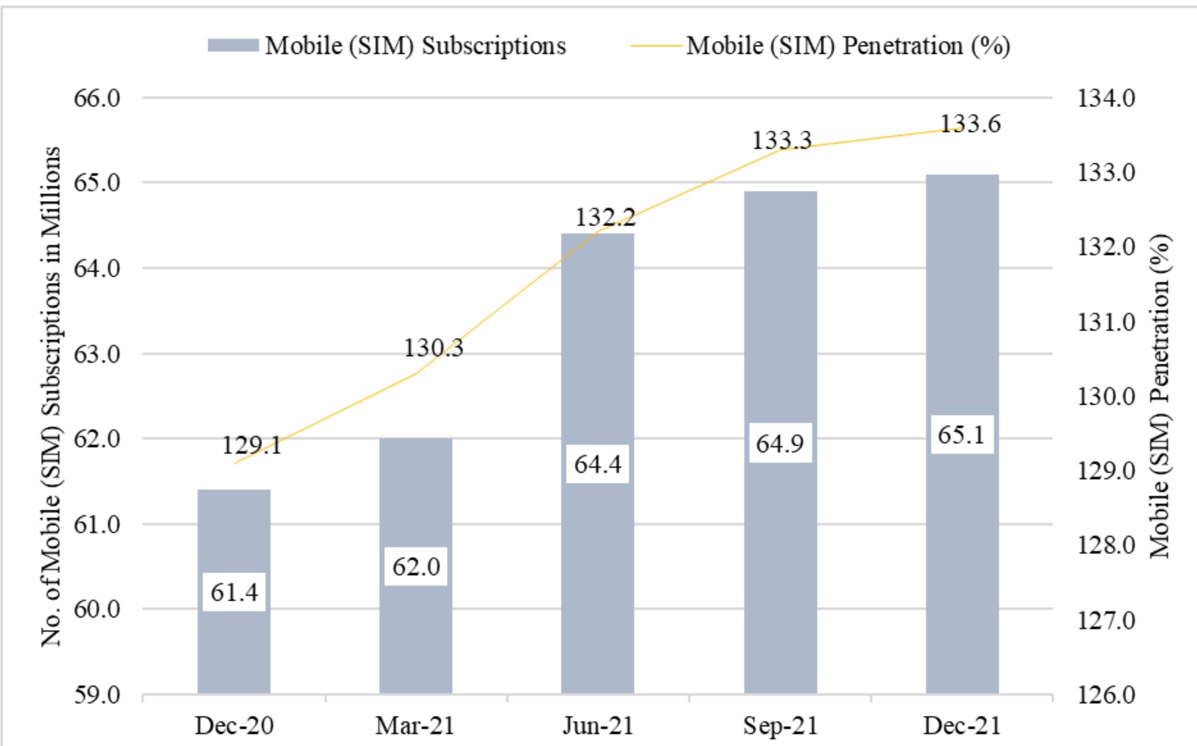


Figure 1: Mobile Subscriptions and Penetration

Table 1 provides the number of active mobile subscriptions per operator by contract type.

Table 1: Mobile Subscriptions per Operator by Contract Type

Operator Name /Indicator	*Dec-21*			*Sep-21*			*Quarterly Variation (%)*
	Pre-paid	Post-paid	Total	Pre-paid	Post-paid	Total	
Total Mobile Subscriptions	**63,756,368**	**1,329,352**	**65,085,720**	**63,631,358**	**1,265,658**	**64,897,016**	**0.29**
Safaricom PLC	41,679,898	1,199,277	**42,879,175**	40,808,899	1,136,887	**41,945,786**	2.23
Airtel Networks Limited	16,339,931	85,468	**16,425,399**	17,024,384	85,177	**17,109,561**	-4
Telkom Kenya Limited	4,099,086	44,607	**4,143,693**	4,117,760	43,594	**4,161,354**	-0.42
Equitel	1,401,121	-	**1,401,121**	1,466,086	-	**1,466,086**	-4.43
Jamii Telecommunications Limited	236,332	-	**236,332**	214,229	-	**214,229**	10.32

Source: CA, Operators' Returns.

1.1.2 Machine-to-Machine Subscriptions

In Q2, Machine-to-Machine (M2M)[1] subscriptions increased by 13.8% to stand at 1.12 million.

Table 2: Machine-to-Machine Subscriptions

Indicator/Period	*Oct-Dec 21*	*Jul-Sep 21*	*Quarterly Variation (%)*
Machine to Machine (M2M) Subscriptions	1,124,396	988,184	13.8

1.1.3 Mobile Money Services

The uptake of mobile money services has continued to grow as a result of its convenience, coupled with consumers preferring to use cashless to curb the spread of COVID-19. Mobile money subscriptions grew by 1.8% during the reference period to stand at 35.2 million, and consequently, mobile money penetration increased from 71.0% to 72.3%.

[1] **Machine to Machine mobile-network subscriptions (M2M subscriptions)** refers to the number of mobile-cellular machine- to-machine subscriptions that are assigned for use in machines and devices (cars, smart meters, consumer electronics) for the exchange of data between networked devices, and are not part of a consumer subscription. For instance, SIM-cards in personal navigation devices, smart meters, trains and automobiles should be included. Mobile dongles and tablet subscriptions should be excluded. Only active subscriptions are counted

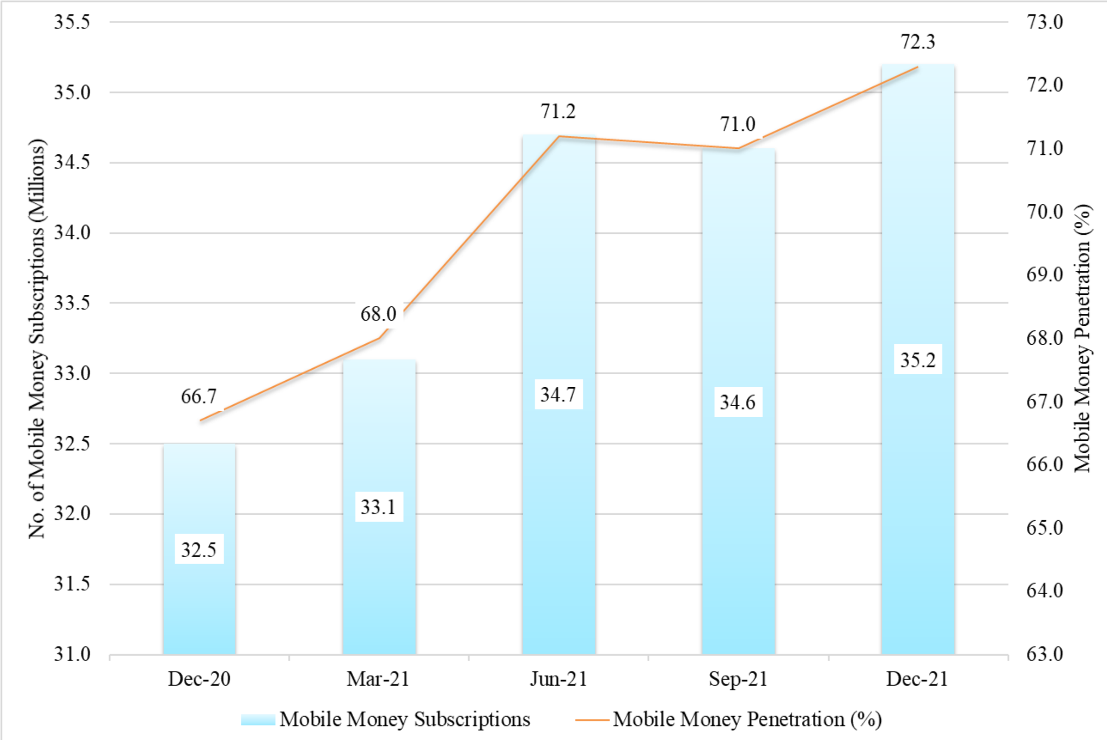


Figure 2: Mobile Money Services

The value of Government-to-citizen(s) transfers declined by -48.6% during the reference period due to reduction in COVID-19 relief funds disbursement by the Government.

Table 3 shows the mobile money transfer services.

Table 3: Mobile Money Transfer Services

Mobile Money Brand/Indicator	*M-Pesa*	*Airtel Money*	*T-Kash*	*Total*
Agents	261,150	22,802	8,349	**292,301**
Value of C2B Transfers in KES	1,305,977,828,235	1,394,937,868	86,299,577	**1,307,459,065,680**
Value of B2C Transfers in KES	900,072,145,057	346,304,112	148,549,893	**900,566,999,062**
Value of B2B Transfers in KES	2,153,147,988,436	-	-	**2,153,147,988,436**
Value of G2C Transfers in KES	969,063,644	-	-	**969,063,644**
Value of C2GTransfers in KES	11,730,274,599	15,896,588	61,860	**11,746,233,047**
Volume of P2P Transfers	1,009,200,196	539,720	637,117	**1,010,377,033**
Value of P2PTransfers in Kshs.	1,126,687,492,673	388,465,973	169,237,668	**1,127,245,196,314**
Total value of Deposits in Kshs	1,252,099,308,413	1,360,313,880	84,936,063	**1,253,544,558,356**

Source: CA, Operators' Returns.

1.1.4 Mobile Phone Devices

By 31st December 2021, the total number of mobile phone devices connected to mobile networks was 59.58 million, out of which 33.06 million were feature phones and 26.51 million smartphones. The penetration levels of feature phones and smartphones stood at 67.9% and 54.5% respectively.

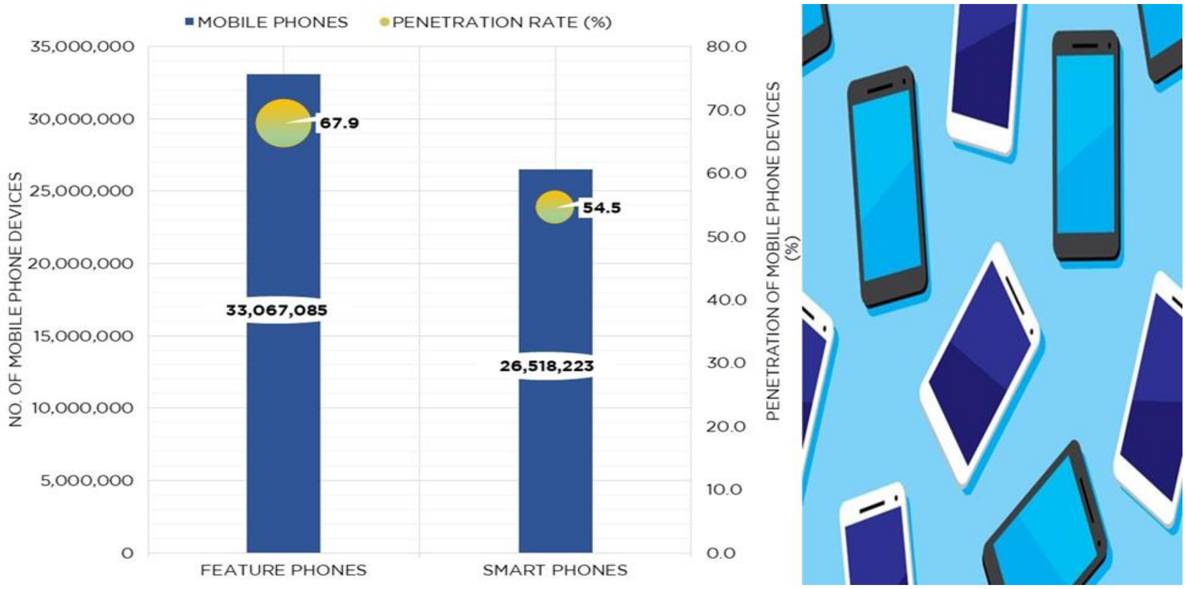


Figure 3: Mobile Phone Devices

1.1.5 Mobile Voice Traffic (Minutes)

During the reference period, on-net and off-net local mobile voice traffic grew by 1.2% and 1.5% respectively due to the various voice promotions offered by the mobile network operators that enabled consumers to purchase lucrative bundles. For instance, Safaricom "*Stori Ibambe 500% promotion*" awarded eligible customers with 500% bonus airtime upon achieving their daily target. However, Mobile to Fixed traffic dropped by 2.1% owing to the declining number of fixed network subscriptions.

Table 4 shows the trends in domestic voice traffic.

Table 4: Domestic Mobile Voice Traffic

Mobile Traffic	*Oct-Dec 21*	*Jul-Sept 21*	*Quarterly Variation (%)*
Total Outgoing Traffic	**20,626,028,887**	**20,377,611,891**	**1.2**
Own Network – Own Network	18,139,390,640	17,927,846,457	1.5
Own Network to Other Mobile Networks	2,469,428,816	2,432,184,882	1.5
Mobile Network to Fixed Network	17,209,431	17,580,552	-2.1

Source: CA, Operators' Returns

1.1.1.1. Minutes of Use per Call per Operator

During second quarter of the FY 2021/22, mobile users spent an average of 1.7 minutes on on-net calls and an average of 1.0 minute on off-net calls. Airtel users spent more minutes on a single on-net call averaging 2.7 minutes whereas Telkom Kenya mobile users recorded the highest average minutes per off net call at 1.5 minutes.

Table 5 presents the average Minutes of Use per Call by operator.

Table 5: Minutes of Use per Call

Period	*Oct-Dec 21*		*Jul-Sept 21*	
Operator/Indicator	***On-net***	***Off-net***	***On-net***	***Off-net***
Total	**1.7**	**1.2**	**1.8**	**1.0**
Safaricom PLC	1.5	1.1	1.6	1.0
Airtel networks Limited	2.7	1.0	2.6	1.0
Telkom Kenya Limited	1.8	1.5	1.8	1.5
Equitel	2.6	1.1	2.6	1.3
Jamii Telecommunications Limited	0.1	1.2	0.1	1.3

Source: CA, Operators' Returns

1.1.6 Mobile SMS Traffic

The volume of total SMS sent during the quarter increased marginally by 0.1% to 9.708 billion messages from 9.699 billion recorded in quarter one. On-net messages dropped by 0.5% whereas off net grew by 5.7%. The drop in on-net SMS traffic and the minimal increase in off net SMS is attributed to continued preference of OTT services over SMS coupled with reduced number of SMS promotions and special offers as shown in figure 4.

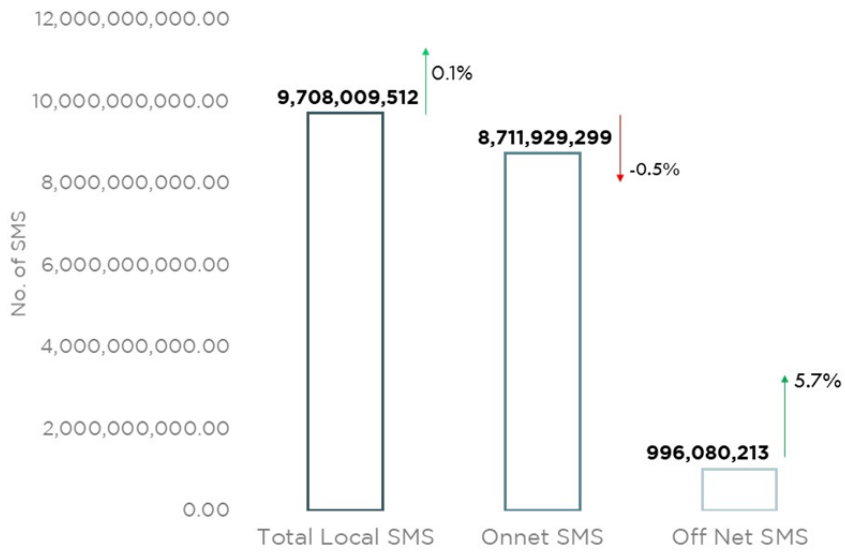


Figure 4: Domestic SMS Traffic

1.1.7 Voice and SMS Traffic per Operator

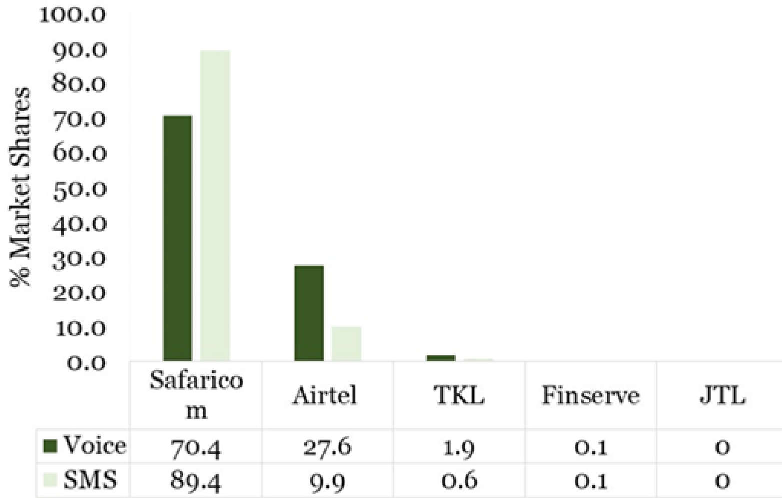
The trends in domestic voice and SMS traffic per operator are shown in Table 6.

Table 6: Domestic Mobile Traffic

Period		***Name of Operator /Indicator***	***Safaricom PLC***	***Airtel Networks Kenya Limited***	***Telkom Kenya Limited***	***Equitel***	***Jamii Telecom municati ons Ltd***	***Total***
Oct-Dec 21	***Voice***	***On-net***	13,724,086,806	4,202,735,253	210,067,962	2,469,007	31,612	**18,139,390,640**
		Off-net	779,409,424	1,490,007,384	175,401,788	23,260,583	1,349,637	**2,469,428,816**
		Total	**14,503,496,230**	**5,692,742,637**	**385,469,750**	**25,729,590**	**1,381,249**	**20,608,819,456**
	SMS	*On-net*	8,241,041,391	462,762,732	5,689,019	2,417,628	18,529	**8,711,929,299**
		Off-net	440,933,157	498,987,746	50,005,687	5,850,315	303,308	**996,080,213**
		Total	**8,681,974,548**	**961,750,478**	**55,694,706**	**8,267,943**	**321,837**	**9,708,009,512**

Source: CA, Operators' Returns

1.1.8 Market shares in Domestic Mobile Traffic

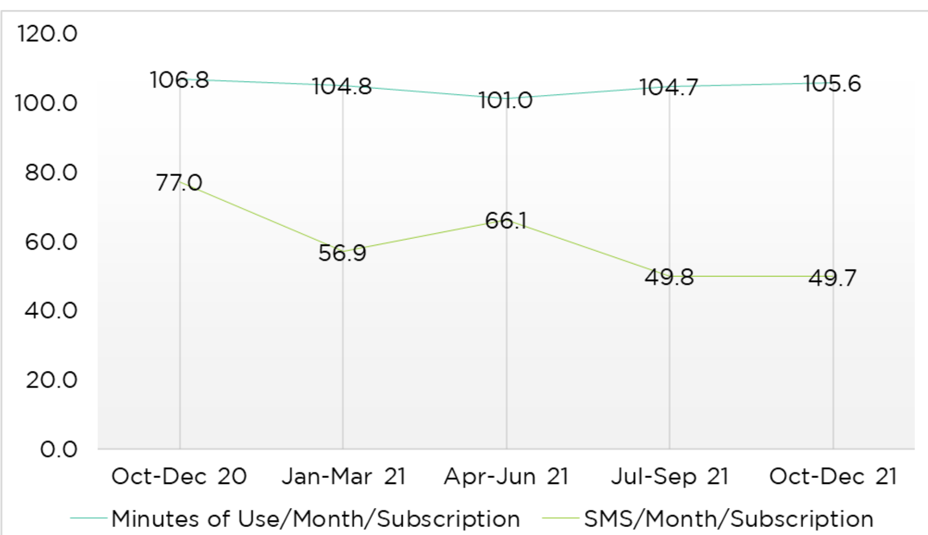


During the Second Quarter of the FY 2021/22, Safaricom PLC recorded the highest market shares in domestic voice and SMS traffic at 70.4% and 89.4% respectively. Jamii Telecommunications recorded the least market shares both at 0.0%

Figure 5: Market Shares in Domestic Mobile Voice and SMS

1.1.9 Minutes/Month/Subscription vs SMS/Month/Subscription

The number of minutes of use per month per subscription increased marginally from 104.7 reported last quarter to 105.6 minutes during the reference period. In contrast, the number of messages sent per month per subscription continued on a downward trend and dropped from 49.8 to 49.7 messages.



Source: CA, Operators' Returns

Figure 6: MoU/Month/Month vs SMS/Month/Subscription

1.1.10 International Mobile Traffic

During the quarter under review, international mobile voice traffic, both outgoing and incoming, recorded a growth of 26.5% and 4.6% respectively which may be attributed to the festive season (Christmas and New Year).

Table 7: International Mobile Traffic

Indicator/Period	*Region*	*Oct-Dec 21*	*Jul-Sept 21*	*Quarterly Variation (%)*
International Incoming Mobile Voice Minutes	*EAC*	72,847,409	69,618,395	4.6
	Others	51,025,353	48,768,913	4.6
	Total	**123,872,762**	**118,387,308**	**4.6**
International Outgoing Mobile Voice Minutes	*EAC*	81,854,628	68,837,337	18.9
	Others	76,495,464	56,368,517	35.7
	Total	**158,350,092**	**125,205,854**	**26.5**
International Incoming Mobile SMS		8,450,242	8,342,976	1.3
International Outgoing Mobile SMS		5,126,004	5,149,482	-0.5

Source: CA, Operators' Returns

1.1.11 Roaming Traffic

During reference period, there was more roaming activity especially in mobile voice across the EAC region as compared to the rest of the world. This is mainly attributed the existing One Nertwork Area (ONA) agreement that allows member countries to roam at a standard lower fee.

The trends in outbound and inbound roaming traffic are as shown in Tables 8 and 9 below.

Table 8: Outbound Roaming Traffic

Country / Indicator	**Incoming Voice (Minutes)**	**Incoming SMS**	**Outgoing Voice (Minutes)**	**Outgoing SMS**	**Data Volumes (MB)**
Uganda	105,638,717	401,968	5,052,233	4,020,069	22,198,907
Tanzania	380,353	11,370,161	585,233	1,542,160	3,859,062
Rwanda	5,768,415	105	464,566	315,279	1,355,067
Burundi	5,802	370,522	3,215	26,902	13,321
S. Sudan	4,355,380	562,747	1,197,536	1,077,307	195,602
EAC Total	**116,148,667**	**12,705,503**	**7,302,773**	**6,981,717**	**27,621,959**
Others	2,768,311	24,746,830	6,009,167	12,047,972	26,395,080
Total	**118,916,978**	**37,452,333**	**13,311,940**	**19,029,689**	**54,017,039**

Source: CA, Operators' Returns

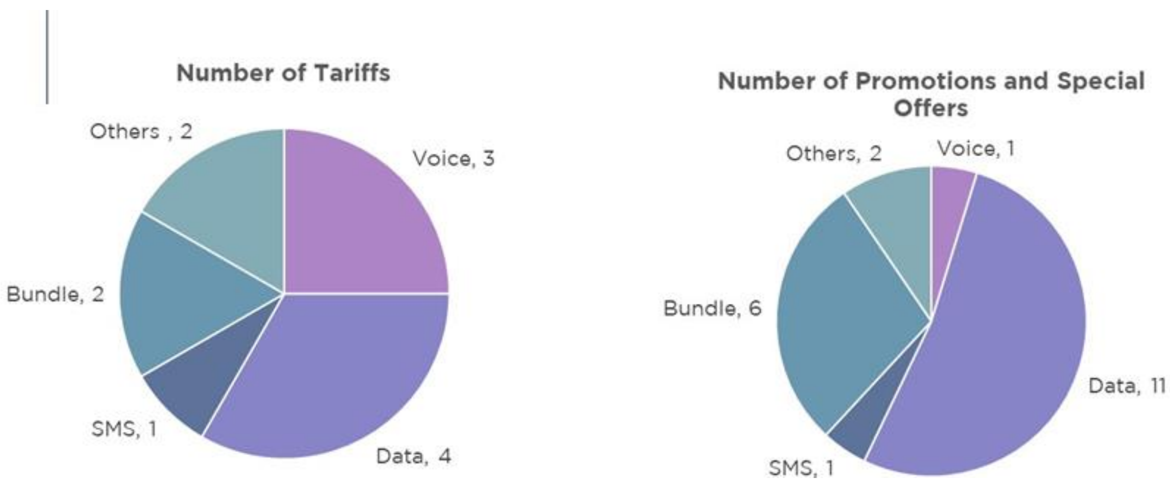
Table 9: In-bound Roaming Traffic

Country / Indicator	Incoming Voice (Minutes)	Incoming SMS	Outgoing Voice (Minutes)	Outgoing SMS	Data Volumes (MB)
Uganda	25,788,207	3,874,575	1,041,046	161,553	1,617,271
Tanzania	88,582	8,991,315	85,823	107,992	759,386
Rwanda	7,361,347	1,279,821	176,495	21,424	472,131
Burundi	805	11,660	888	3,848	77
S. Sudan	5,395,551	642,041	95,417	32,441	548,786
EAC Total	**38,634,492**	**14,799,412**	**1,399,669**	**327,258**	**3,397,651**
Others	1,100,838	13,660,155	2,147,229	1,028,950	87,613,259
Total	**39,735,330**	**28,459,567**	**3,546,898**	**1,356,208**	**91,010,910**

Source: CA, Operators' Returns

1.1.12 Tariffs, Promotions and Special Offers

The number of approved applications for promotions and special offers and tariffs offered by operators during the referenced period is as shown in Figure 7. The category on "Others"[2] refers to promotions that cannot be clearly attributed to any particular service or bundle of services; neither can they be attributed to a lucky draw.



Source: CA, filed tariffs, promotions and special offers

Figure 7: Distribution of Tariffs, Promotions and Special Offers

[2] Other" refers to promotions that cannot be clearly attributed to any particular service or bundle of services, neither can they be attributed to a lucky draw

1.2 FIXED TELEPHONE SERVICE

1.2.1 Fixed Telephone Subscriptions

During the reference period, fixed telephone subscriptions continued to dwindle as consumer's preference shifted to mobile services. Mobile networks provide a range of services such as mobile data, mobile money, mobile banking and mobile content that are key drivers for attraction to the service, ultimately increasing growth in customer base and traffic.

Table 10: Fixed Voice Subscriptions

Subscriptions	*Dec-21*	*Sept-21*	*Quarterly Variation (%)*
Fixed Line	13,626	14,068	-3.1
Fixed Wireless	1,174	1,187	-1.1
Fixed VoIP	46,296	44,876	3.2

Source: CA, Operators' Returns

1.2.2 Domestic Fixed Voice Traffic

In the second quarter of the FY 2021/22, voice traffic from fixed networks grew marginally by 0.7% to record 5.79 million minutes. However, traffic within fixed line and fixed wireless connections declined by 21.0% and 3.2% respectively. This may be attributed to the shift in subscriber preference for mobile services over fixed voice services due to the mobility nature, increased access and availability.

Table 11 shows trends in international fixed voice network traffic.

Table 11: Domestic Fixed Voice Traffic in Minutes

Domestic Fixed Network Traffic	*Oct-Dec 21*	*Jul-Sept 21*	*Quarterly Variation (%)*
Fixed-Fixed	104,991	132,933	-21.02
Fixed Wireless-Fixed Wireless	276,125	285,129	-3.16
Fixed to Mobile	5,410,365	5,334,783	1.42
Total Local Fixed Network Traffic	**5,791,481**	**5,752,845**	**0.67**

Source: CA, Operators' Returns

1.2.3 International Fixed Voice Traffic

During the period under review, international Incoming fixed voice and outgoing fixed VoIP recorded a downward trend whereas outgoing fixed voice traffic maintained an upward trend as shown in Table 12.

Table 12 shows trends in international fixed voice network traffic.

Table 12: International Fixed Voice Traffic

Indicator/Period	*Oct-Dec 21*	*Jul-Sept 21*	*Quarterly Variation (%)*
International Incoming Fixed Network Voice traffic	3,618,079	3,739,757	-3.3
International Outgoing Fixed Network Voice traffic	1,442,581	1,382,510	4.3
International Outgoing Fixed VoIP traffic	581,995	602,079	-3.3

Source: CA, Operators' Returns

2. DATA/INTERNET AND BROADBAND SERVICES

During the second quarter of the current financial year, data/Internet and broadband subscriptions stood at 46.35 million and 29.15 million respectively.

Table 13: Data and Broadband Subscriptions

Indicator/Period	*Oct-Dec 21*	*Jul-Sept 21*	*Quarterly Variation (%)*
Total Data/Internet subscriptions	46,355,022	45,646,906	1.6
Total Broadband subscriptions	29,149,638	27,658,086	5.4

2.1 Mobile Broadband Subscriptions (3G[3] and 4G[4])

During the reference period, the total mobile broadband subscriptions stood at 28.36 million. The number of mobile broadband subscriptions by technology and the respective data volumes consumed in GB is as show in figure 8.

[3] **Active 3G mobile-broadband subscriptions** refer to the sum of active handset based and computer-based (USB/dongles) SIM Cards that have generated the highest broadband traffic through 3G technologies. It covers actual subscriptions, not potential subscribers, even though the latter may have broadband-enabled handsets. If a subscriber has accessed the Internet through 3G and 4G, the technology where the subscriber has generated the highest traffic will be the one to be counted.

[4] **Active 4G mobile-broadband subscriptions** refers to the sum of active handset based and computer-based (USB/dongles) SIM Cards that have generated the highest broadband traffic through 4G technology.

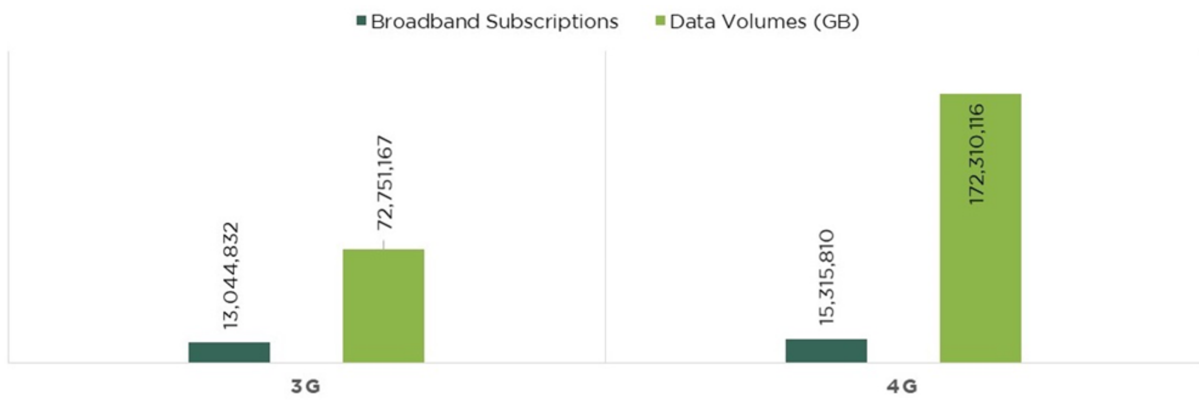


Figure 8: Mobile Broadband Subscriptions

2.2 Fixed Data/Internet and Broadband Subscriptions

In the second quarter, a majority of fixed data subscribers were on data speeds between 2Mbps and 10Mbps that was similar to the previous quarter. Further, fiber to home and fiber to office (FTTH/O) recorded the highest number of subscriptions.

Table 14 shows the breakdown of fixed data/internet subscriptions by speed and technology.

Table 14: Fixed Data and Broadband Subscriptions

Internet Technology/Speeds	*<256Kbps*	*=>256Kbps < 2Mbps*	*=>2 Mbps <10 Mbps*	*=>10Mbps <30 Mbps*	*=>30 Mbps <100Mbps*	*=>100 Mbps*	*Totals*
Cable Modem	-	-	85,794	88,436	18,945	634	**193,809**
Copper (DSL)	22	31	703	145	-	-	**901**
FTTH/O	2	5,327	205,373	146,201	117,312	3,747	**477,962**
Fixed Wireless	9,236	7,246	105,047	2,212	280	93	**124,114**
Satellite	35	339	359	127	-	-	**860**
Other Fixed	-	84	285	159	67	50	**645**
Totals	**9,295**	**13,027**	**397,561**	**237,280**	**136,604**	**4,524**	**798,291**

Source: CA, Operators' Returns.

2.2.1 Fixed Data Subscriptions by Operator

In Q2, Safaricom PLC recorded the highest market shares in fixed data subscriptions at 36.8% followed by Wananchi Group at 28.7%.

Table 15: Fixed Data Subscriptions by Operator

Name of service Provider	*Number of data/internet subscriptions*	*Percentage Market share (%)*
Safaricom PLC	293,964	36.8
Wananchi Group (Kenya) Ltd*	229,126	28.7
Jamii Telecommunications Ltd	157,112	19.7
Poa Internet Kenya Ltd	71,515	9.0
Liquid Telecommunications Kenya Limited	14,517	1.8
Mawingu Networks Ltd	11,470	1.4
Dimension Data Solutions East Africa Limited	11,124	1.4
Telkom Kenya Ltd	4,454	0.6
Truth Wireless Limited	600	0.1
Other Fixed Service providers	4,409	0.6

Source: CA Operators' Returns, * includes Wananchi Group, Wananchi Telecom, ISAT and Simbanet.

2.3 International Bandwidth

During the reference period, Telkom Kenya under its EASSY and Lion2 cables lit more capacity in order to meet the growing market demand. The data for DARE 1 under Telkom Kenya is also included during the review period.

Table 16: International Internet Bandwidth (Gbps)

<table>
<tr><th>Indicator/ Operator</th><th colspan="3">Oct-Dec 21</th><th colspan="3">Jul-Sept 21</th><th>Quarterly Variation (%)</th></tr>
<tr><td>Total Available (Lit/Equip) Bandwidth Capacity</td><td colspan="3">10,891.53</td><td colspan="3">10,258.68</td><td>3.6</td></tr>
<tr><td rowspan="5">Undersea Bandwidth Capacity</td><td colspan="2">SEACOM</td><td>3,920.000</td><td colspan="2">SEACOM</td><td>3,920.000</td><td>0.0</td></tr>
<tr><td colspan="2">TEAMS</td><td>1,618.000</td><td colspan="2">TEAMS</td><td>1,618.000</td><td>0.0</td></tr>
<tr><td rowspan="3">Telkom Kenya</td><td>EASSY</td><td>4,431.00</td><td rowspan="2">Telkom Kenya</td><td>EASSY</td><td>4,080.000</td><td>8.6</td></tr>
<tr><td>Lion 2</td><td>657.20</td><td>Lion 2</td><td>635.350</td><td>3.4</td></tr>
<tr><td>DARE 1</td><td>260.00</td><td colspan="3">_</td><td>_</td></tr>
<tr><td>Satellite Bandwidth Capacity</td><td colspan="3">5.33</td><td colspan="3">5.33</td><td>0.0</td></tr>
<tr><td colspan="8">Total Utilized Bandwidth Capacity</td></tr>
<tr><td>Undersea Bandwidth Capacity*</td><td>Sold In Kenya</td><td colspan="2">Sold in other Countries</td><td colspan="2">Sold In Kenya</td><td>Sold in other Countries</td><td></td></tr>
<tr><td></td><td>2,938.61</td><td colspan="2">1,875.82</td><td colspan="2">2,927.79</td><td>1,856.82</td><td>0.6</td></tr>
<tr><td>Satellite Internet Capacity</td><td colspan="3">2.56</td><td colspan="3">2.56</td><td>0.0</td></tr>
</table>

Source: CA, Operators' Returns, * Total Utilized Undersea bandwidth Capacity excludes data from DARE 1

3 COURIER SEVICES

During the period October to December 2021, the number of letters sent grew by 26.6% to stand at 312,172. Similarly, the volume of courier items sent out locally increased by 19.0% owing to gift exchanges during the festive season.

Table 17: Courier Items

Indicator/Period	*Oct- Dec 21*	*Jul -Sep 21*	*Quarterly Variation (%)*
Outgoing Local Letters	312,172	246,509	26.6
Outgoing Local Courier Items	1,139,909	957,950	19.0
International Outgoing Letters	348,418	344,835	1.0
International Incoming Letters	99,827	83,132	20.1

Data excludes Postal Corporation of Kenya (PCK)

4 BROADCASTING SERVICES

The Authority in its mandate to promote and facilitate the development of a diverse range of broadcasting services in Kenya, while stimulating a competitive ICT market, issues licenses to additional operators and service providers. During the quarter under review, a total of 26 licenses were issued to broadcasting service providers for radio and television broadcasting services as shown in Table 18. At the same time, percentage DTT coverage increased from 91.21% to 91.28%.

Table 18: New Licenses Issued

LICENSE TYPE	*Oct-Dec 21*	*Jul-Sept 21*	*Quarterly Variation (%)*
Commercial Free to Air Television	13	19	-31.6
Commercial FM Radio	8	8	0.0
Community FM Radio	5	2	150.0
Community Free to Air Television	0	1	-100.0
Landing Rights Authorization	0	1	-100.0
Total	**26**	**31**	**-16.1**

4.1 Television and FM Radio Stations on Air

The number of Television and FM Radio stations that were on air by 31st December 2021 is shown in Table 19.

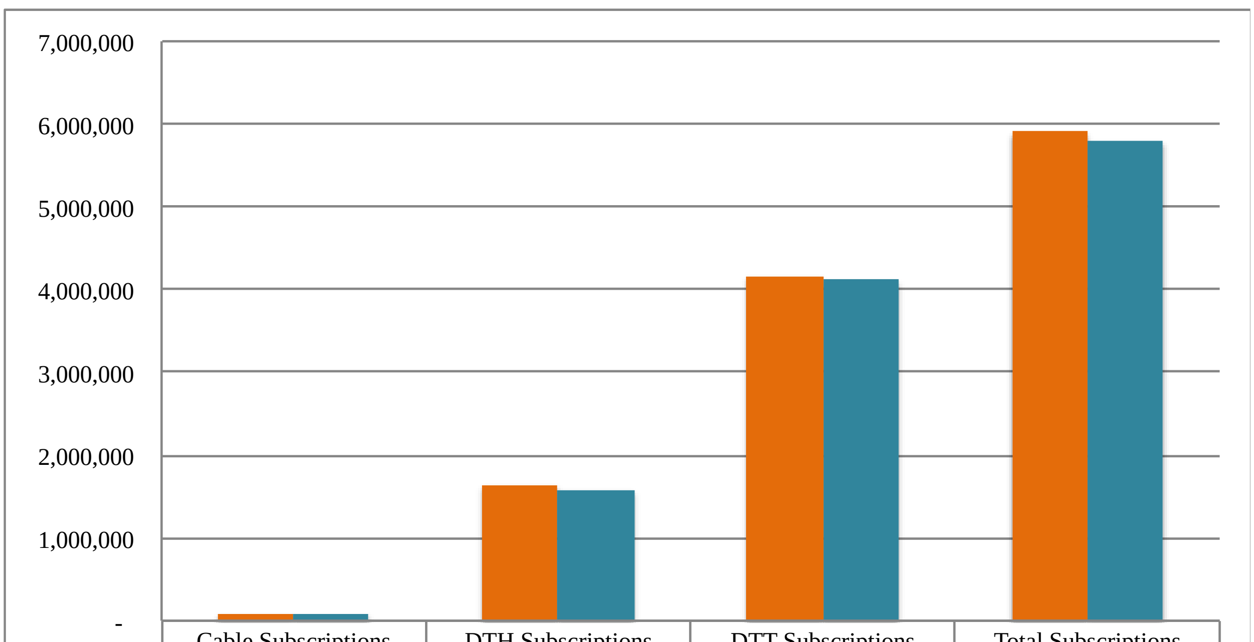
Table 19: Broadcasting Services

Indicator/Period		*Oct-Dec 21*	*Jul-Sept 21*	*Quarterly Variation (%)*
FTA TV	Commercial FTA TV Stations	130	130	0.0
	Community FTA TV Stations	4	4	0.0
	Public FTA TV Stations	3	3	0.0
FM RADIO	Commercial FM Radio Stations	131	131	0.0
	Community FM Radio Stations	42	42	0.0
	Public FM Radio Stations	13	13	0.0

4.2 Subscription to Broadcasting Services

During the reference period, subscriptions to broadcasting services grew to 5.90 million from 5.79 million reported during the previous quarter representing a growth of 1.9%.

Digital Terrestrial Television (DTT) broadcasting service remains the most common way of accessing television services in the country and this could be attributed to the affordability of the service with the minimum bouquet costing just below Kes. 500 per month and the most expensive just below Kes. 2000. On the other hand, television delivery through cable medium remained the least common accounting for only 2% of the total subscriptions and this could be attributed to the relatively high cost of setting up the infrastructure.



	Cable Subscriptions	DTH Subscriptions	DTT Subscriptions	Total Subscriptions
Dec-21	88,616	1,645,525	4,169,601	5,903,742
Sep-21	87,250	1,589,614	4,116,528	5,793,392

Figure 9: Broadcasting Subscriptions

5 FREQUENCY SPECTRUM MANAGEMENT

To facilitate uptake of radio communication services, the Authority assigned frequencies to various operators for deployment of 237 microwave links and processed the decommissioning of 9 fixed links during the period under review. In addition, the Authority assigned 24 FM sound broadcasting frequencies to broadcasters.

Table 20: Frequency Spectrum Management

Indicator/Period	*Q2 (Oct-Dec 2021)*	*Q1 (Jul-Sept 2021)*	*Quarterly Variation (%)*
Microwave links Deployed	237	240	-1.3
Fixed Links Decommissioned	9	364	-97.6
FM Sound Broadcasting Frequencies Assigned	24	12	100.0

6 ELECTRONIC TRANSACTIONS AND CYBER SPACE MANAGEMENT

6.1 Registered Domain Names

As at 31st December 2021, *dot ke (.KE)* domains stood at 94,526. The. CO.KE domain continued to be the most preferred sub-domain accounting for 90.5% of users.

Table 21 illustrates the various sub-domains and their respective user as at 31st December 2021.

Table 21: .KE Domains

SUB-DOMAIN	*USER*	*Dec-21*	
		Domains	**% Users**
CO.KE	Companies	85,536	90.5
OR.KE	Non-Profit-Making Organizations	1,895	2.0
AC.KE	Institutions of Higher Education	1,026	1.1
SC.KE	Lower and Middle Level Institutions	1,002	1.1
NE.KE	Personal Websites and E-mail	48	0.1
ME.KE	Personal Websites and E-mail	298	0.4
MOBI.KE	Mobile Content	38	0.0
INFO.KE	Information	144	0.2
GO.KE	Government Institutions	615	0.6
. KE	Second level	3,924	4.1
Total		**94,526**	

Source: CA, Operators' Returns.

6.2 National Cyber Space Landscape

During the reference period, the cyber threat events detected dropped by 9.81% whereas cyber threat advisories recorded a significant increase of 3,988.04%. This is attributed to the recent expansion and upgrading of the National KE-CIRT system.

Table 22: Cyber Threats Detected

Cyber Threat	*Oct-Dec 21*	*Jul-Sept 21*	*Quarterly Variation (%)*
Malware	66,765,638	70,501,144	-5.30
DDOS/Botnet	28,128,957	49,816,062	-43.53
Web Application Attacks	223,720	478,123	-53.21
System vulnerabilities	33,883,205	22,245,270	52.32
Totals	**129,001,520**	**143,040,599**	**-9.81**

Source: National KE-CIRT/CC

Table 23: Cyber Threat Advisories

Cyber Threat Advisories	*Oct-Dec 21*	*Jul-Sept 21*	***Quarterly Variation (%)***
Malware	63,165	17,896	253.0
Botnet	35,675	3,300	981.1
Web Application Attacks	27,415	603	4446.4
System Vulnerabilities	2,892,290	51,779	5485.8
Others	510	273	86.8
Totals	**3,019,055**	**73,851**	3988.0

7 CONCLUSION

The data driven digital economy in Kenya is rapidly growing and evolving as a result of expansions in mobile broadband networks such as 3G and 4G. As at the end of 2021, at least 94% of the Kenyan population was covered by 4G-network. Noting that connection to fixed broadband and computer use is less spread in the country, smartphones are playing a key role in Internet access and data transfer.

Further, the ICT sector has experienced robust growth as a result of the COVID-19 pandemic that pushed consumers to adopt online ways of conducting business and mobile money payments as safer modes of accessing and paying for goods and services. The other key drivers include increased demand for video calls, social networking, gaming and video on demand.