FOURTH QUARTER SECTOR STATISTICS REPORT FOR THE FINANCIAL YEAR 2020/21
(APRIL-JUNE 2021)

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LIST OF ACRONYMS

B2B Business to Business
B2C Business to Customer
C2B Customer to Business
C2G Citizen to Government
DoS Denial-of-Service
EASSy Eastern Africa Submarine Cable Systems
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
OTT Over-The-Top
P2P Person to Person
SEACOM Sea Sub-Marine Communications Limited
SIM Subscriber Identification Module
SMS Short Messaging Service
TEAMS -The East African Marine System

PRELIMINARY NOTES

- This report is based on data provided by the service providers in the ICT sector as per their license conditions.
- The information provided in this report is subject to review in case of any revisions or updates from the service providers.
- The Authority has published a manual on definitions and methodologies of collecting and reporting Telecommunication indicators with service providers and the public for purposes of common understanding of ICT indicators. The manual was developed in consultation with the International Telecommunications Union (ITU) in line with international standards. The Manual is available on CA website https://ca.go.ke/wp-content/uploads/2020/03/ICT-Indicators-Manual-2019-.pdf

REPORT SUMMARY

The Sector Statistics Report for the Fourth Quarter of the 2020/21 Financial Year provides an overview of the performance and trends in the ICT sector for the period 1st April to 30th June 2021 in the following service categories:

- Mobile Telephony Services
- Fixed Telephony Services
- Data/Internet Services
- Cyber Security Landscape
- Broadcasting Services
- Frequency Spectrum Management

SUMMARY OF KEY COMMUNICATIONS INDICATORS

INDICATORS	Apr-Jun 2021	Jan-Mar 2021	% Change Q4 to Q3
	Q4	Q3	
Mobile Subscriptions (Millions)	64.4	62.0	3.9
Fixed Line Subscriptions	14,691	14,446	1.7
Fixed Wireless Subscriptions	1,144	1,117	2.4
Fixed VoIP Subscriptions	42,162	44,222	-4.7
MOBILE MONEY TRANSFER SERVICES			
Number of Registered Mobile Money Agents	283,357	275,907	2.7
Number of Active Registered Mobile Money Subscriptions (Millions)	34.7	33.1	4.8
Value of C2B Transfers in KES (Billions)	998.02	1,083.84	-7.6
Value of B2C Transfers in KES (Billions)	721.92	664.67	8.6
Value of B2B Transfers in KES (Billions)	1,708.52	1,773.66	-3.7
Value of G2C Transfers in KES (Billions)	2.67	3.36	-20.5
Value of C2G Transfers in KES (Billions)	11.58	12.14	-4.6
Number of P2P Transfers (Millions)	838.26	787.76	6.4
Value of P2P Transfers in KES (Billions)	1,010.53	970.97	4.1
Total value of Deposits in KES (Billions)	1,018.04	1,213.40	-16.1
VOICE TRAFFIC IN MINUTES			
Mobile On-Net Voice Traffic (Billions)	17.06	17.21	-0.9
Mobile Off-Net Voice Traffic (Billions)	2.44	2.26	8.0
Mobile Network to Fixed Network (Million)	16.14	15.28	5.6
International Incoming Mobile Voice Traffic (Millions)	116.9	112.06	4.3
International Outgoing Mobile Voice Traffic (Millions)	135.88	125.10	8.6
Out-bound Roaming Incoming Voice Traffic (Minutes) (Millions)	101.52	91.96	10.4
Out-bound Roaming Outgoing Voice Traffic (Minutes) (Millions)	31.65	12.64	150.4
In-bound Roaming Incoming Voice Traffic (Minutes) (Millions)	39.55	45.23	-12.6
In-bound Roaming Outgoing Voice Traffic (Minutes) (Millions)	23.72	3.79	525.9
Total Local Fixed network traffic (Millions)	5.44	5.54	-1.8

MOBILE SMS TRAFFIC			
SMS On-Net (Billions)	11.57	9.65	19.9
SMS Off-Net (Billions)	1.2	0.92	30.4
International Incoming SMS (Millions)	10.9	8.36	30.4
International Outgoing SMS (Millions)	8.33	9.35	-10.9
Out-bound Roaming Incoming SMS (Millions)	13.14	29.71	-55.8
Out-bound Roaming Outgoing SMS (Millions)	16.27	14.89	9.3
In-bound Roaming Incoming SMS (Millions)	2.7	28.20	-90.4
In-bound Roaming Outgoing SMS (Millions)	1.43	1.61	-11.2
DATA/INTERNET SERVICES			
Data/ Internet Total Subscriptions (Millions)	46.74	43.74	6.9
Total Broadband Subscriptions	27.48	25.77	6.6
Total Available International Bandwidth (Gbps)	10,217.46	9,820.46	4.0
Total Used International Bandwidth (Gbps)	4,575.16	4,299.26	6.4
CYBER SECURITY			
Total Cyber Threats Detected (Millions)	38.78	28.25	37.3
Total Cyber Threat Advisories	25,969	25,506	1.8
Total Investigation Category	529	298	77.5
BROARCASTING SERVICES			
FTA TV Stations on Air	130	130	0.0
Broadcasting Subscriptions (Millions)	5.66	5.54	2.3
Total Population in Kenya (Millions)*	48.7	47.6	2.3

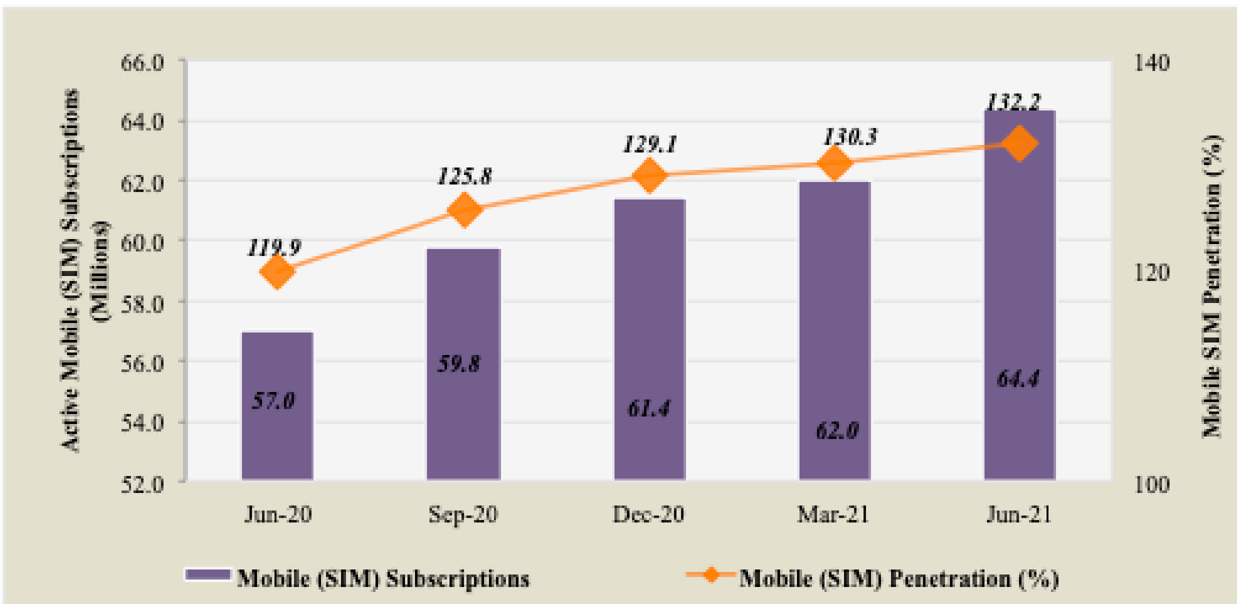
Source: Economic survey 2021

1 CELLULAR MOBILE SERVICES

1.1 Mobile Subscriptions

As at 30th June 2021, the number of active mobile subscriptions (SIM cards) stood at 64.4 million up from 62.0 million posted as at 31st March 2021. This translated to mobile (SIM) penetration of 132.2 percent representing a growth of 1.5 percent when compared to the preceding quarter.

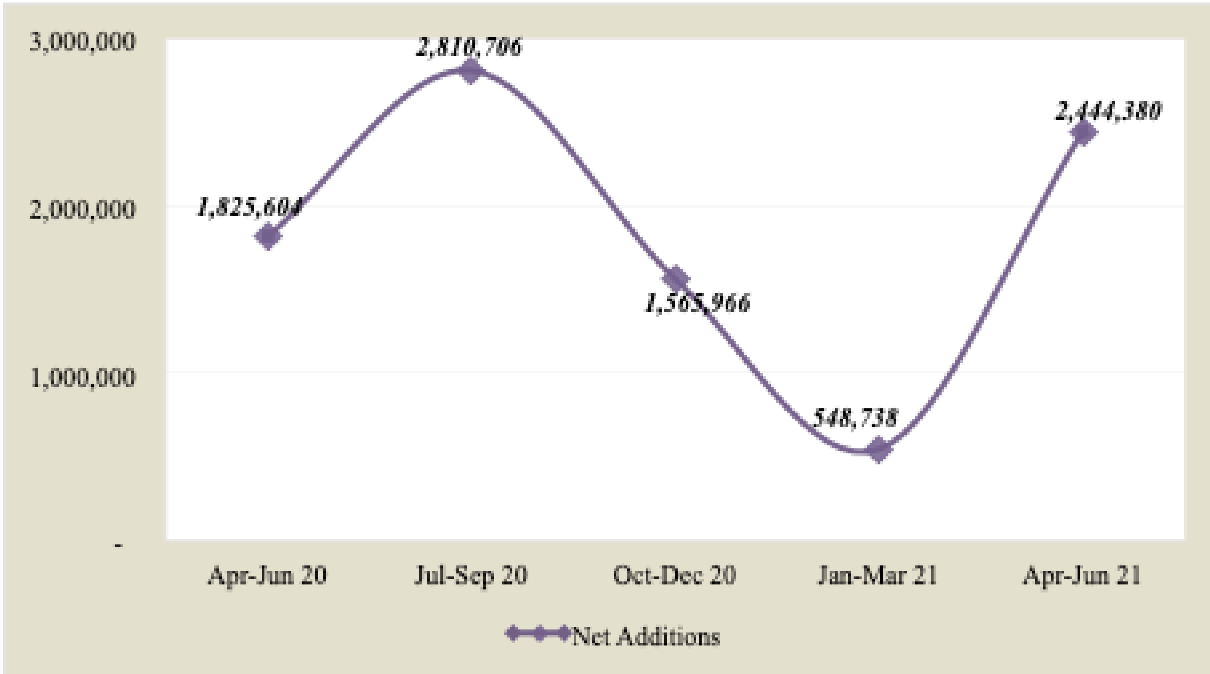
Figure 1 illustrates the trends in mobile subscriptions and penetration levels.



Source: CA, Operators' Returns.

Figure 1:Mobile Subscriptions and Penetration

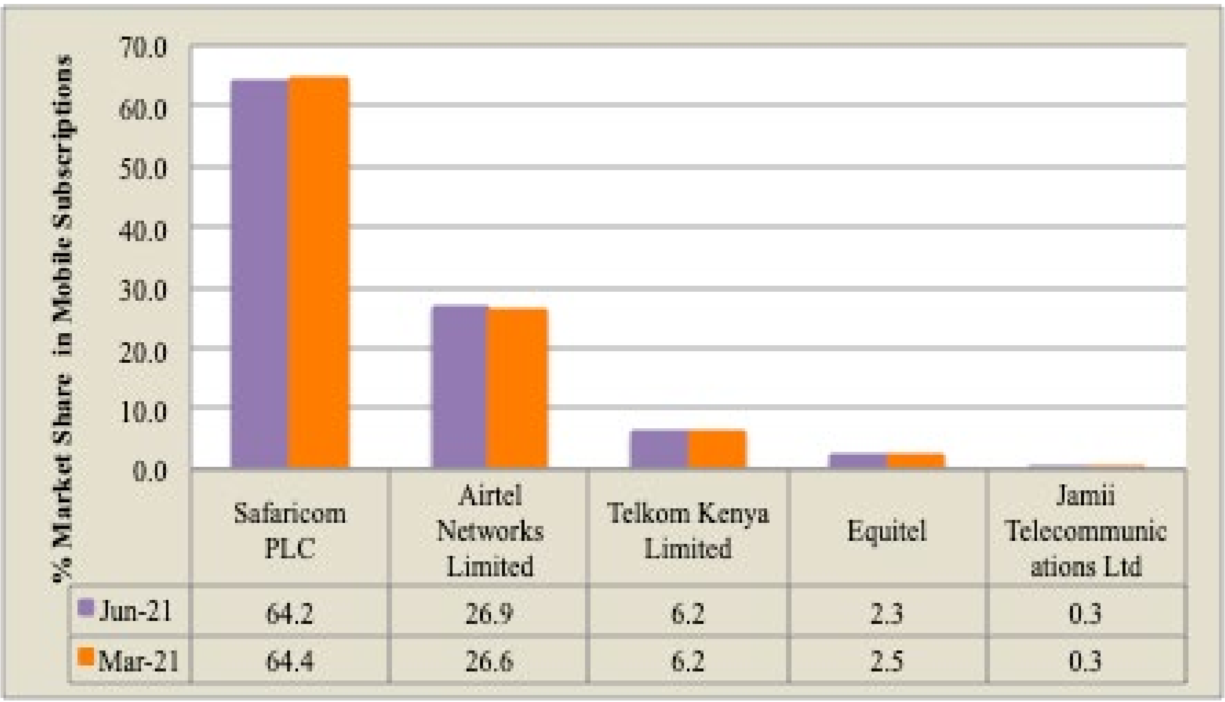
As illustrated in Figure 2, there were 2.4 million net additions in mobile subscriptions during the period under review. The significant growth is attributed to a Promotion dubbed '*Welcome to Safaricom 4G'* which ran from 12th Mar to 9th Jun 2021 where the operator targeted consumers to subscribe to their network for the first time by purchasing a 4G SIM card and a 4G phone with the benefit of 2GB data bundles every month during the promotion period. The period also coincided with closure of primary and secondary schools that contributed to re-activation of SIM cards by school going children.



Source: CA, Operators' Returns.

Figure 2: Net Additions

As illustrated in Figure 3, Safaricom PLC lost 0.2 percentage points in market shares during the reference period to record 64.2 percent shares in mobile subscriptions. Airtel Networks Ltd gained 0.3 percentage points to register 26.9 percent whereas Equitel registered a drop of 0.2 percentage points to post 2.3 percent market shares. Telkom Kenya Ltd and Jamii Telecommunications limited market shares remain unchanged at 6.2 percent and 0.3 percent respectively.



Source: CA, Operators' Returns.

Figure 3: Market Shares in Mobile Subscriptions per Operator

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	***Jun-21***			***Mar-21***			***Quarterly Variation (%)***
	Pre-paid	**Post-paid**	**Total**	**Pre-paid**	**Post-paid**	**Total**	
Total Mobile Subscriptions	**63,140,034**	**1,261,988**	**64,402,022**	**60,713,225**	**1,244,417**	**61,957,642**	**3.9**
Safaricom PLC	40,242,938	1,130,200	41,373,138	38,798,116	1,103,853	**39,901,969**	3.7
Airtel Networks Limited	17,241,086	86,204	17,327,290	16,392,065	95,091	**16,487,156**	5.1
Telkom Kenya Limited	3,964,174	45,584	4,009,758	3,798,970	45,473	**3,844,443**	4.3
Equitel	1,495,535	-	1,495,535	1,546,009	-	**1,546,009**	-3.3
Jamii Telecommunications Limited	196,301	**-**	196,301	178,065	-	**178,065**	10.2

Source: CA, Operators' Returns.

1.2 Mobile Money Services

Business digitization has led to increased adoption of mobile money services. During the period under review, the total number of active registered mobile money subscriptions rose by 4.7 percent to stand at 34.7 million. Similarly, the number of agents grew to 283,357 from 275,907 recorded during the previous quarter.

The year-on-year comparison showed a significant growth in mobile money transfer services, mainly attributed to the increased uptake of digital payments by consumers in an effort to contain the spread of COVID-19.

Table 2 shows the trends in mobile money indicators.

Table 2:Mobile Money Transfer Services

Mobile Money Indicator/Period	*Jun-21*	*Mar-21*	*Quarterly Variation (%)*	*FY 2020/21*
Agents	283,357	275,907	2.7	283,357
Active Registered Mobile Money Subscriptions	34,664,707	33,101,996	4.7	34,664,707
Value of C2B Transfers in KES	988,018,815,400	1,083,836,720,258	-8.8	3,791,536,215,006
Value of B2C Transfers in KES	721,923,115,562	664,671,196,737	8.6	2,566,183,882,667
Value of B2B Transfers in KES	1,708,523,490,893	1,773,659,201,982	-3.7	6,522,771,772,111
Value of G2C Transfers in KES	2,671,076,965	3,356,262,437	-20.4	20,667,834,656
Value of C2G Transfers in KES	11,576,180,527	12,139,387,418	-4.6	49,256,678,764
Volume of P2P Transfers	838,263,623	787,758,859	6.4	3,211,445,138
Value of P2PTransfers in KES	1,010,533,046,147	970,970,044,365	4.1	3,909,818,784,410
Total value of Deposits in KES	1,018,040,156,765	1,213,400,394,387	-16.1	4,220,689,043,350

Source: CA, Operators' Returns.

Table 3 shows the mobile money transfer services per operator.

Table 3: Mobile Money Transfer Services Per Operator

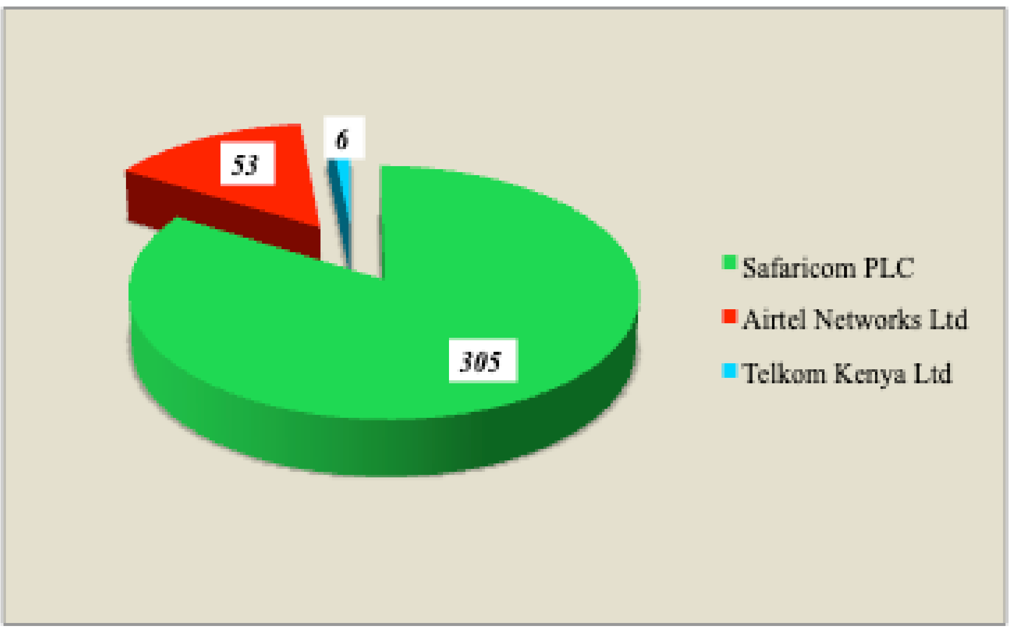
Mobile Money Brand/Indicator	*M-Pesa*	*Airtel Money*	*T-Kash*	*Total*
Agents	283,357	21,277	7,768	**283,357**
Active Registered Mobile Money Subscriptions	34,270,393	272,570	121,744	**34,664,707**
Value of C2B Transfers in KES	986,710,532,672	1,266,996,462	41,286,266	**988,018,815,400**
Value of B2C Transfers in KES	712,526,412,270	305,537,050	91,165,742	**721,923,115,562**
Value of B2B Transfers in KES	1,708,523,490,893	-	-	**1,708,523,490,893**

Value of G2C Transfers in KES	2,671,076,965	-	-	**2,671,076,965**
Value of C2GTransfers in KES	11,562,030,114	14,126,923	23,490	**11,576,180,527**
Volume of P2P Transfers	837,794,076	234,752	234,795	**838,263,623**
Value of P2PTransfers in Kshs.	1,010,047,308,421	341,953,149	143,784,577	**1,010,533,046,147**
Total value of Deposits in Kshs	1,016,001,168,478	1,944,025,513	94,962,774	**1,018,040,156,765**

Source: CA, Operators' Returns.

1.3 Mobile Number Portability

As shown in Figure 4, a total 364 mobile numbers were ported compared to 388 in-ports reported in the preceding quarter. Safaricom PLC registered the highest number of mobile in-ports at 305.



Source: CA, Operators' Returns

Figure 4: Mobile Number Portability

The trends in mobile number portability for the last two quarters and two Financial Years are outlined in Table 4.

Table 4:Mobile Number Portability

Period	*Apr-Jun 21*	*Jan-Mar 21*	*Quarterly Variation (%)*	*FY 2020/21*	*FY 2019/20*	*Annual Variation (%)*
Number of in-ports	364	388	-6.2	1,670	1,057	58.0

Source: CA, Operators' Returns

1.4 Mobile Traffic and Usage Pattern

1.4.1 Local Voice Traffic

The total local mobile voice traffic rose to 19.51 billion minutes from 19.48 billion minutes reported between January and March 2021. Similarly, mobile voce traffic increased by 21.2 percent to post 76.8 billion minutes during the 2020/21 financial year from 63.4 billion minutes posted in 2019/20. During the 2020/21 Financial Year, the government reduced VAT on telecommunication services from 16 percent to 14 percent that resulted in a decrease in mobile tariffs hence increased use and uptake of local mobile voice services by consumers.

The volume of on-net mobile voice traffic dropped by 0.9 percent during the quarter under review to post 17.1 billion minutes from 17.2 billion minutes recorded during the preceding period. On the contrary, off-net mobile voice traffic and mobile to fixed network voice traffic grew to 2.4 billion minutes and 16.1 million minutes respectively.

Table 5 shows a breakdown of local mobile voice traffic by terminating network.

Table 5: Local Mobile Voice Traffic in Minutes

Mobile Traffic	*Apr-Jun 21*	*Jan-Mar 21*	*Quarterly Variation (%)*	*FY2020/21*	*FY2019/20*	*Annual Variation (%)*
Total Outgoing Traffic	**19,511,724,478**	**19,482,094,546**	**0.2**	**76,826,128,093**	**63,386,342,706**	**21.2**
Own Network – Own Network	17,056,254,041	17,209,794,517	-0.9	67,542,508,332	56,273,422,806	20.0
Own Network to Other Mobile Networks	2,439,327,547	2,257,015,169	8.1	9,217,734,031	7,051,457,039	30.7
Mobile Network to Fixed Network	16,142,890	15,284,860	5.6	65,885,730	61,462,861	7.2

Source: CA, Operators' Returns

1.4.2 Voice Traffic by Operator

The volume of local voice traffic originating from Safaricom PLC dropped to 13.3 billion during the reference period from 13.8 billion minutes recorded last quarter. Subsequently, the operator's market share declined to 68.2 percent from 70.9 percent registered last quarter. The cumulative voice traffic for the FY 2020/21 increased significantly to post 52.4 billion minutes from 39.3 billion minutes recorded during the FY 2019/20. The significant growth is attributed to various promotions offered by the operators during the fiscal year.

The mobile voice traffic originating from Airtel Networks Kenya Limited rose to 5.8 billion minutes from 5.3 billion minutes posted in the preceding quarter. As a result, the operator's market shared increased by 2.6 percentage points to record 29.7 percent markets shares during the period April to June 2021.

Mobile voice traffic originating from Telkom Kenya Limited grew during the period under review to post 363.8 million minutes from 360.7 million minutes recorded in the last quarter. The operator's market share remained unchanged at 1.9 percent. On the contrary, the cumulative traffic for the financial year declined by 18.6 percent to record 1.7 billion minutes from 2.1 billion recorded during the preceding financial year.

Equitel's outgoing mobile voice traffic grew during the referenced period to post 31.0 million minutes, which was an increase of 13.2 percent from the previous period. As a result, its market share rose by 0.1 percentage point to stand at 0.2 percent. However, the total traffic for the fiscal year declined to post 110.7 million minutes from 124.0 million minutes posted in the last fiscal year.

Jamii Telecommunications Limited recorded 1.4 million minutes of mobile traffic originating from its network during the period under review up from 1.2 million minutes recorded in the third quarter. The market share for Jamii remained unchanged from preceding quarter at 0.0 percent.

Table 6 shows mobile voice traffic volumes and respective market shares by operator.

Table 6:Local Mobile Voice Traffic by Operator

Period	*Name of Operator /Indicator*	*Safaricom PLC*	*Airtel Networks Kenya Limited*	*Telkom Kenya Limited*	*Equitel*	*Jamii Telecommunications Ltd*	*Mobile pay*	*Total*
Apr-Jun 21	***On-net***	12,605,988,648	4,281,288,410	166,188,354	2,756,647	31,982	-	17,056,254,041
	Off-net	697,779,149	1,514,349,704	197,588,887	28,214,985	1,394,822	-	2,439,327,547
	Total	**13,303,767,797**	**5,795,638,114**	**363,777,241**	**30,971,632**	**1,426,805**	**-**	**19,495,581,588**
	Market share (%)	**68.2**	**29.7**	**1.9**	**0.2**	**0.0**	**-**	
Jan-Mar 21	*On-net*	13,122,842,378	3,901,965,550	182,619,152	2,338,655	28,782	-	17,209,794,517
	Off-net	670,918,080	1,381,821,924	178,095,384	25,018,872	1,160,909	-	2,257,015,169
	Total	**13,793,760,458**	**5,283,787,474**	**360,714,536**	**27,357,527**	**1,189,691**	**-**	**19,466,809,686**
	Market share (%)	**70.9**	**27.1**	**1.9**	**0.1**	**0.0**		
FY2020/21	On-net	49,763,276,293	16,859,805,950	909,573,287	9,768,245	84,557	-	67,542,508,332
	Off-net	2,683,009,548	5,638,669,984	782,460,529	100,921,087	3,672,883	-	9,208,734,031
	Total	**52,446,285,841**	**22,498,475,934**	**1,692,033,816**	**110,689,332**	**3,757,441**	**-**	**76,751,242,363**
	Market share (%)	**68.3**	**29.3**	**2.2**	**0.1**	**0.0**		
FY2019/20	On-net	37,355,032,964	17,626,134,378	1,275,089,379	17,162,814	-	3,271	56,273,422,806
	Off-net	1,983,870,144	4,156,663,905	804,088,846	106,806,334	-	27,810	7,051,457,039
	Total	**39,338,903,108**	**21,782,798,283**	**2,079,178,225**	**123,969,148**	**-**	**31,081**	**63,324,879,845**
	Market share (%)	**62.1**	**34.4**	**3.3**	**0.2**		**0.0**	

Source: CA, Operators' Returns

Table 7 presents average Minutes of Use per Call by operator, which remained unchanged from that posted last quarter at 1.7 for on-net minutes and 1.0 for off-net minutes.

Table 7: Minutes of Use per Call per Operator

	Apr-Jun 21		*Jan-Mar 21*	
Operator	***On-net***	***Off-net***	***On-net***	***Off-net***
Total	**1.7**	**1.0**	**1.7**	**1.0**
Safaricom PLC	1.6	0.9	1.5	1.0
Airtel networks Limited	2.6	1.0	2.6	1.0
Telkom Kenya Limited	1.7	1.4	1.6	1.4
Equitel	3.9	2.1	2.3	1.3
Jamii Telecommunications Limited	0.1	1.4	0.1	1.4

Source: CA, Operators' Returns

1.4.3 Domestic Short Messaging Service (SMS) Traffic

The total number of SMS sent from local mobile networks increased by 20.8 percent to stand at 12.8 billion from 10.6 billion messages recorded during the previous quarter. The significant growth is attributed to "*Tunukiwa Bundle offers*" offered by Safaricom PLC that aimed at awarding consumers who purchased a *Tunukiwa* bundle with free SMS. In addition, the school holiday season played a notable role in increased uptake of SMS services.

The cumulative local SMS traffic for the fiscal year stood at 54.5 billion down from 69.7 billion SMS recorded in the 2019/20 Financial Year. The decline is attributed to the resumption of schools after a long period of closure in response to COVID-19 pandemic in 2020.

SMS traffic and the respective market shares per operator are as shown in Table 8.

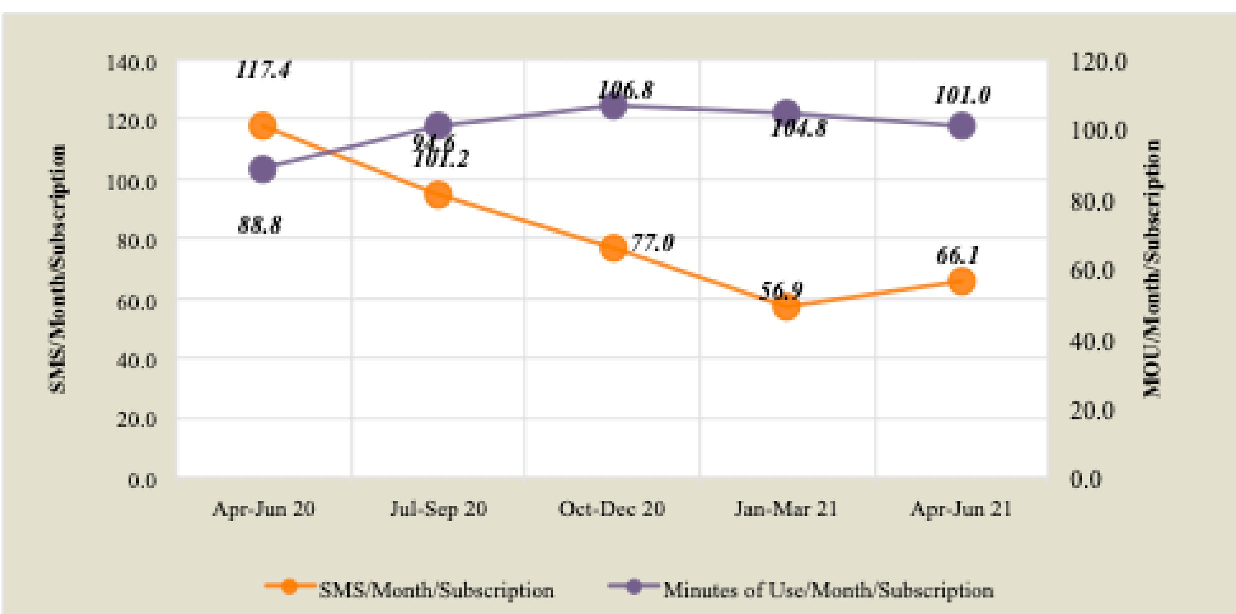
Table 8:Local Mobile SMS Traffic by Operator

Period	***Name of Operator/Indicator***	***Safaricom PLC***	***Airtel Networks Kenya Limited***	***Telkom Kenya Limited***	***Finserve Africa Limited***	***Jamii Telecommunications Limited***	***Mobile Pay***	***Total***
April-June 21	On-net	10,974,066,194	583,042,609	7,662,766	3,153,955	10,818	-	11,567,936,342
	Off-net	524,953,807	630,482,338	41,222,162	7,207,997	181,858	-	1,204,048,162
	Total	**11,499,020,001**	**1,213,524,947**	**48,884,928**	**10,361,952**	**192,676**	**-**	**12,771,984,504**
	Market Share (%)	**90**	**9.5**	**0.4**	**0.1**	**0.0**		
Jan-Mar 21	On-net	9,287,550,496	355,409,867	7,105,647	2,141,990	10,160	-	**9,652,218,160**
	Off-net	463,945,044	416,067,452	30,479,089	6,538,318	245,283	-	**917,275,186**
	Total	**9,751,495,540**	**771,477,319**	**37,584,736**	**8,680,308**	**255,443**	**-**	**10,569,493,346**

	Market Share (%)	**92.3**	**7.3**	**0.4**	**0.1**	**-**		
FY 2020/21	On-net	48,120,468,650	1,603,205,099	37,855,852	11,463,331	33,028	-	49,773,025,960
	Off-net	2,194,662,353	2,300,219,306	214,192,869	27,429,710	692,742	-	4,737,196,980
	Total	**50,315,131,003**	**3,903,424,405**	**252,048,721**	**38,893,041**	**725,770**	**-**	**54,510,222,940**
	Market Share (%)	**92.3**	**7.2**	**0.5**	**0.1**	**0.0**		
FY 2019/20	On-net	64,055,149,539	1,024,322,636	43,517,334	10,208,906	-	2,503	**65,133,200,918**
	Off-net	2,082,320,490	2,107,222,793	352,888,639	23,047,141	-	21,163	**4,565,500,226**
	Total	**66,137,470,029**	**3,131,545,429**	**396,405,973**	**33,256,047**	**-**	**23,666**	**69,698,701,144**
	Market Share (%)	**94.9**	**4.5**	**0.6**	**-**	**-**	**-**	

Source: CA, Operators' Returns

The number of SMS per Subscription per Month rose to 66.1 during the reference period from 56.9 messages registered in quarter three. The growth is attributed to "*Tunukiwa Bundle offers*" offered by Safaricom PLC as well as holiday break for primary and secondary school that coincided with the reference period. In contrast, Minutes of Use per Month per Subscription dropped to 101.0 from 104.8 minutes recorded in the preceding quarter as illustrated in Figure 5.



Source: CA, Operators' Returns

Figure 5: MoU/Month/Subscriptions vs SMS/Month/Subscription

1.4.4 International Mobile Traffic

During the period April to June 2021, total international incoming and outgoing mobile voice minutes rose by 4.3 and 8.6 percent to post 116.9 million and 135.9 million minutes respectively. The volume of international incoming mobile SMS increased by 30.3 percent to stand at 10.9 million whereas international outgoing mobile messages declined by 10.9 percent to stand at 8.3 million during the same period.

The trends in international voice and SMS traffic within the EAC region and other countries across the globe for the two quarters and the two Financial Years are as outlined in Table 9.

Table 9: International Mobile Traffic

Traffic	*Region*	*Apr-Jun 21*	*Jan-Mar 21*	*Quarterly Variation (%)*	*FY2020/21*	*FY2019/20*	*Annual Variation (%)*
International Incoming Mobile Voice Minutes	*EAC*	65,559,480	59,688,645	9.8	259,297,260	319,974,271	-19.0
	Others	51,336,249	52,367,822	-2.0	212,291,309	247,363,520	-14.2
	Total	**116,895,729**	**112,056,467**	**4.3**	**471,588,569**	**567,337,791**	**-16.9**
International Outgoing Mobile Voice Minutes	*EAC*	71,297,157	64,395,403	10.7	255,195,987	218,294,880	16.9
	Others	64,586,775	60,699,723	6.4	252,260,068	237,613,149	6.2
	Total	**135,883,932**	**125,095,126**	**8.6**	**507,456,055**	**455,908,029**	**11.3**
International Incoming Mobile SMS		10,898,195	8,363,508	30.3	38,035,309	40,857,305	-6.9
International Outgoing Mobile SMS		8,330,580	9,346,220	-10.9	36,504,569	39,391,139	-7.3

Source: CA, Operators' Returns

1.4.5 Roaming Traffic

The trends in Out-bound and In-bound roaming services are as outlined in Table 10 and Table 11.

Table 10: Out-bound Roaming Traffic

Country / Indicator	*Incoming Voice (Minutes)*	*Incoming SMS*	*Outgoing Voice (Minutes)*	*Outgoing SMS*	*Data Volumes (MB)*
Uganda	88,941,132	5,700,663	3,357,582	4,259,692	20,060,508
Tanzania	359,943	395,710	8,041,453	1,405,169	2,025,980
Rwanda	5,540,963	440,725	1,191	295,186	925,308

Burundi	5,314	2,296	282,105	22,573	6,644
S. Sudan	5,364,131	1,208,479	616,867	1,033,511	124,529
EAC TOTAL	**100,211,483**	**7,747,873**	**12,299,198**	**7,016,131**	**23,142,969**
Others	1,310,128	5,395,828	19,345,850	9,253,758	12,329,675
Total	**101,521,611**	**13,143,701**	**31,645,048**	**16,269,889**	**35,472,644**

Source: CA, Operators' Returns

Table 11: In-bound Roaming Traffic

Country / Indicator	*Incoming Voice (Minutes)*	*Incoming SMS*	*Outgoing Voice (Minutes)*	*Outgoing SMS*	*Data Volumes (MB)*
Uganda	26,321,795	826,384	4,522,658	335,060	391,173
Tanzania	74,937	68,954	7,953,549	86,133	104,941
Rwanda	7,740,061	149,754	1,077,250	15,642	218,299
Burundi	598	593	12,918	727	57
S. Sudan	4,575,036	68,846	383,445	375,315	216,150
EAC TOTAL	**38,712,427**	**1,114,531**	**13,949,820**	**812,877**	**930,620**
Others	835,537	1,581,572	9,773,245	622,087	23,422,499
Total	**39,547,964**	**2,696,103**	**23,723,065**	**1,434,964**	**24,353,119**

Source: CA, Operators' Returns

1.5 Mobile Service Revenue and Investment

In 2020, mobile services generated revenue of KES 280.1 billion representing an increase of 1.3 percent when compared to 2019. Further, investments in the mobile sub-sector grew by 28.9 percent to stand at KES 45.9 billion from KES 35.6 billion reported in 2019.

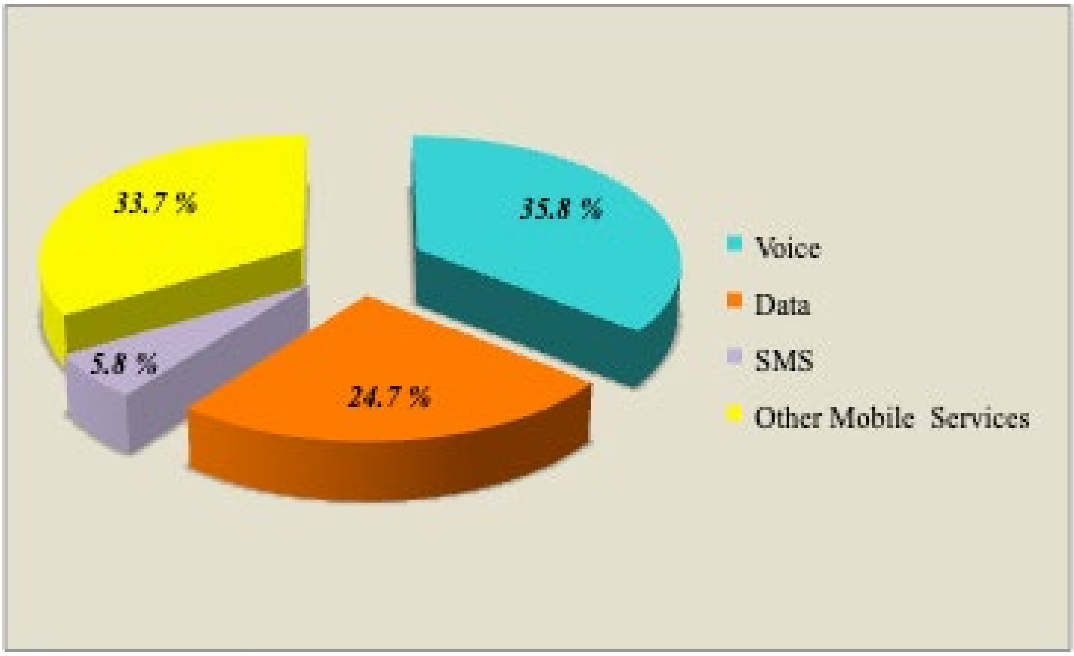
Table 12: Mobile Service Revenue and Investments

Indicator/Period	*2020*	*2019*	*Annual Variation (%)*
*Mobile Service Revenue * (Billions)*	280.1	276.6	1.3
Investment (Billions)	45.9	35.6	28.9

****Voice revenue includes fixed voice revenue from TKL: Data revenue also included fixed data revenue from TKL***

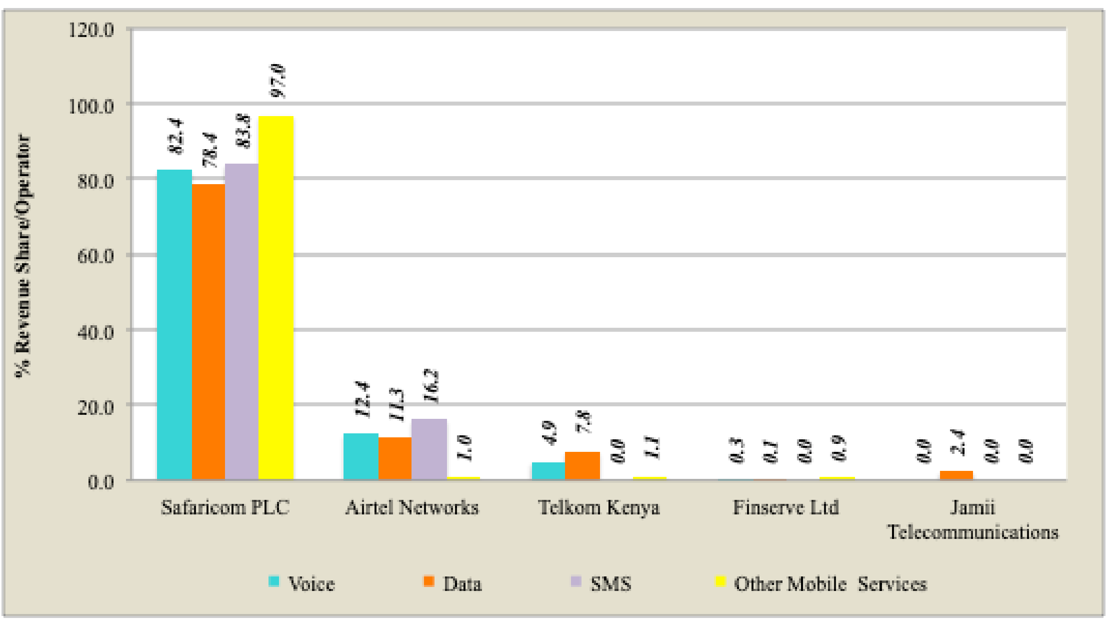
Voice revenue contributed the highest percentage share of 35.8 percent of total mobile service revenue, whereas SMS contributed the least percentage share at 5.8 percent.

Figure 6 and 7 illustrate the percentage revenue shares per service and per operator



Source: CA, Operators' Returns.

Figure 6: Revenue Share by Service



Source: CA, Operators' Returns.

Figure 7: Revenue share by Operator

1.6 Employment in the Mobile Service Sub-Sector

Figure 8 shows the five-year trend in employment within the mobile sub-sector.

	Jun-17	Jun-18	Jun-19	Jun-20	Jun-21
Male Employees	3,695	3,689	4,822	4,994	5,277
Female Employees	3,212	3,327	3,817	3,734	3,886
Total Employees	6,907	7,016	8,689	8,728	9,163

Source: CA, Operators' Returns

Figure 8: Employment in Mobile Service Sub-Sector

2 FIXED TELEPHONE SERVICE

2.1 Fixed Network Subscriptions

As at 30th June 2021, there were 14,691 fixed line subscriptions, 1,144 fixed wireless subscriptions and 42,162 fixed VoIP subscriptions.

The trends in local fixed voice network traffic are as shown in Table 13.

Table 13: Fixed Network Subscriptions

Subscriptions	*Jun-21*	*Mar-21*	*Quarterly Variation (%)*
Fixed Line	14,691	14,446	1.7
Fixed Wireless	1,144	1,117	2.4
Fixed VoIP	42,162	44,222	-4.7

Source: CA, Operators' Returns

2.2 Fixed Network Traffic

During the review period, there was a general decline in local fixed network traffic. The total local fixed network traffic dropped by 1.9 percent to stand at 5.4 million down from 5.5 million minutes registered in the foregoing quarter. The convenient and reliable nature of mobile services has encouraged consumers to increase their uptake for such services and operators to shift their investments from fixed to mobile voice infrastructure.

Table 14 shows trends in international fixed voice network traffic.

Table 14:Local Fixed Network Traffic in Minutes

Local Fixed Network Traffic	*Apr-Jun 21*	*Jan-Mar 21*	*Quarterly Variation (%)*	*FY2020/21*	*FY2019/20*	*Annual Variation (%)*
Fixed-Fixed	128,595	145,929	-11.9	586,050	937,117	-37.5
Fixed Wireless-Fixed Wireless	264,958	266,249	-0.5	1,035,596	1,122,606	-7.8
Fixed to Mobile	5,041,891	5,128,871	-1.7	19,914,339	21,333,355	-6.7
Total Local Fixed Network Traffic	**5,435,444**	**5,541,049**	-1.9	**21,535,985**	**23,393,078**	**-7.9**

Source: CA, Operators' Returns

2.3 International Fixed Voice Traffic

During the quarter under review, the international incoming and outgoing fixed network voice traffic registered a drop of 1.1 percent and 3.5 percent to record 4.3 million and 1.2 million minutes respectively. On a similar trend, international outgoing fixed Voice over IP traffic dropped during the quarter to record 677,728 from 781,920 minutes recorded in the third quarter. The convenient and reliable nature of mobile services has enhanced uptake of such services, coupled with operators shifting their investments from fixed to mobile voice infrastructure.

Table 15 shows trends in international fixed voice network traffic.

Table 15:International Fixed Voice Network Traffic

International Fixed Network traffic	***Apr-Jun 21***	***Jan-Mar 21***	***Quarterly Variation (%)***	***FY 2020/21***	***FY 2019/20***	***Annual Variation (%)***
International Incoming Fixed Network Voice traffic	4,346,644	4,393,219	-1.1	18,710,023	21,090,650	-11.3
International Outgoing Fixed Network Voice traffic	1,243,646	1,288,849	-3.5	5,778,352	14,932,262	-61.3
International Outgoing Fixed VoIP traffic	677,728	781,920	-13.3	3,206,992	1,785,271	79.6

Source: CA, Operators' Returns

3 DATA/INTERNET SERVICES

3.1 Data and Broadband Services

In order to maintain physical distance during the COVID19 pandemic, ICT platforms originally designed and employed for other distributed uses are repurposed to maintain social connections, provide distributed services, continue to meet business needs, and for virtual education. This has resulted to increased uptake of ICT services and especially broadband services. Thus, during the fourth quarter of the 2020/21 Financial Year, the total number of active Internet/data subscriptions increased to 46.7 million from 43.7 million reported in quarter three of the same year. This was an increase of 12.8 percent when compared to the 40.9 million subscriptions recorded during the same period of the 2019/2020 Financial Year. It is worth noting that mobile data subscriptions continued to constitute over 99 percent of the total data subscriptions.

Table 16 provides a breakdown of data/internet subscriptions based on the type of technology.

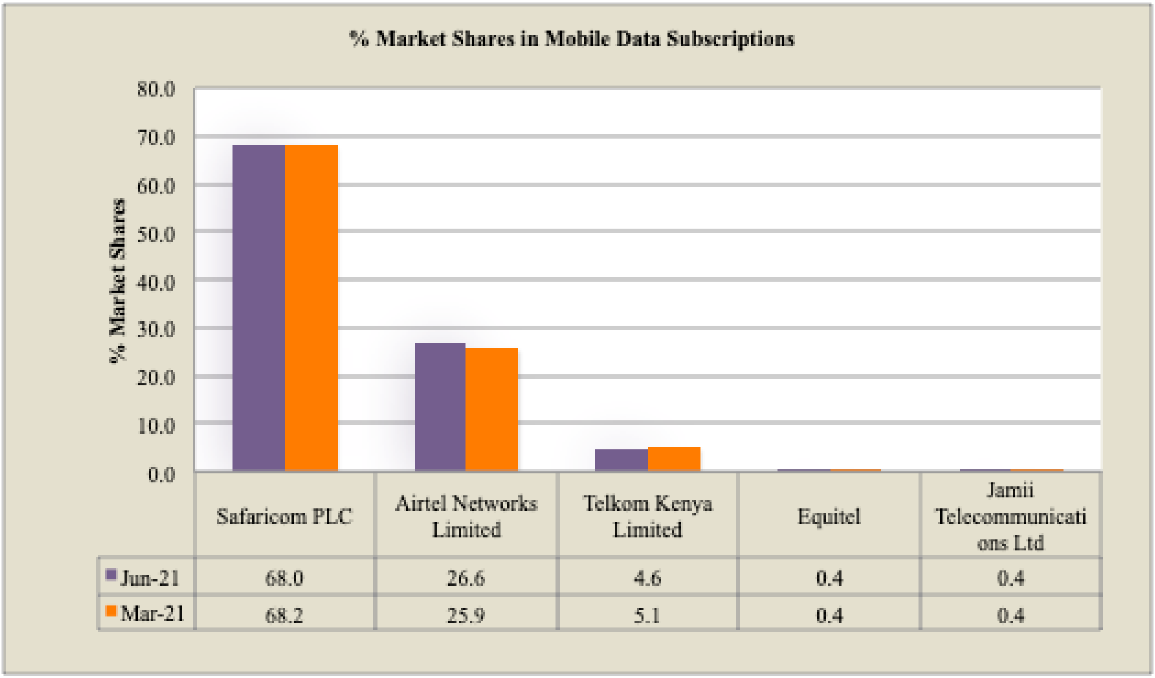
Table 16:Data/Internet Subscriptions

Indicator/Period	*Apr-Jun 21*	*Jan-Mar 21*	*Quarterly Variation (%)*	*Apr-Jun 20*
Total Wireless Subscriptions	**46,117,808**	**43,138,739**	**6.9**	**40,922,499**
Mobile Data Subscriptions	46,002,220	43,029,579	6.9	40,832,642
Terrestrial Wireless Data Subscribers	114,348	107,912	6.0	88,159
Satellite Data Subscribers	1,240	1,248	-0.6	1,698
Total Fixed (Wired) Subscriptions	**618,741**	**604,095**	**2.4**	**529,722**
Fixed DSL Data Subscribers (Copper)	449	472	-4.9	997
Fixed Fibre Optic Data Subscribers	439,002	418,394	4.9	351,332
Fixed Cable Modem Subscribers	178,645	184,425	-3.1	176,589
Other Fixed Data Subscribers (e.g. Radio)	645	804	-19.8	804
Total Subscriptions	**46,736,549**	**43,742,834**	**6.8**	**41,452,221**

Source: CA, Operators' Returns.

3.2 Market Shares in Mobile Data/Internet Subscriptions by Operator

As illustrated in Figure 9, Safaricom PLC leads in the market shares for mobile data subscriptions at 68.0 percent, whereas Jamii Telecommunications Ltd, the latest market entrant retained the least market share at 0.4 percent.



Source: CA, Operators' Returns.

Figure 9: Market Shares in Mobile Data Subscriptions per Operator

3.3 Fixed Data/Internet Subscriptions by Speed

During the period under review, the highest numbers of data subscriptions were on data speeds between 2Mbps and 10 whereas data speeds equal to or greater than 100Mbps recorded the least number of subscriptions.

Table 17 shows the breakdown of fixed data/internet subscriptions by speed and technology.

Table 17: Fixed Data/Internet Subscriptions by Speed and Technology

Internet Technology/Speeds	*<256Kbps*	*=>256Kbps < 2Mbps*	*=>2 Mbps <10 Mbps*	*=>10Mbps <30 Mbps*	*=>30 Mbps <100Mbps*	*=>100Mbps*	*Totals*
Cable Modem	0	0	114,181	44,004	19,786	674	**178,645**
Copper (DSL)	28	40	347	34	0	0	**449**
FTTH/O	0	5,071	196,593	129,115	105,154	3,069	**439,002**
Fixed Wireless	10,086	8,196	94,001	1737	230	98	**114,348**
Satellite	36	425	646	133	0	0	**1,240**
Other Fixed	0	84	285	159	67	50	**645**
Totals	**10,150**	**13,816**	**406,053**	**175,182**	**125,237**	**3,891**	**734,329**

Source: CA, Operators' Returns.

Table 18 shows Fixed Data Subscriptions by Service Provider and their respective market shares.

Table 18: Fixed Data Subscriptions by Service Provider

Name of service Provider	*Number of data/internet subscriptions*	*Percentage Market share (%)*
Safaricom PLC	269,397	36.7
*Wananchi Group (Kenya) Ltd**	217,300	29.6
Jamii Telecommunications Ltd	138,269	18.8
Poa Internet Kenya Ltd	65,129	8.9
Liquid Telecommunications Kenya Limited	14,806	2.0
Mawingu Networks Ltd	11,811	1.6
Dimension Data Solutions East Africa Limited	9,960	1.4
Telkom Kenya Ltd	4,361	0.6
Mobile Telephone Network (MTN)	474	0.1
Other Fixed Service providers	2,822	0.4

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

3.4 Broadband Services

The total number of broadband subscriptions increased by 6.7 percent to stand at 27.5 million from 25.8 million subscriptions registered during the third quarter of FY 2020/21. Mobile broadband subscriptions accounted for 97.4 percent of the total broadband subscriptions.

The volume of mobile data consumed during the period under review rose by 18.0 percent to stand at 192.9 million GB from 163.6 million GB recorded in the preceding quarter. When compared to the same period of the previous year, there has been an increase of 45.8 percent.

Table 19: Broadband Subscriptions

Indicator/Period	*Apr-Jun 21*	*Jan-Mar 21*	*Quarterly Variation (%)*	*Apr-Jun 20*
Total Broadband Subscriptions	**27,481,827**	**25,760,072**	6.7	**22,693,715**
Total Mobile Broadband Subscriptions	**26,757,648**	**25,070,158**	6.7	**22,084,104**
3G Broadband Subscriptions	13,841,463	13,326,007	3.9	14,074,018
4G Broadband Subscriptions	12,916,185	11,744,151	10.0	8,010,086
Fixed Broadband Subscriptions	**724,179**	**689,914**	**5.0**	**609,611**
Consumed Mobile Data Volumes (GB)	192,999,458	163,556,151	18.0	132,397,651

Source: CA, Operators' Returns.

3.5 International Bandwidth

During the period April to June 2021, the total available bandwidth capacity recorded a growth of 4.0 percent to stand at 10,217.46Gbps from 9,820.46Gbps recorded last quarter. When compared to June 2020, a growth of 38.2 percent has been realized. The significant growth is attributed to the increased demand for Internet services with most daily activities moving online following the COVID-19 pandemic.

The available and utilized satellite capacity registered a decrease of 4.3 percent and 4.8 percent to stand at 5.33Gbps and 2.56Gbps respectively during the referenced period. This is attributed to the high cost for satellite Internet services than has resulted to consumers settling for fairly priced options such as fiber.

The trends in International Lit/Equip and Utilized Bandwidth are as shown in Table 20.

Table 20: International Internet Bandwidth (Gbps)

Indicator/ Operator	*Apr-Jun 21*		*Jan-Mar 21*		*Quarterly Variation (%)*	*Apr-Jun 20*
Total Available (Lit/Equip) Bandwidth Capacity	**10,217.46**		**9,820.46**		**4.0**	**7,392.96**
Undersea Bandwidth Capacity	***SEACOM***	3,920.000	3,920.00		0.0	2,940.00
	TEAMS	1,618.000	1,618.00		0.0	1,618.00
	EASSY	4,120.000	3,950.00		4.3	2,520.00
	Lion 2	554.125	326.89		69.5	308.48
Satellite Bandwidth Capacity	**5.33**		**5.57**		**-4.3**	**5.48**
Utilized Bandwidth in Gbps						
Total Utilized Bandwidth Capacity						
Undersea Bandwidth Capacity	***Sold In Kenya***	***Sold in other Countries***	***Sold In Kenya***	***Sold in other Countries***		
	2,814.78	1,757.82	2,611.47	1,687.79	6.4	3235.6
Satellite Internet Capacity	**2.56**		**2.69**		**-4.8**	**2.61**

Source: CA, Operators' Returns.

3.6 Registered Domain Names

Table 21 illustrates the various sub-domains and their respective user as at 30th June 2021.

Table 21: .KE Domains

SUB-DOMAIN	*USER*	*Jun-21*		*Mar-21*	
		Domains	**% Users**	**Domains**	**% Users**
CO.KE	Companies	88,352	94.9	90,479	95.0

OR.KE	Non-Profit-Making Organizations	1,908	2.0	1,904	2.0
AC.KE	Institutions of Higher Education	971	1.0	951	1.0
SC.KE	Lower and Middle Level Institutions	891	1.0	850	0.9
NE.KE	Personal Websites and E-mail	51	0.1	52	0.1
ME.KE	Personal Websites and E-mail	168	0.2	176	0.2
MOBI.KE	Mobile Content	42	0.0	44	0.0
INFO.KE	Information	146	0.2	147	0.2
GO.KE	Government Institutions	601	0.6	598	0.6
Total		**93,130**		**95,201**	

Source: CA, Operators' Returns.

4 NATIONAL CYBER THREAT LANDSCAPE

4.1 Cyber Threats Detected

During the period April to June 2021, the National KE-CIRT/CC detected 38.8 million cyber threat events. This was an increase of 37.3 percent from the previous period January to March 2021, where 28.2 million cyber threat events had been detected as illustrated in the Table 22. This increase in cyber threat events detected is attributed to the significant increase in targeted attacks at Internet of Things (IoT) devices; increased activity by organized cybercrime groups; adoption of more sophisticated tools by ransomware gangs; increased targeted attacks at critical systems and services; increased exploits of mobile application vulnerabilities; increased targeted attacks at cloud-based supported services and unsecured infrastructure; and increased adoption of botnet and Distributed Denial of Service (DDoS) attack techniques.

Table 22: Cyber Threats Detected

Cyber Threat	*Apr-Jun 21*	*Jan-Mar 21*	*Quarterly Variation (%)*	*FY 2020/21*	*FY 2019/20*	*Annual Variation (%)*
Malware	23,053,190	21,559,181	6.9	122,524,531	101,651,143	20.5
DDOS/Botnet	11,272,402	2,890,847	289.9	17,668,736	1,475,537	1,097.4
Web Application Attacks	2,564,173	3,767,588	-31.9	16,236,587	7,662,793	111.9
System vulnerabilities	1,886,934	30,203	6,147.5	1,974,698	108,596	1,718.4
Totals	**38,776,699**	**28,247,819**	**37.3**	**158,404,552**	**110,898,069**	**42.8**

Source: National KE-CIRT/CC

In response to the detected cyber threat attempts, the National KE-CIRT/CC issued 25,969 advisories. This was a 3.1 percent increase compared to the 25,189 advisories that were issued during the period January to March 2021. This is illustrated in the Table 23.

Table 23: Cyber Threat Advisories

Cyber Threat Advisories	*Apr-Jun 21*	*Jan-Mar 21*	*Quarterly Variation (%)*	*FY 2020/21*	*FY 2019/20*	*Annual Variation (%)*
Malware	2,215	1,463	51.4	5,531	7,718	-28.3
Botnet	278	420	-33.8	1,258	1,829	-31.2
Web Application Attacks	223	267	-16.5	1,420	687	106.7
System Vulnerabilities	23,253	23,039	0.9	85,487	60,593	41.1
Totals	**25,969**	**25,189**	**3.1**	**93,696**	**70,827**	**32.3**

Further, during the same period, the National KE-CIRT/CC received 529 digital investigation requests as compared to 298 requests received during the previous period, which represents a 77.51 percent increase. This increase is attributed to the rise in impersonation, online fraud and online abuse cases arising from increased Internet access. The National KE-CIRT/CC continues to carry out cyber awareness in an effort to counter these harmful online practices.

Table 24: Investigation Category

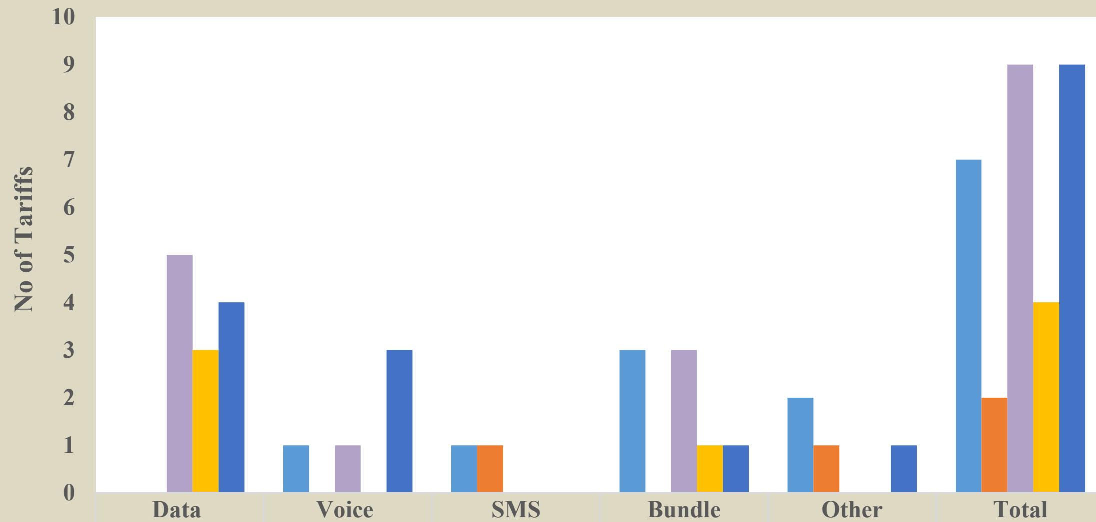
Investigatory Category	*Apr-Jun 21*	*Jan-Mar 21*	*Quarterly Variation (%)*	*FY 2020/21*
Impersonation	302	162	86.4	708
Online Fraud	97	63	54.0	289
Online Abuse	129	70	84.3	396
Child Abuse	1	3	-66.7	12
Totals	**529**	**298**	**77.5**	**1,405**

Source: National KE-CIRT/CC

5 TARIFFS, PROMOTIONS AND SPECIAL OFFERS

During the quarter under review, the Authority received a total of 22 applications for new tariffs and promotions & special offers, which represented an increase of 57.14 percent as compared to 14 applications received during the previous quarter. Further, the Authority received a total of 5 applications for revisions of tariffs and promotions & special offers during the fourth quarter of the FY 2020/21.

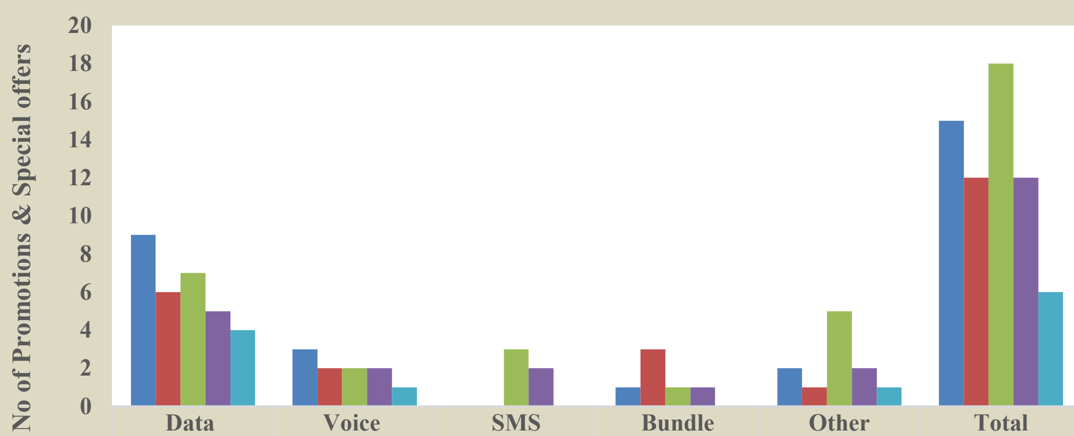
A detailed distribution of new applications for tariffs, and promotions & special offers over the past five quarters is illustrated in Figures 9 and 10 respectively.



	Data	Voice	SMS	Bundle	Other	Total
April - June 2021	0	1	1	3	2	7
Jan - March 2021	0	0	1	0	1	2
Oct- Dec 2020	5	1	0	3	0	9
July - Sept 2020	3	0	0	1	0	4
April- June 2020	4	3	0	1	1	9

Source: CA, filed tariffs, promotions and special offers

Figure 9: Detailed Distribution of Tariffs



	Data	Voice	SMS	Bundle	Other	Total
April - June 2021	9	3	0	1	2	15
Jan - March 2021	6	2	0	3	1	12
Oct- Dec 2020	7	2	3	1	5	18
July - Sept 2020	5	2	2	1	2	12
April- June 2020	4	1	0	0	1	6

Source: CA, filed tariffs, promotions and special offers

Figure 10: Detailed Distribution of Promotions and Special Offers

6 BROADCASTING SERVICES

During the reference period, the number of commercial free-to-air (FTA) television stations remained unchanged at 130. Similarly, the number of Public FTA TV and Community FTA TV remained unchanged at 3 and 2 respectively. The number of FM radio stations also remained unchanged at 186, comprising 131 Commercial FM radio, 13 Public FM radio and 42 Community FM radio stations.
By the end of June 2021, subscriptions for broadcasting services had grown to a total of 5.7 million from 5.5 million subscriptions recorded during the third quarter. DTT, DTH and Cable TV subscriptions stood at 4.1 million, 1.5 million and 83,777 subscriptions respectively.

7 FREQUENCY SPECTRUM MANAGEMENT

To facilitate uptake of radio communication services, the Authority assigned frequencies to various operators for deployment of 570 microwave links and processed the decommissioning of 670 fixed links during the period under review. In addition, the Authority assigned 11 FM sound broadcasting frequencies to broadcasters.

8 CONCLUSION

The current global COVID-19 pandemic has demonstrated the importance of digital technologies in enabling consumers to work from home, conduct business, make social connections and study virtually. As a result, the sector has continued to register significant growth in digital transformation, as a by-product of the uptake and use of emerging technologies in government, education, health and agricultural sector, among others.

With the aid of advanced wireless technologies like 5G, the telecommunication sub-sector is expected to continue enabling other sectors as envisioned in Government's Vision 2030 Development Strategy, the third Medium Term Plan (MTP III) and the *Big 4 Agenda* that focuses on food and nutrition, security, manufacturing, affordable housing and universal health coverage in order to recover from the negative impacts of COVID 19.