COMMUNICATIONS AUTHORITY OF KENYA

SECOND QUARTER SECTOR STATISTICS REPORT FOR THE FINANCIAL YEAR 2019/2020 (OCTOBER-DECEMBER 2019)

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LIST OF ACRONYMS

B2B	Business to Business
B2C	Business to Customer
C2B	Customer to Business
C2G	Citizen to Government
P2P	Person to Person
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 Cyber-Security Centre
OTT	Over-The-Top
SEACOM	Sea Sub-Marine Communications Limited
SIM	Subscriber Identification Module
SMS	Short Messaging Service
TEAMS	The East African Marine System

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PRELIMINARY NOTES

- This report is based on data provided by the service providers in the communications 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.
- In quarter one of financial year 2019/20, the Authority revised its data collection template in consultation with service providers in a bid to meet data requirements by various stakeholders and also reviewed/dropped telecommunication indicators that were considered obsolete.
- The Authority also shared 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) and adheres to the set 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 Second Quarter of the 2019/20 Financial Year provides an overview of the performance and trends of the ICT sector for the period 1st October to 31st December 2019, on the following service categories:

- Mobile Telephony Services.
- Fixed Telephony Services.
- Data/Internet Services.
- Postal and Courier Services.

As at 31st December 2019, the number of active mobile subscriptions (SIM[1] Cards) in the country stood at 54.5 million translating to mobile (SIM) penetration[2] of 114.8 percent.

Financial inclusion through use of mobile money services continued to expand during the period under review. Notably, use of mobile money platform for payment of bills has evolved over the quarters prompting the Authority to collect and report on more disaggregated data with an aim of obtaining further insights. During the second quarter of the FY 2019/20, the number of active registered mobile money subscriptions stood at 28.9 million and the number of active mobile money agents stood at 175,959. M-pesa recorded the highest market share of 98.8 percent whereas T-Kash, recorded the lowest market share of 0.07 percent.

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[1] Active Subscription (SIM Card) refers to any registered mobile SIM Card that has generated revenue within the last 3 months
[2] Mobile Penetration is computed by dividing the total number of mobile subscriptions (SIM) Cards by the Total Population multiplied by 100

Safaricom PLC recorded the highest number of in-ports at 182, whereas Airtel Networks Ltd and Telkom Kenya recorded 57 and 20 in-ports respectively.

The total local outgoing mobile voice traffic declined by 16.2 percent during the period under review to post 14.9 billion minutes from 17.8 billion minutes posted during the previous period. This decline is attributed to the drop in on-net voice traffic from 16.1 billion recorded last quarter to 13.2 billion during the quarter under review. The huge decline in on-net traffic was occasioned by revision made by Airtel Networks Limited, which resulted in a reduction on its on-net voice numbers by almost half that of the last quarter. The justification provided by the operator was that they had been summing incoming and outgoing on-net traffic in previous quarters instead of providing outgoing traffic only considering that ideally only outgoing traffic is billed. Similarly, mobile to fixed voice traffic declined by 7.0 percent to record 14.7 million minutes and this decline is attributed to the continued shrinking of fixed network subscriptions. On the other hand, off-net local voice traffic increased by 0.5 percent to post 1.73 billion minutes from 1.72 billion minutes recorded last quarter. Minutes of Use per Month per Subscription dropped to 91.5 from 111.2 minutes registered in the foregoing quarter.

The total number of short messages sent during the quarter under review stood at 15.6 billion down from 17.2 billion messages recorded during the previous quarter. The number of SMS per Subscription per Month dropped to 95.4 during the quarter under review from 107.6 messages reported during the previous quarter.

Traffic originating from and terminating to other countries increased during the period under review to stand at 144.4 million and 111.3 million minutes respectively. International traffic among EAC member countries has continued to decline over the quarters following the implementation of the regional One Network Area initiative, since 2014 that resulted in decline in roaming voice charges. Consumers from Kenya, Uganda, Rwanda and South Sudan prefer to roam while visiting either of the countries rather than buying new SIM Cards because of the reasonable calling rates within the One Network Area region. The volume of SMS terminating in foreign networks declined significantly by 26.2 percent and this is attributed to the high international messaging charges and therefore, most consumers have increased uptake of Over The Top (OTT) messaging services such as WhatsApp.

Outbound and inbound voice, SMS and data volumes remained high within the One Network Area member countries as compared to other regions due to the low roaming charges implemented through the ONA initiative.

The traditional fixed network service maintained a downward trend during the period under review. However, Fixed Voice over the Internet Protocol service grew by 10.5 percent in terms of subscriptions.

The total local fixed voice network traffic dropped by 4.9 percent during the period under review to post 564,900 minutes, from 593,724 minutes recorded during the previous quarter.

As a result of the aforementioned development and publishing of a guide, on the definitions and methodologies of collecting and reporting telecommunications/ICT indicators, as well as revision of the data collection template during the quarter under review, Airtel Networks, Safaricom PLC

and Telkom Kenya revised their data especially that on mobile data subscriptions which account for 99 percent of data/internet subscriptions. In this respect, the total data/internet subscriptions declined to stand at 39.6 million, of which 22.0 million subscriptions were on broadband.

During the period under review, fibre-to-the-office/home data/internet subscriptions recorded the highest number of broadband[3] subscriptions, whereas fixed wireless recorded the highest number of narrowband[4] subscriptions.

During the quarter under review, the total international Internet bandwidth leased in the country increased by 16.1 percent to stand at 6,241.84 Gbps from 5,374.02 Gbps recorded during the previous quarter. This increase is attributed to the additional bandwidth lit by TEAMS with an aim of meeting its customer's increasing demand for bandwidth. The total utilized bandwidth capacity increased by 80.3 percent during the quarter to stand at 2,720.26 Gbps, 35.1 percent of the bandwidth was sold within the country and 64.9 percent outside the country. The utilized satellite bandwidth on the other hand declined by 48.2 percent to record 2.70 Gbps.

The total number of domain names dropped during the period under review to post 91,940 domains from 93,003 domains posted during the previous period. This drop is attributed to the closure of businesses and other non-governmental institutions in the country.

The National KE-CIRT/CC has deployed various cyber threat detection systems towards enhancing Kenya's national cyber security readiness and resilience. During the period October - December 2019, the National KE-CIRT/CC detected 37.1 million cyber threats as compared to 25.2 million cyber threat events detected in the period July – September 2019. This was a 47.3 percent increase as compared to the previous quarter which is attributed to an exponentially high number of malware threats detected, as demonstrated by increased number of cyber threat advisories issued during the quarter.

As the trusted national point of contact on cyber security matters, the National KE-CIRT/CC analyzed the cyber threat events detected and issued advisories to the affected critical information infrastructure service providers. During the quarter under review, the National KE-CIRT/CC issued issued 16,637 advisories, which is a 2.8 percent decrease to the 17,127 advisories that were issued during the period of July – September 2019.

The number of letters sent between October and December 2019 increased by 9.7 percent to stand at 10.5 million, from 9.6 million letters sent between July and September 2019. This increase is as a result of the national examinations during which consumers sent success cards to their loved ones. The increase is further attributed to the fact that most Kenyans prefer to enclose small gifts inside letters than posting as courier items since it is cheaper.

As has been observed in preceding quarters, the volume of courier items sent during this period declined by 4.5 percent to post 575,498 items. The decline in courier items in the wake of increased

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[3] Broadband; Data/internet speeds equal to or above 256Kbps
[4] Narrowband; Data/Internet speeds below 256 Kbps

up-take of e-commerce is attributed to the fact that most Kenyans prefer to enclose small gifts inside letters than posting as courier items since it is cheaper and also to the increasing number of unlicensed and unregulated courier operators such as *boda-boda.*

The volume of international incoming letters increased by 3.5 percent to stand at 2.2 million, from 2.1 million letters reported during the previous quarter. Letters sent outside the country increased to 952,933 from 919,275 letters registered last quarter.

During the period under review, the Authority received a total of 14 new applications for tariffs and promotions & special offers as compared to 17 new applications received during the previous quarter.

Further, the Authority received a total of 11 applications for revision of existing tariffs and promotions & special offers during the same period.

1   CELLULAR MOBILE SERVICES

1.1   Mobile Subscriptions

The ICT sector in Kenya continues to grow especially in terms of uptake of mobile services. As at 31st December 2019, the number of active mobile subscriptions (SIM[5] Cards) in the country stood at 54.5 million translating to mobile (SIM) penetration[6] of 114.8 percent. Mobile (SIM) penetration in the country remains high partly due to multiple SIM ownership by consumers. This indicator is different from that on mobile phone use penetration that is determined through national surveys.

Figure 1 illustrates the trends in mobile subscriptions and penetration levels.
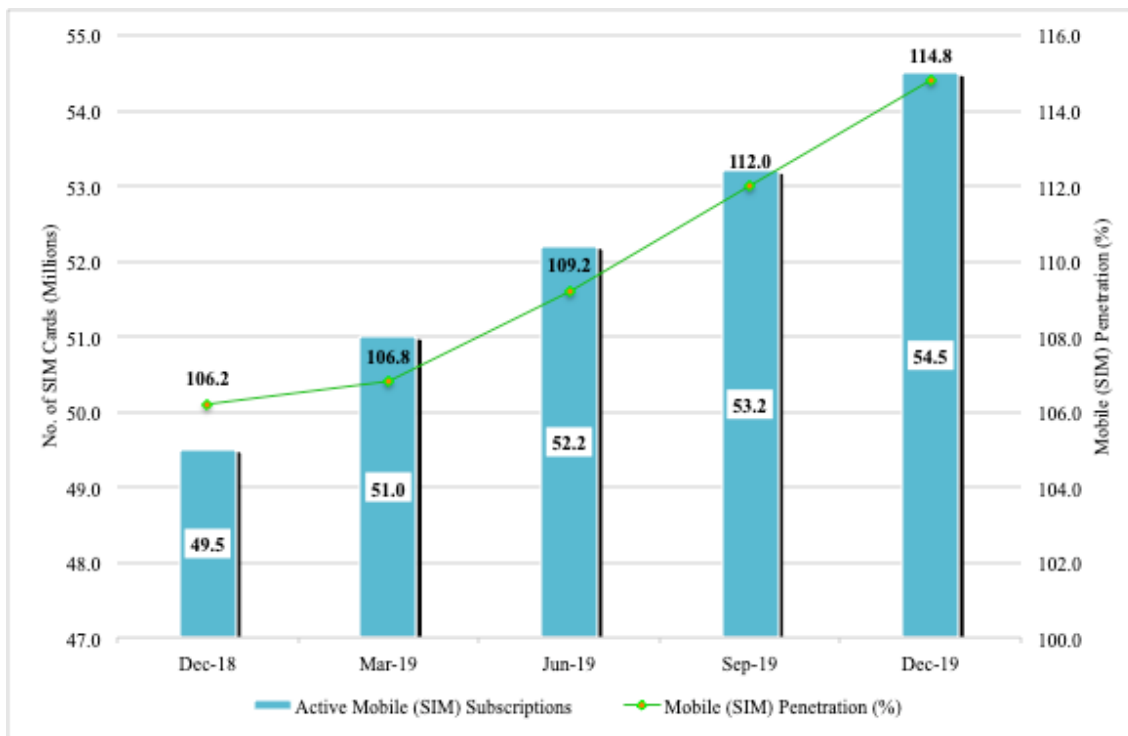
*Source: CA, Operators' Returns, * Mobile Pay Ltd data not available due to non-compliance by the operator*

Figure 1: Mobile Subscriptions and Penetration

Unlike in the previous quarters, the number of SIM additions increased during the quarter to stand at 1.3 million from 1.0 million SIM cards reported last quarter.

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[5] Active Subscription (SIM Card) refers to any registered mobile SIM Card that has generated revenue within the last 3 months
[6] Mobile Penetration is computed by dividing the total number of mobile subscriptions (SIM) Cards by the Total Population multiplied by 100

Net Additions in Mobile Subscriptions
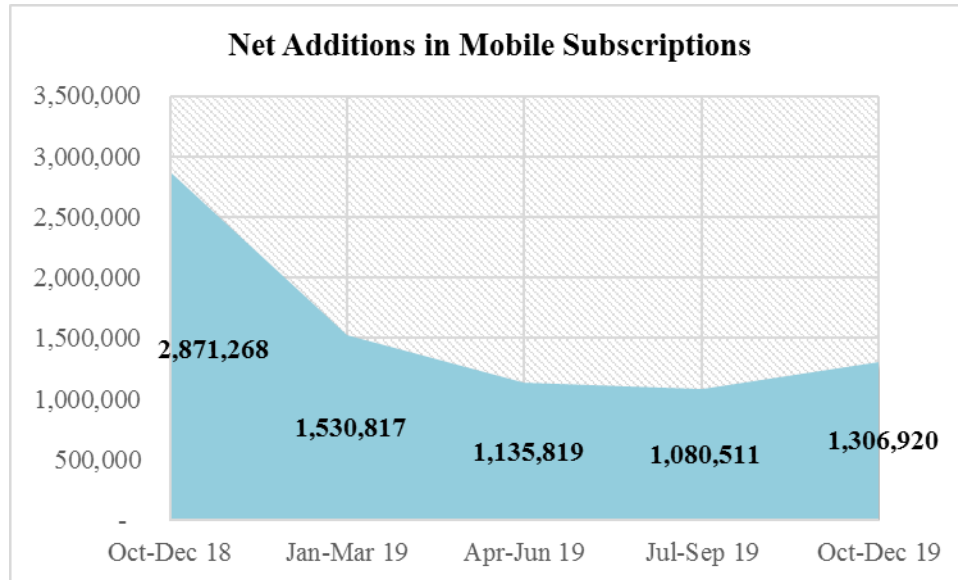
*Source: CA, Operators' Returns, * Mobile Pay Ltd data not available due to non-compliance by the operator*

Figure 2: Net Additions

The market shares in mobile subscriptions for Safaricom PLC declined by 0.1 percentage points in quarter two to stand at 64.8 percent, whereas both Telkom Kenya and Equitel lost by 0.5 percentage points to record market shares of 6.2 and 3.1 percent respectively. On the contrary, Airtel Networks gained by 1.3 percentage points to post a market share of 25.9 percent.
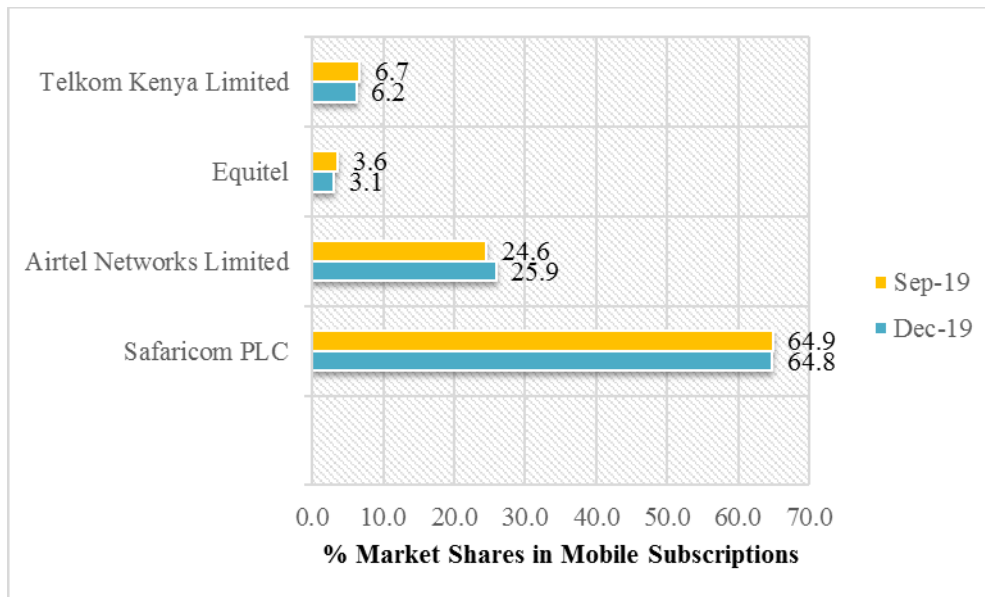
*Source: CA, Operators' Returns, * Mobile Pay Ltd data not available due to non-compliance by the operator*

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

| Name of operator/Indicator	Dec-19			Sep-19			Quarterly Variation (%)
	Pre-paid	**Post-paid**	**Total**	**Pre-paid**	**Post-paid**	**Total**	
Total Mobile Subscriptions	**53,266,480**	**1,289,017**	**54,555,497**	**51,786,199**	**1,462,378**	**53,248,577**	**2.5**
Safaricom PLC	34,161,953	1,173,154	**35,335,107**	33,211,176	1,358,893	**34,570,069**	2.2
Airtel Networks Limited	14,021,519	97,050	**14,118,569**	13,034,554	88,038	**13,122,592**	7.6
Telkom Kenya Limited	3,373,133	18,813	**3,391,946**	3,543,796	15,447	**3,559,243**	-4.70
Equitel	1,709,875	0	**1,709,875**	1,901,848	0	**1,901,848**	-10.1
*Mobile Pay Limited**	-	-	**-**	94,825	0	**94,825**	

*Source: CA, Operators' Returns, * Mobile Pay Ltd data not available due to non-compliance by the operator*

1.2 Mobile Money Services

Financial inclusion through use of mobile money services continued to expand during the period under review. Notably, use of mobile money platform for payment of bills has evolved over the quarters prompting the Authority to collect and report on more disaggregated data with an aim of obtaining further insights. During the second quarter of the FY 2019/20, the number of active registered mobile money subscriptions stood at 28.9 million and the number of active mobile money agents stood at 205,328. M-Pesa recorded the highest market share of 98.8 percent, whereas T-Kash recorded the lowest market share of 0.07 percent. The values of transactions in Kenya Shillings made from Customers to Businesses (C2B), Business to Customer (B2C), Business to Business (B2B), Customer to Government (C2G), Person to Person (P2P) and total deposits per mobile money brand are as shown in Table 2.

Table 2: Mobile Money Transfer Services

Mobile Money Brand/Indicator	M-Pesa	Airtel Money	T-Kash	Totals
Agents	175,959	26,313	3,056	205,328
Active Registered Mobile Money Subscriptions	28,627,861	328,938	19,607	28,976,406
Value of C2B Transfers in KShs.	293,789,439,864	201,296,536	20,942,930	294,011,679,330
Value of B2C Transfers in Kshs	377,185,559,819	219,140,740	8,582,033	377,413,282,592
Value of B2B Transfers in Kshs.	859,614,820,943	-	-	859,614,820,943
Value of C2GTransfers in Kshs.	9,709,364,860	22,221,469	0	9,731,586,329
Volume of P2P Transfers	460,600,528	3,666,458	86,481	464,353,467
Value of P2PTransfers in Kshs.	684,005,904,527	426,493,537	75,587,883	684,507,985,947
Total value of Deposits in Kshs	604,968,609,203	1,963,158,344	27,923,145	606,959,690,692

1.3   Mobile Number Portability

As shown in the Figure 4, Safaricom PLC recorded the highest number of in-ports at 182 whereas Airtel Networks Ltd and Telkom Kenya recorded 57 and 20 in-ports respectively.

Mobile Number Portability
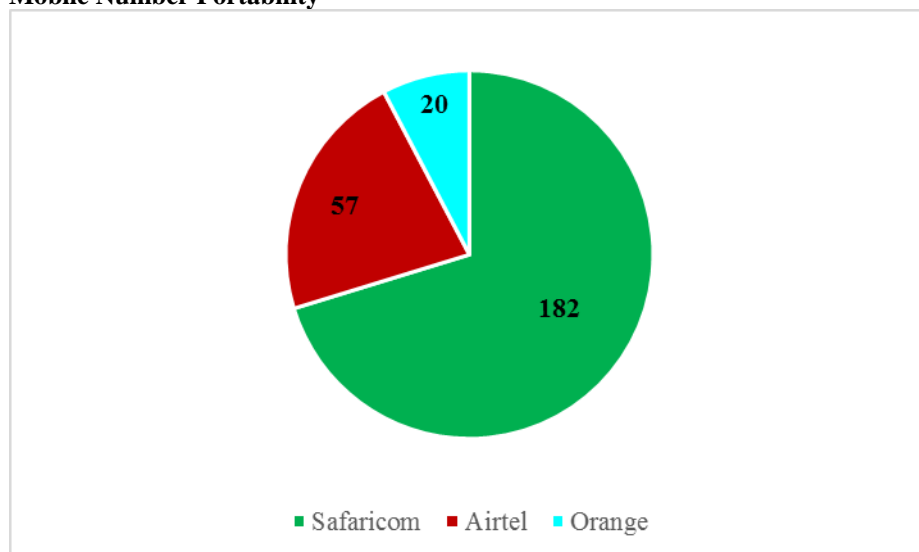
Source: CA, Operators' Returns

Figure 4: Mobile Number Portability

1.4   Mobile Traffic and Usage Pattern

1.4.1   Local Voice Traffic

The total local outgoing mobile voice traffic declined by 16.2 percent during the period under review to post 14.9 billion minutes from 17.8 billion minutes posted during the previous period. This decline is attributed to the drop in on-net voice traffic from 16.1 billion recorded last quarter to 13.2 billion during the quarter under review. The huge decline in on-net traffic was occasioned by revision made by Airtel Networks Limited, which resulted in a reduction on its on-net voice numbers by almost half, that of the last quarter. The justification provided by the operator was that they had been summing incoming and outgoing on-net traffic in previous quarters instead of providing outgoing traffic only considering that ideally only outgoing traffic is billed. Similarly, mobile to fixed voice traffic declined by 7.0 percent to record 14.7 million minutes and this decline is attributed to the continued shrinking of fixed network subscriptions. On the other hand, off-net local voice traffic increased by 0.5 percent to post 1.73 billion minutes from 1.72 billion minutes recorded last quarter.

Table 3 shows a summary of local mobile voice traffic.

Table 3: Local Mobile Voice Traffic in Minutes

Mobile Traffic	Oct-Dec 19	Jul-Sep 19	Quarterly Variation (%)
Total Outgoing Traffic	**14,984,678,305**	**17,887,754,648**	-16.2
Own Network – Own Network	13,237,490,239	16,147,547,536	-18.0
Own Network to Other Mobile Networks	1,732,477,761	1,724,422,376	0.5
Mobile Network to Fixed Network	14,710,305	15,812,636	-7.0

Source: CA, Operators' Returns, Mobile Pay Ltd data not available due to non-compliance by the operator

1.4.2   Voice Traffic by Operator

The total local mobile voice traffic originating from Safaricom PLC networks decreased to 10.048 billion minutes during the quarter under review, from 10.084 billion minutes recorded in the previous quarter. Despite this, its voice traffic market share increased by 10.7 percentage points to stand at 67.1 percent.

Local mobile voice traffic for Airtel Networks Kenya Limited dropped to 4.3 billion minutes during the period under review, from 7.2 billion minutes registered in the preceding quarter. The huge decline in on-net traffic was occasioned by revision made by Airtel Networks Limited, which resulted in a reduction on its on-net voice numbers by almost half, that of the last quarter. Consequently, the operator's voice market share dropped by 11.1 percentage points to stand at 29.2 percent during the period under review.

Telkom Kenya Limited registered a total of 515.3 million minutes originating from its mobile network down from 552.8 million minutes recorded during previous quarter. On the contrary, the operators' voice market shares increased from 3.1 to 3.4 percentage points.

Equitel recorded 33.0 million minutes during the period under review down from 33.7 million minutes recorded during the previous quarter. Its voice market share remained unchanged at 0.2 percent.

The local traffic volumes per service provider and the respective market shares are shown in Table 4.

Table 4: Local Mobile Voice Traffic by Operator

Period	Name of Operator /Indicator	Safaricom PLC	Airtel Networks Kenya Limited	Telkom Kenya Limited	Equitel	Mobile Pay Limited*	Total
Oct-Dec 19	On-net	9,551,360,114	3,368,535,646	312,854,640	4,739,839	-	**13,237,490,239**
	Off-net	496,988,306	1,004,722,340	202,506,322	28,260,793	-	**1,732,477,761**
	Total	**10,048,348,420**	**4,373,257,986**	**515,360,962**	**33,000,632**	**-**	**14,969,968,000**
	Market share (%)	67.1	29.2	3.4	0.2	-	

Period	Indicator	Safaricom PLC	Airtel Networks Kenya Limited	Telkom Kenya Limited	Equitel	Mobile Pay Limited	Total
Jul – Sep 19	On-net	9,575,631,209	6,230,116,858	336,936,653	4,859,545	3,271	**16,147,547,536**
	Off-net	509,174,237	970,441,315	215,909,212	28,869,802	27,810	**1,724,422,376**
	Total	**10,084,805,446**	**7,200,558,173**	**552,845,865**	**33,729,347**	**31,081**	**17,871,969,912**
	Market share (%)	56.4	40.3	3.1	0.2	0.0	

Source: CA, Operators' Returns, Mobile Pay Ltd data not available due to non-compliance by the operator

The average minutes of use per call for on-net and off-net local mobile voice traffic stood at 1.5 and 1.0 minutes respectively during the quarter under review. In spite of significant decrease in on-net voice traffic during the quarter, Airtel Networks Limited subscribers recorded the highest duration of on-net minutes per call at 3.3 while for off net, Telkom Kenya recorded the highest minutes at 1.8. This is attributed to the fact that operators offer lower calling rates or free calls for on-net calls. For instance, Safaricom has reduced the cost of on-net calls during off peak (between 2200hrs and 0800hrs) by 33 percent. (Kshs. 4.0 to Kshs. 2.86). Similarly, Airtel is offering lucrative voice bundles for on-net calls where its customers are able to subscribe for Kshs. 10 for 24 hours, Kshs. 50 for 7 days or Kshs. 150 for a month.

Table 6 presents average Minutes of Use per Call per operator.

Table 5: Minutes of Use per Call per Operator

	Oct-Dec 19		Jul- Sep 19	
Operator	**On-net**	**Off-net**	**On-net**	**Off-net**
Total	**1.5**	**1.0**	**1.7**	**1.0**
Safaricom PLC	1.2	0.9	1.3	0.9
Airtel networks Limited	3.3	1.1	3.2	1.0
Telkom Kenya Limited	1.8	1.2	1.9	1.2
Equitel	1.2	1.1	1.3	1.1
Mobile Pay Limited	-	-	2.0	2.1

Source: CA, Operators' Returns, Mobile Pay Ltd data not available due to non-compliance by the operator

1.4.3 Domestic Short Messaging Service (SMS) Traffic

The total number of short messages sent during the quarter under review stood at 15.6 billion down from 17.2 billion messages recorded during the previous quarter.

SMS traffic and the corresponding market shares per operator are as shown in Table 5.

Table 6: Local Mobile SMS Traffic by Operator

Period	Name of Operator/ Indicator	Safaricom PLC	Airtel Networks Kenya Limited	Telkom Kenya Limited	Equitel	Mobile Pay Limited*	Total
Oct-Dec 19	On-net	14,178,377,276	209,435,990	4,371,905	1,982,381	-	**14,404,167,552**
	Off-net	508,048,109	595,487,013	96,484,801	5,517,314	-	**1,205,537,237**
	Total	**14,686,425,385**	**804,923,003**	**110,856,706**	**7,499,695**	**-**	**15,609,704,789**
	Market share (%)	94.1	5.2	0.7	0.0	-	
	On-net	15,968,436,626	363,830,758	16,656,809	2,556,209	2,503	**16,351,482,905**

Jul - Sep 19	Off-net	424,935,622	301,784,521	107,604,550	5,358,237	21,163	**839,704,093**
	Total	**16,393,372,248**	**665,615,279**	**124,261,359**	**7,914,446**	**23,666**	**17,191,186,998**
	Market share (%)	95.4	3.9	0.7	0.0	0.0	

The number of SMS per Subscription per Month dropped to 95.4 during the quarter under review from 107.6 messages reported during the previous quarter. Similarly, Minutes of Use per Month per Subscription dropped to 91.5 from 111.2 minutes registered in the foregoing quarter. The decline in both SMS/Month/Subscription and MoU/Month/Subscription is attributed to the decline in Airtel Network on-net traffic for both voice and SMS following revision of their data based on the provided definitions for the two indicators.
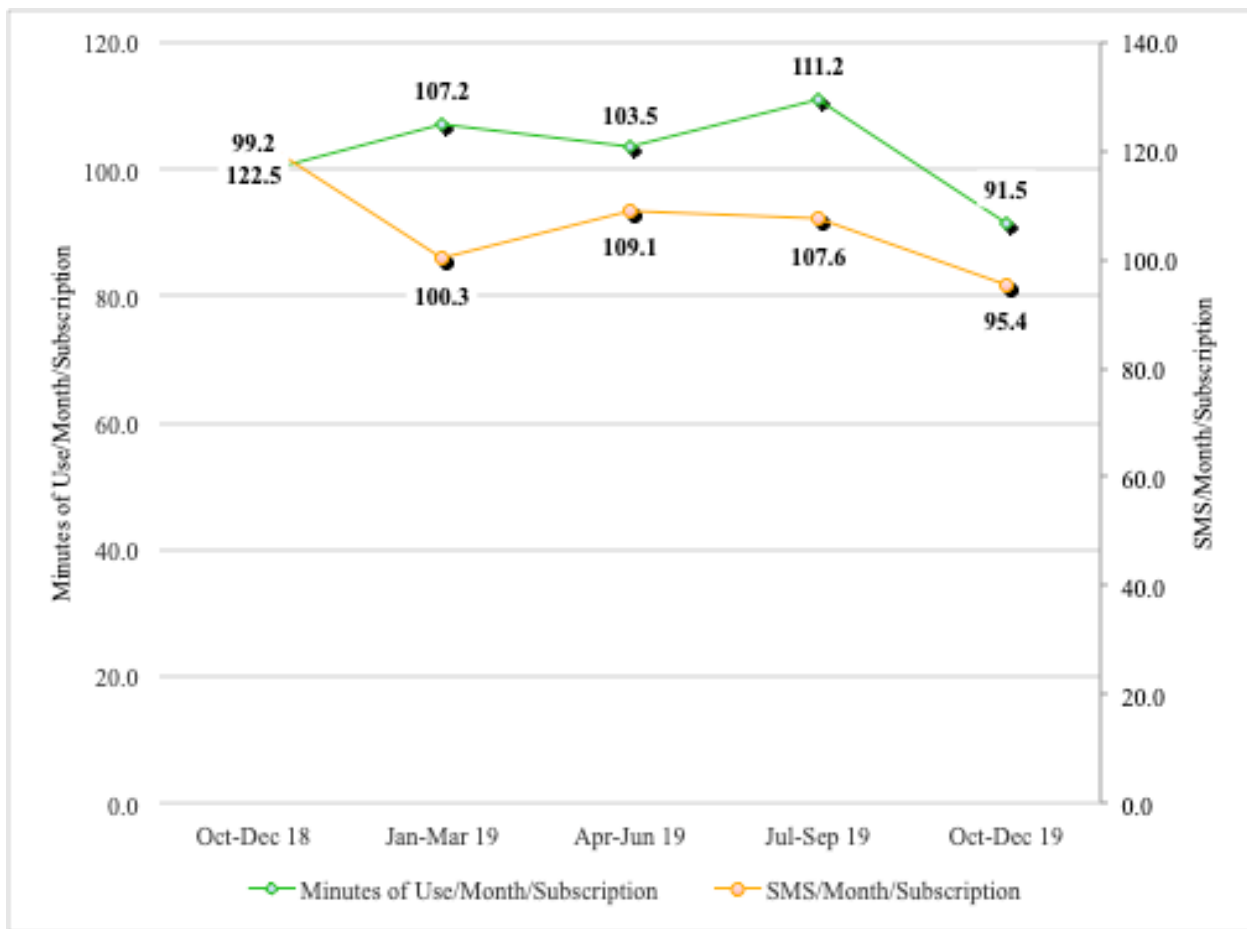
Figure 5: MoU/Month/Subscriptions vs SMS/Month/Subscription

1.4.4 International Mobile Traffic

Traffic originating from and terminating to other countries increased during the period under review to stand at 144.4 million and 111.3 million minutes respectively. On the other hand, international traffic among EAC member countries has continued to decline over the quarters

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following the implementation of the regional One Network Area initiative, since 2014 that resulted in decline in roaming voice charges. Consumers from Kenya, Uganda, Rwanda and South Sudan prefer to roam while visiting either of the countries rather than buying new SIM Cards because of the reasonable calling rates within the One Network Area region. The volume of SMS terminating in foreign networks declined significantly by 26.2 percent and this is attributed to the high international messaging charges and therefore, most consumers have increased uptake of Over The Top (OTT) messaging services such as WhatsApp.

Table 7 provides the trends in international mobile traffic.

Table 7: International Mobile Traffic

Traffic	Region	Oct-Dec 19	Jul -Sep 19	Quarterly Variation (%)
International Incoming Mobile Voice Minutes	EAC	78,753,079	89,713,081	-12.2
	Others	65,659,454	63,191,020	3.9
	Total	144,412,533	111,398,145	29.6
International Outgoing Mobile Voice Minutes	EAC	53,032,008	54,494,003	-2.7
	Others	58,366,137	54,537,550	7.0
	Total	111,398,734.7	109,031,553	2.2
International Incoming Mobile SMS		11,144,327	10,592,200	5.2
International Outgoing Mobile SMS		9,298,702	12,597,629	-26.2

Source: CA, Operators' Returns

1.4.5 Roaming Traffic

As illustrated in Tables 8 and 9, outbound and inbound voice, SMS and data volumes remained high within the One Network Area member countries as compared to other regions due to the low roaming charges implemented through the ONA initiative.

Table 8: Out-bound Roaming Traffic

Country/ Indicator	Incoming Voice (Minutes)	Incoming SMS	Outgoing Voice (Minutes)	Outgoing SMS	Data Volumes (MB)
Uganda	49,825,668	6,724,525	3,606,561	4,744,217	9,441,193
Tanzania	500,615	608,360	11,407,337	1,698,172	2,363,220
Rwanda	2,583,359	641,122	111,983	488,060	1,147,271
Burundi	10,710	4,185	288,765	34,334	19,746
S. Sudan	3,361,780	1,098,198	522,667	847,405	65,173
Others	1,649,699	6,476,052	20,268,088	8,054,526	7,982,807
Totals	**57,931,831**	**15,552,442**	**36,205,401**	**15,866,714**	**21,019,410**

Source: CA, Operators' Returns

Table 9: In-bound Roaming Traffic

	Incoming Voice (Minutes)	Incoming SMS	Outgoing Voice (Minutes)	Outgoing SMS	Data Volumes (MB)

Uganda	40,890,553	1,281,646	3,585,961	383,454	1,742,411
Tanzania	113,823	174,915	11,475,863	514,314	661,069
Rwanda	9,069,517	263,305	800,677	42,484	198,658
Burundi	672	4,916	15,681	681	367
S. Sudan	3,744,896	85,063	272,831	108,866	26,591
Others	1,296,287	2,757,733	10,172,813	1,343,958	63,993,730
Totals	55,115,748	4,567,578	26,323,826	2,393,757	66,622,826

Source: CA, Operators' Returns

2   FIXED TELEPHONE SERVICE

2.1   Fixed Network Subscriptions

The traditional fixed network service maintained a downward trend during the period under review. However, Fixed Voice over the Internet Protocol service grew by 10.5 percent in terms of subscriptions. Table 10 provides the distribution and trends of fixed network subscriptions.

Table 10: Fixed Network Subscriptions

Subscriptions	*Dec-19*	*Sep-19*	*Quarterly Variation (%)*
Fixed Line	20,588	21,019	-2.1
Fixed Wireless	1,012	1,049	-3.5
Fixed VoIP	48,794	44,164	10.5

Source: CA, Operators' Returns

2.2   Fixed Network Traffic

The total local fixed voice network traffic dropped by 4.9 percent during the period under review to post 564,900 minutes, from 593,724 minutes recorded during the previous quarter.

Table 11: Local Fixed Network Traffic in Minutes

Local Fixed Network Traffic	*Oct-Dec 19*	*Jul-Sep 19*	*Quarterly Variation (%)*
Fixed-Fixed	256,990	271,802	-5.4
Fixed Wireless-Fixed Wireless	307,910	321,922	-4.4
Fixed to Mobile	5,376,152	5,947,887	-9.6
Total Local Fixed Network Traffic	**564,900**	**593,724**	**-4.9**

Source: CA, Operators' Returns

2.3   International Fixed Voice Traffic

Table 12 shows trends in international fixed voice network traffic.

Table 12: International Fixed Voice Network Traffic

International Fixed Network traffic	*Oct-Dec 19*	*Jul - Sep 19*	*Quarterly Variation (%)*
International Incoming Fixed Network Voice Traffic	5,320,573	6,412,589	-17.0

International Outgoing Fixed Network Voice Traffic	3,683,823	3,988,879	-7.6
International Outgoing Fixed VoIP Traffic	412,209	383,099	7.6

Source: CA, Operators' Returns

3 DATA/INTERNET SERVICES

3.1 Data and Broadband Services

As a result of the aforementioned development and publishing of a guiding manual on the definitions and methodologies of collecting and reporting telecommunications/ICT indicators, as well as revision of the data collection template during the quarter under review, some mobile network operators revised data initially submitted especially that on mobile data subscriptions, which account for 99 percent of data/internet subscriptions. In this respect, the total data/internet subscriptions declined to stand at 39.6 million, of which 22.0 million subscriptions were on broadband.

Table 13 provides a breakdown of data/internet subscriptions based on the type of technology.

Table 13: Data/Internet Subscriptions

Indicator/Period	Data/Internet Subscriptions	Broadband Subscriptions
Total Wireless Subscriptions	**39,227,708**	**21,657,431**
Mobile Data Subscriptions	39,156,202	21,595,570
Terrestrial Wireless Data Subscribers	70,035	60,436
Satellite Data Subscribers	1,471	1425
Total Fixed (Wired) Subscriptions	**429,382**	**422,720**
Fixed DSL Data Subscribers	751	704
Fixed Fibre Optic Data Subscribers	268,753	262,138
Fixed Cable Modem Subscribers	158,188	158,188
Other Fixed Data Subscribers (e.g. Radio)	1,690	1,690
Total Subscriptions	**39,657,090**	**22,080,151**

Source: CA, Operators' Returns

3.2 Fixed Data/Internet Subscriptions by Speed

During the period under review, fibre-to-the-office/home data/internet subscriptions recorded the highest number of broadband[7] subscriptions, whereas fixed wireless recorded the highest number of narrowband[8] subscriptions.

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

Table 14: 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
Cable Modem	0	0	112,096	17,926	27,279	887
Copper (DSL)	47	45	626	33	0	0
FTTH/O	0	3,658	110,739	85,665	67,046	1,645
Fixed Wireless	9,612	5,713	53,808	729	173	0
Satellite	46	468	657	300	0	0

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[7] Broadband; Data/internet speeds equal to or above 256 Kbps
[8] Narrowband; Data/Internet speeds below 256 Kbps

Other Fixed	0	809	537	198	84	62
Totals	**9,705**	**10,693**	**278,463**	**104,851**	**94,582**	**2,594**

Table 15 shows Fixed Data Subscriptions per Service Provider.

Table 15: Fixed Data Subscriptions per Service Provider

Name of service Provider	Number of data/internet subscriptions	Percentage Market share
Wananchi Group (Kenya) Ltd*	175,433	35.0
Safaricom PLC	165,810	33.1
Jamii Telecommunications Ltd	78,149	15.6
Poa Internet Kenya Ltd	45,577	9.1
Mawingu Networks Ltd	10,390	2.1
Liquid Telecommunications Kenya Limited	9,444	1.9
Internet Solutions Kenya Ltd	8,877	1.8
Telkom Kenya Ltd	4,400	0.9
Frontier Optical Networks Ltd	558	0.1
Other Fixed Service providers	2,250	0.4

3.3 International Bandwidth

During the quarter under review, the total International Internet bandwidth leased in the country increased by 16.1 percent to stand at 6,241.84 Gbps from 5,374.02 Gbps recorded during the previous quarter. This increase is attributed to the additional bandwidth lit by TEAMS with an aim of meeting its customer's increasing demand for bandwidth.

The total utilized bandwidth capacity increased by 80.3 percent during the quarter to stand at 2,720.26 Gbps, 35.1 percent of the bandwidth was sold within the country and 64.9 percent outside the country. The utilized satellite bandwidth on the other hand declined by 48.2 percent to record 2.70 Gbps.

The trends on International Lit/Equip and Utilized Bandwidth are as shown in Table 16.

Table 16: International Internet Bandwidth (Gbps)

Indicator/ Operator		Oct-Dec 19	Jul-Sep 19	Quarterly Variation (%)
Total Available (Lit/Equip) Bandwidth Capacity		**6,241.84**	**5,374.02**	**16.1**
Undersea Bandwidth Capacity	*SEACOM*	2,940.00	2,840.00	3.5
	TEAMS	1,618.00	1,000.00	61.8
	EASSY	1,430.00	1,280.00	11.7
	Lion 2	248.32	248.30	0.0
Satellite Bandwidth Capacity		5.52	5.72	-3.5
Utilized Bandwidth in Gbps				
Total Utilized Bandwidth Capacity		**2,720.26**	**1,508.61**	**80.3**
Undersea Bandwidth Capacity		2,717.56	1,503.4	80.8
Satellite Internet Capacity		2.70	5.21	-48.2

3.4   Registered Domain Names

The total number of domain names dropped during the period under review to post 91,940 domains from 93,003 domains posted during the previous period. This drop is attributed to the closure of businesses and other non-governmental institutions in the country.

The Table 17 illustrates the distribution of sub-domains in the country as at the end of December 2019.

Table 17: .KE Domains

SUB_DOMAIN		Oct-Dec 19		Jul- Sep 19	
	USE	**Domains**	**% Users**	**Domains**	**% Users**
CO.KE	Companies	87,243	94.89	88,024	94.65
OR.KE	Non-Profit-Making Organizations	1,831	1.99	1,894	2.04
AC.KE	Institutions of Higher Education	889	0.97	918	0.99
SC.KE	Lower and Middle Level Institutions	902	0.98	1,075	1.16
NE.KE	Personal Websites and E-mail	96	0.10	109	0.12
ME.KE	Personal Websites and E-mail	219	0.25	238	0.26
MOBI.KE	Mobile Content	40	0.04	44	0.05
INFO.KE	Information	155	0.17	138	0.15
GO.KE	Government Institutions	565	0.61	563	0.61
Total		**91,940**		**93,003**	**-1.14**

4   National Cyber Security Landscape

4.1   Cyber Threat Statistics

The National KE-CIRT/CC has deployed various cyber threat detection systems towards enhancing Kenya's national cyber security readiness and resilience. During the period October - December 2019, the National KE-CIRT/CC detected 37.1 million cyber threats as compared to 25.2 million cyber threat events detected in the period July – September 2019. This was a 47.2 percent increase as compared to the previous quarter, which is attributed to an exponentially high number of malware threats detected, as demonstrated by increased number of cyber threat advisories issued during the quarter.

Table 18: Cyber Threats Detected

Cyber Threat	Oct-Dec 19	Jul-Sep 19	Quarterly Variation (%)
Totals	**37,133,200**	**25,211,269**	**47.2**
Malware	34,854,959	20,540,231	69.7
DDOS/Botnet	346,704	573,421	-39.5
Web Application Attacks	1,908,001	4,069,671	-53.1
System vulnerabilities	23,536	27,946	-15.8

As the trusted national point of contact on cyber security matters, the National KE-CIRT/CC analyzed the cyber threat events detected and issued advisories to the affected critical information infrastructure service providers. During the quarter under review, the National KE-CIRT/CC issued issued 16,637 advisories, which is a 2.9 percent decrease to the 17,127 advisories that were issued during the period of July – September 2019.

Table 19: Cyber Threats Advisories

Cyber Threat Advisories	Oct-Dec 19	Jul-Sep 19	Quarterly Variation (%)
Totals	**16,637**	**17,127**	**-2.9**
Malware	1,601	2,160	-25.9
Botnet	943	318	214.8
Web Application Attacks	45	291	-84.5
System Vulnerabilities	13,815	13,897	-0.59
Others	233	461	-49.5

Source: National KE-CIRT/CC

5   POSTAL AND COURIER SERVICES

The number of letters sent between October and December 2019 increased by 9.7 percent to stand at 10.5 million, from 9.6 million letters sent between July and September 2019. This increase is as a result of the national examinations during which consumers sent success cards to their loved ones. The increase is further attributed to the fact that most Kenyans prefer to enclose small gifts inside letters than posting as courier items since it is cheaper.

As has been observed in preceding quarters, the volume of courier items sent during this period declined by 4.5 percent to post 575,498 items. The decline in courier items in the wake of increased up-take of e-commerce is attributed to the reason stated above and also to the increasing number of unlicensed and unregulated courier operators such as *boda-boda,* who have taken part of the business.

The volume of international incoming letters increased by 3.5 percent to stand at 2.2 million, from 2.1 million letters reported during the previous quarter. Letters sent outside the country increased to 952,933 from 919,275 letters, registered last quarter.
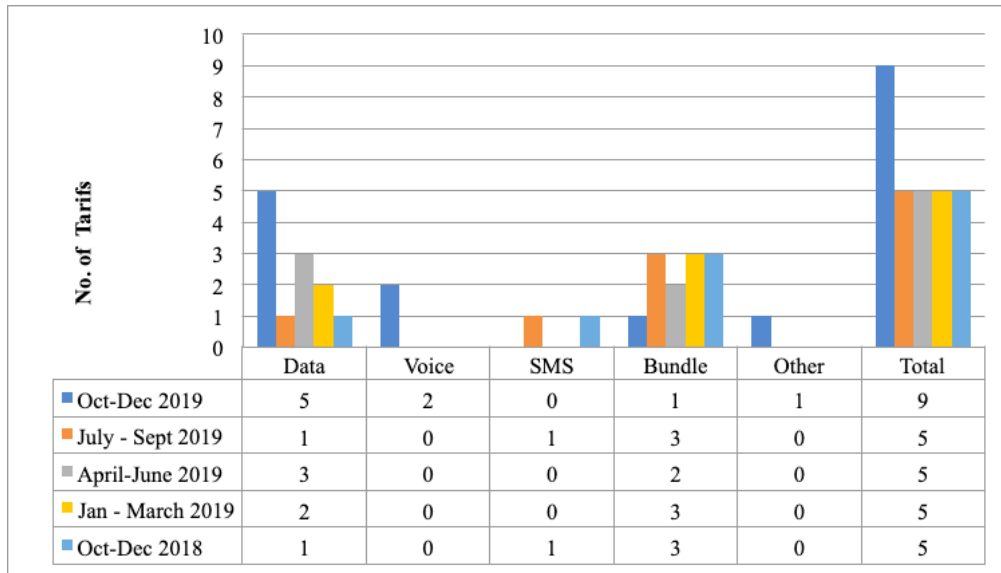
Table 20: Postal and Courier Traffic

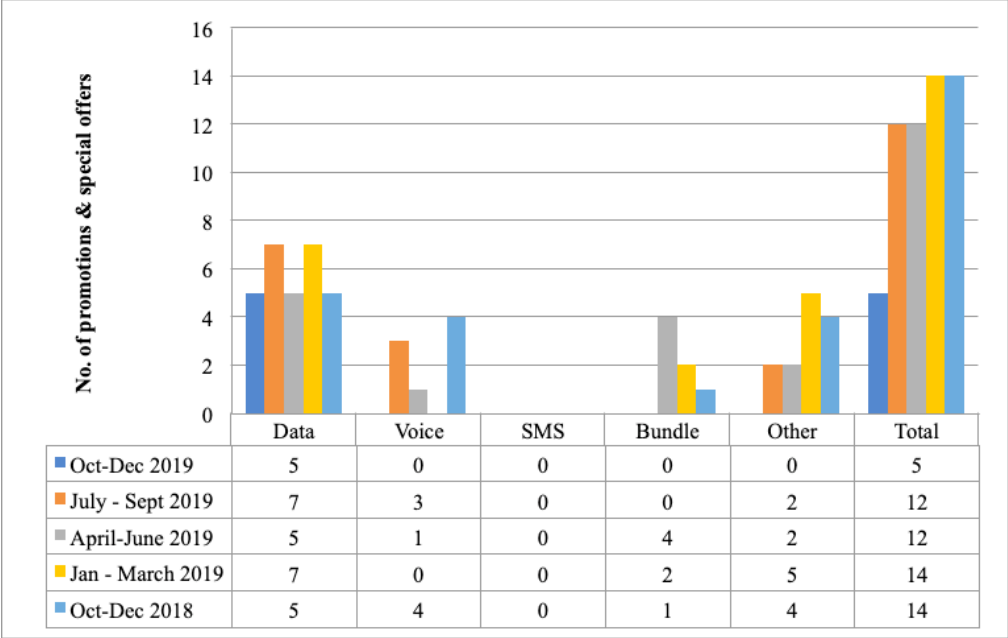| Postal and Courier Traffic	Oct-Dec 19	July-Sep 19	Quarterly Variation (%)
Number of Letters Sent (Up to 350 gms) Posted Locally	10,555,124	9,620,929	9.7
Total Courier Items Sent locally	575,498	602,538	-4.5
International Incoming Letters (Up to 350 gms)	2,250,577	2,173,899	3.5
International Outgoing Letters (Up to 350 gms)	952,933	919,275	3.7

Source: CA, Operators' Returns

6   TARIFFS, PROMOTIONS AND SPECIAL OFFERS

During the period under review, the Authority received a total of 14 new applications for tariffs and promotions & special offers as compared to 17 new applications received during the previous quarter.

Further, the Authority received a total of 11 applications for revision of existing tariffs and promotions & special offers during the same period. A detailed distribution for tariffs and promotions & special offers applications for the past four quarters is illustrated in Figures 6 and 7 below respectively.

	Data	Voice	SMS	Bundle	Other	Total
Oct-Dec 2019	5	2	0	1	1	9
July - Sept 2019	1	0	1	3	0	5
April-June 2019	3	0	0	2	0	5
Jan - March 2019	2	0	0	3	0	5
Oct-Dec 2018	1	0	1	3	0	5

Figure 6: Tariffs

Figure 7: Promotions and Special Offers

	Data	Voice	SMS	Bundle	Other	Total
■ Oct-Dec 2019	5	0	0	0	0	5
■ July - Sept 2019	7	3	0	0	2	12
■ April-June 2019	5	1	0	4	2	12
■ Jan - March 2019	7	0	0	2	5	14
■ Oct-Dec 2018	5	4	0	1	4	14

7 CONCLUSION

The ICT sector has continued to register mixed trends over time. The mobile and data/internet sub-sectors have continued to register positive growths, whereas fixed network, and postal and courier sub-sectors have registered downward trends or minimal growths in terms of uptake and use of services. With continued rollout and expansion of 3G, 4G and fibre optic infrastructure, more Kenyans especially in rural areas will be connected to better quality broadband services. This will provide them more opportunities to harness the benefits of e-services.

The uptake for mobile services is expected to continue increasing as the government continues to drive initiatives that are aimed at closing the connectivity gaps. Moreover, because Kenyan consumers are becoming more price-point sensitive, they are likely to continue acquiring multiple SIM Cards in a bid to benefit from the various special plans offered by various operators.

Emerging telecommunication challenges such as Cybersecurity incidents are likely to increase and evolve at a similar rate and therefore, the relevant government institutions and stakeholders will need to continuously review and where necessary revise the existing national laws, policies and regulations in order to address these challenges, while enhancing innovation.