NATIONAL
COMMUNICATIONS
AUTHORITY

COMMUNICATIONS INDUSTRY REPORT

2020

ABOUT THE REPORT

The report (CIR) highlights key developments in the communications industry of Ghana for the year 2020 and further gives information on a five-year trend analysis from 2016 to 2020. The scope of this report focuses on Mobile Network Operators (MNOs), Fixed Network Operators, Broadband Wireless Access (BWA) Providers, Tower Infrastructure Companies, Television and Radio Broadcasting Services regulated by the National Communications Authority (NCA).

The report provides critical statistical data for policy makers, telecom analysts, consumers, academia, investors and other stakeholders to support decision-making. It is data-centric and combines concise year-on-year analysis of the trends in the industry with substantial use of tables, graphs and figures for easy understanding. The report is the product of data received from the various authorisations, licensees, certifications and other relevant stakeholders in the communications industry.

The publication of the Communications Industry Report (CIR) is consistent with the National Communications Authority's mandate under section 26 (2)(a) of the 2008, Electronic Communications Act 775.

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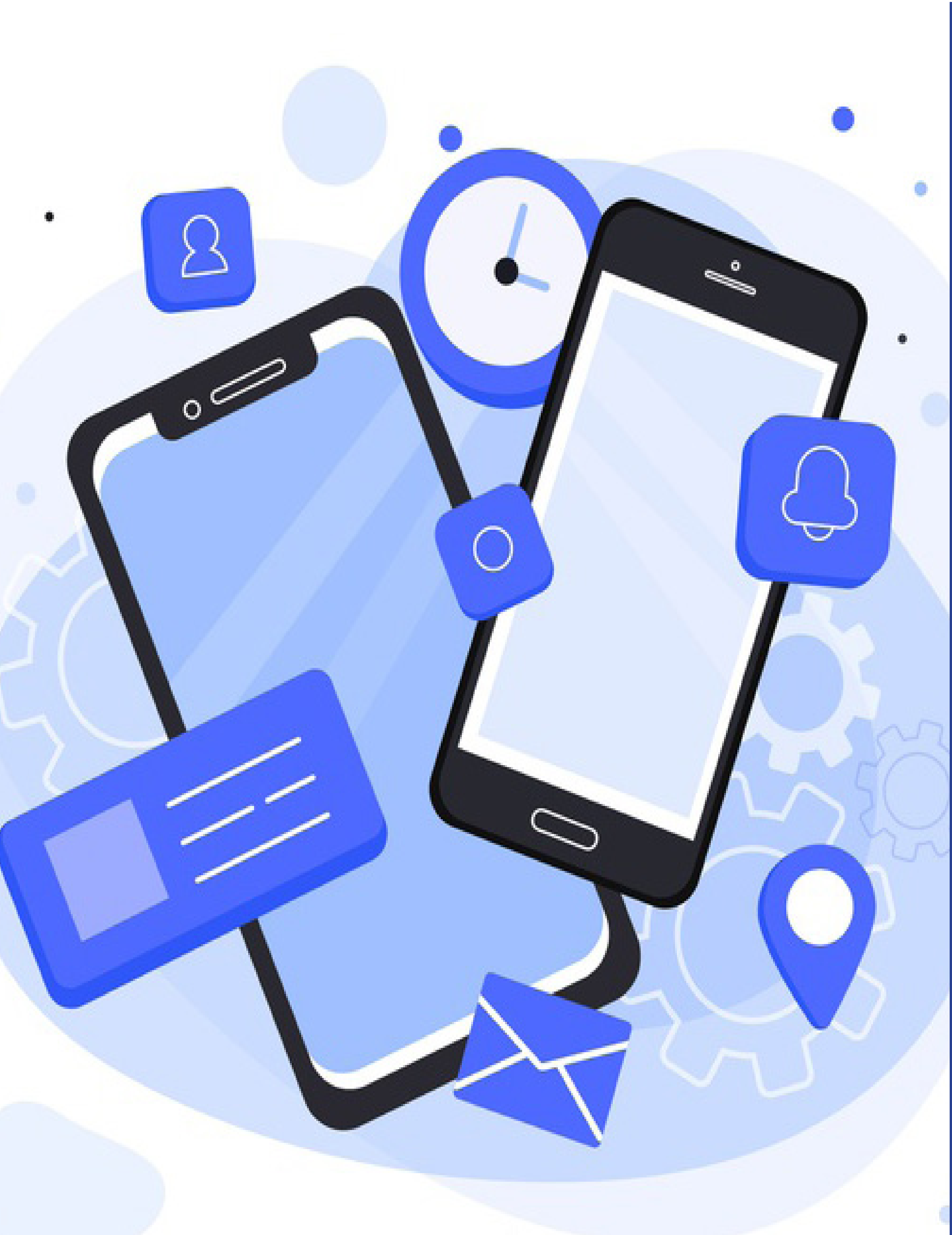


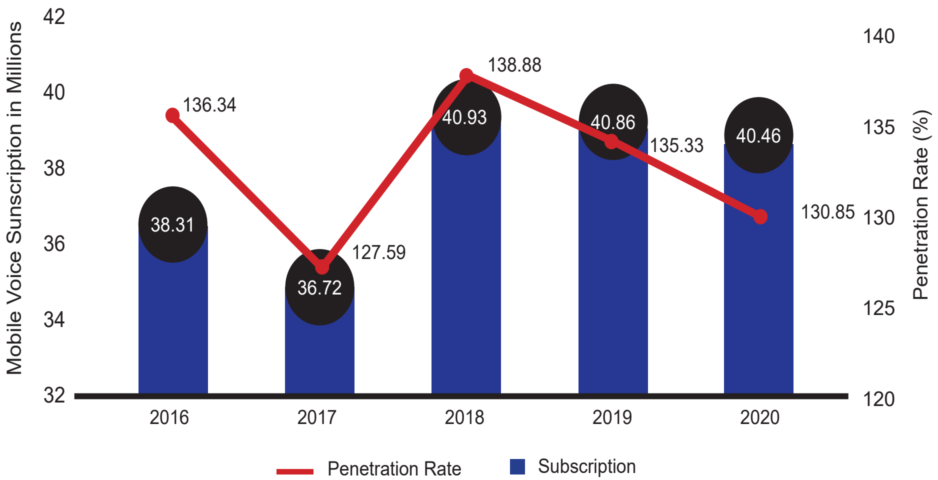
Chapter One

MOBILE CELLULAR SERVICES

1.0 Introduction

This chapter presents an analysis of mobile voice subscription and penetration rates,[1] mobile data subscription and penetration rate, market shares, volume of voice and data traffic, as well as Short Messaging Services (SMS) counts for Mobile Network Operators (MNOs) in Ghana. The chapter also provides information on the revenues and capital expenditure (CAPEX) of Mobile Network Operators. The data provides a five-year trend from 2016 to 2020 for all the indicators. As at the end of 2020, there were four (4) licenced Mobile Network Operators (MNOs) operating in Ghana namely; AirtelTigo,[2] Glo, MTN and Vodafone, and the data in the chapter covers these four service providers.

Figure 1: Mobile Voice Subscription and Penetration Rate (%)



Source: NCA; Mobile Network Operators, 2020

1.1 Mobile Voice Subscription and Penetration Rate

Total mobile voice subscription[3] reduced from 40.86 million in 2019 to 40.46 million in 2020, representing a decline of 0.97%. Over the five-year period from (2016 - 2020), the Compound Annual Growth Rate was 1.38%. Mobile voice penetration rate also fell from 135.33% to 130.85% as a result of the decline in mobile voice subscription.

1.2 Prepaid and Postpaid Voice Subscription

Mobile voice subscriptions are categorised per payment plans as either postpaid or prepaid. Postpaid customers are billed monthly by their service providers whilst prepaid customers pay before the use of services by Service Providers. Over the period under review as shown in Figure 2, total voice subscriptions was predominately attributed to prepaid[4] subscriptions while the remaining 0.71% were postpaid[5] subscriptions.

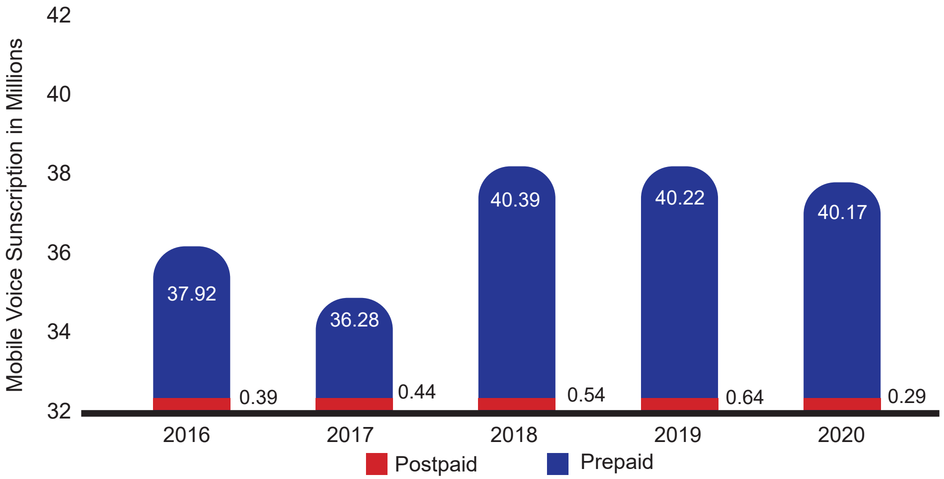
1. Mobile Voice Penetration Rate is the percentage of the Ghanaian population that has subscribed to mobile voice services. It is a percentage of total subscriptions to mobile voice services against the total population of Ghana. Population of Ghana was estimated to be 24,658,823 based on data from the Ghana Statistical Service (GSS) intercensal growth rate.

2. Airtel and Tigo merged into a single entity called AirtelTigo in October 2017. This report provides information on Airtel and Tigo separately for 2016 and 2017, but for 2018 to 2020 data is reported on the merged entity AirtelTigo only. Expresso's licence was revoked in March 2018 so data is provided for 2016 to 2017, if the data is available.

3. Mobile voice subscriptions refer to the total number of active voice subscriber identification module (SIM) unit that has a unique phone number and that can place and receive calls from the operators switched telephone network. To be counted as an active SIM, the SIM should have been used to make or receive call, send or receive SMS or perform voice related activity in the past 90 days.

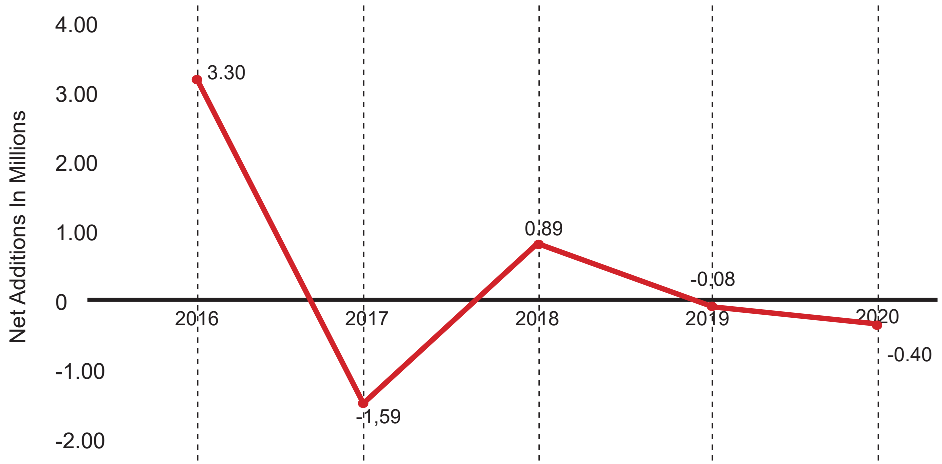
4. Prepaid subscriptions refer to subscriptions to mobile voice services of the operators that require payment before usage.
5. Post-paid subscription refers subscriptions to mobile voice services of the operators that require payment after usage

Figure 2: Distribution of Prepaid and Postpaid Subscriptions



Source: NCA; Mobile Network Operators, 2020

Figure 3: Net Addition in Mobile Voice Subscriptions



Source: NCA; Mobile Network Operators, 2020

1.3 Net Additions[6]

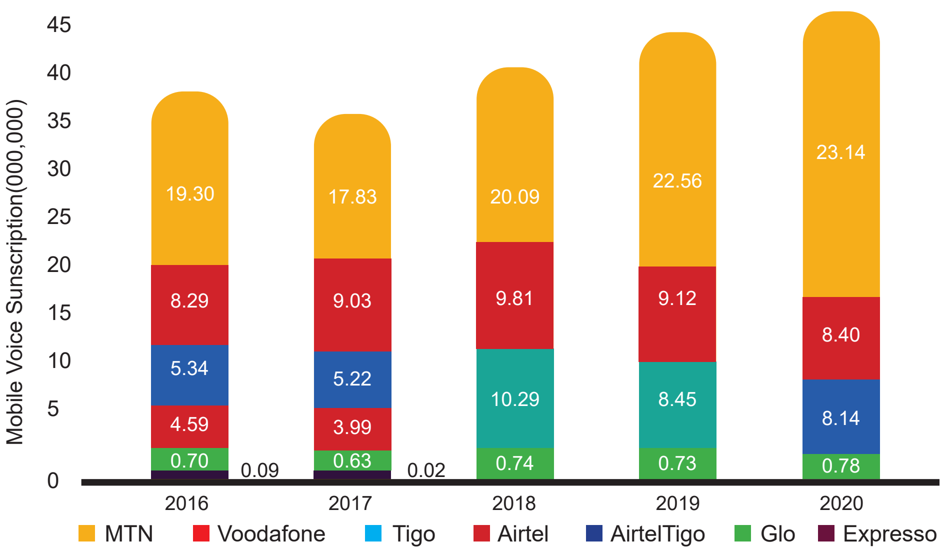
Mobile voice net additions for the year 2020 declined by 395,468 as presented in Figure 3. The decline in total voice subscriptions in 2020 provides the basis for the decline in net additions.

1.4 Mobile Voice Subscriptions per Operator

MTN had a total mobile voice subscription base of 23.14 million at the end of 2020, an increase in subscription of over 580,000 subscriptions from the previous year 2019 (Figure 4). Vodafone, recorded 8.40 million subscriptions which represents a reduction by 721,838 subscriptions compared to 2019. AirtelTigo at the end of 2020 had 8.14 million subscriptions which also indicate a reduction in subscription of 317,435 relative to 2019 total subscriptions. Glo, gained 55,351 subscriptions to end the year 2020 with total voice subscriptions at 0.78 million.

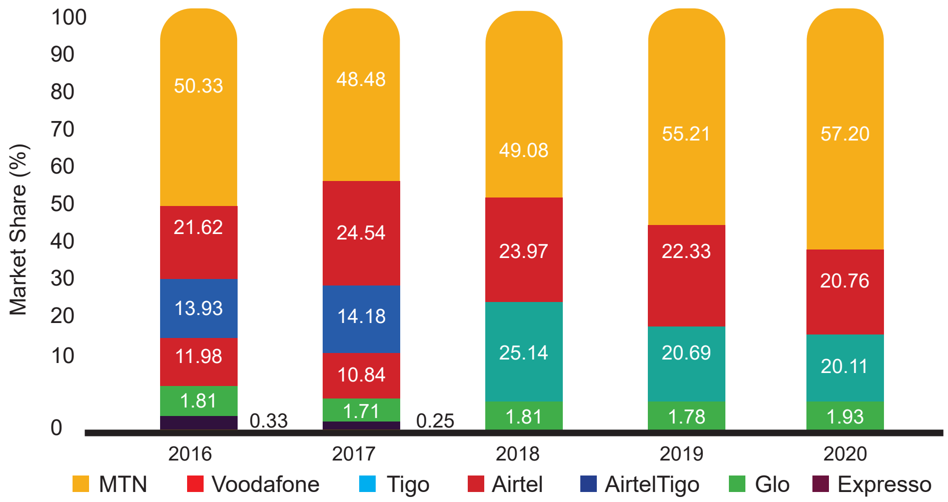
6. The mobile net additions are calculated by subtracting the year's previous subscriptions from the current year's subscriptions.

Figure 4: Mobile Voice Subscription per Operator



Source: NCA; Mobile Network Operators, 2020

Figure 5: Share of Mobile Voice Subscriptions per Operator (%)



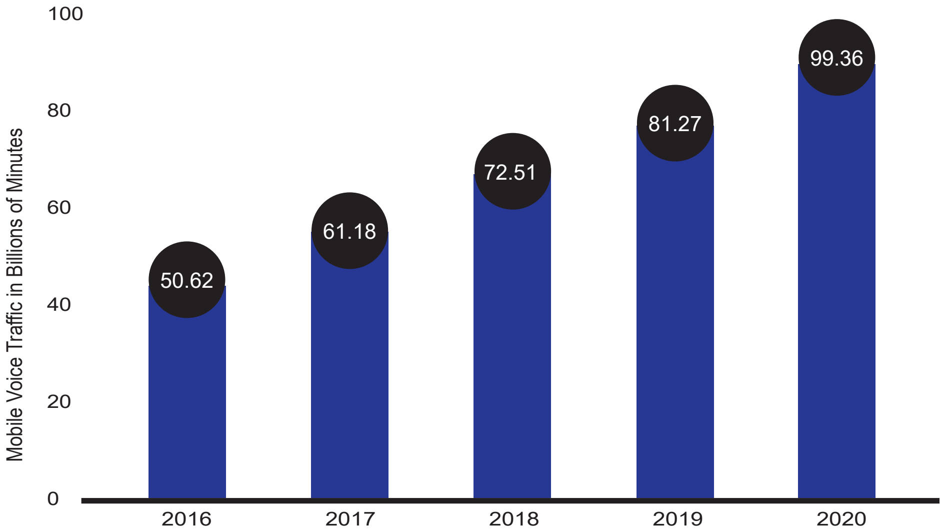
Source: NCA: Mobile Network Operators, 2020

As at the end of 2020, MTN' subscriptions represented a market share of 57.20% , followed by Vodafone with a market share of 20.76%. AirtelTigo 20.11% share of the market whiles Glo has the least subscriptions in terms of market share recording 1.93% of the total market share at the end of 2020.

1.5 Total Mobile Voice Traffic

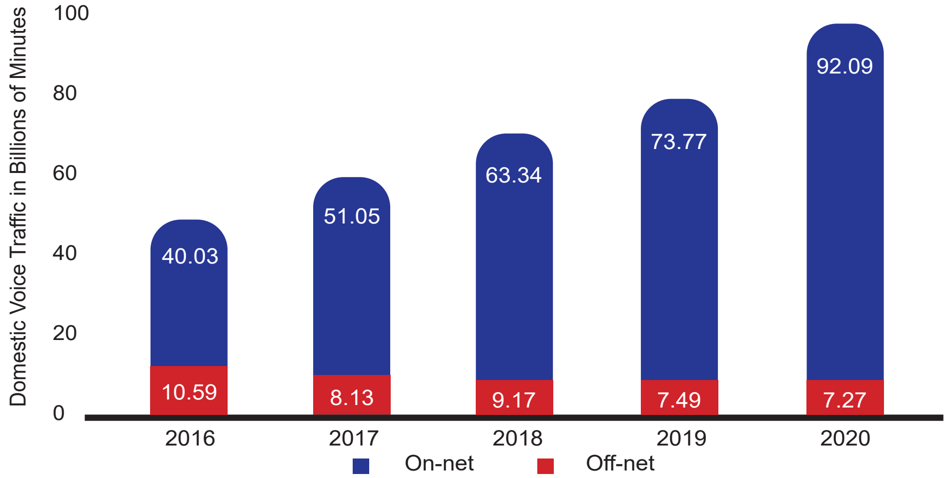
As at end of 2020, the total volume of mobile voice calls in minutes generated by AirtelTigo, Glo, MTN and Vodafone was 99.36 billion minutes, showing an increase of 22.22% in mobile voice traffic as compared to 81.27 billion minutes in the previous year 2019. The volume of mobile voice traffic has over the last five years has seen continuous growth as represented in Figure 6 with a Compound Annual Growth Rate (CAGR) of 18.37% from 2016 to 2020. Although there is a continuous decline in the outgoing off-net traffic, the COVID-19 pandemic may have also contributed to the spike in voice traffic witnessed in the year 2020 as well as the onnet voice traffic.

Figure 6: Total Mobile Voice Traffic



Source: NCA; Mobile Network Operators, 2020

Figure 7: On-net and Off-net Domestic Traffic



Source: NCA; Mobile Network Operators, 2020

1.6 On-net and Off-net Domestic Traffic

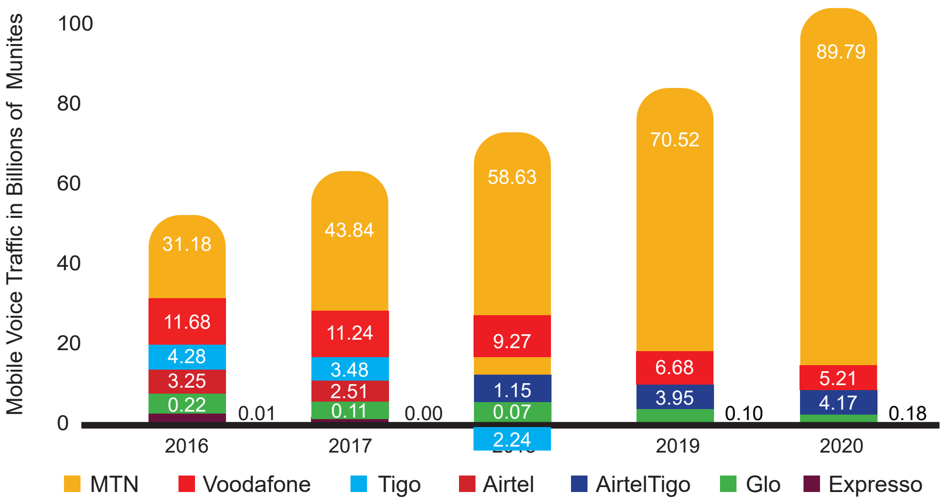
During the period under review, the total outgoing to other networks (off-net) domestic voice traffic generated decline from 10.59 billion minutes (representing 20.91% total domestics traffic) in 2016 to 7.27 billion minutes (7.32% of total volume of domestic voice traffic) in 2020. On-net traffic[7] continues to experience an increase in volume, it accounted for 92.68% of total domestic traffic with 92.09 billion minutes in 2020. Comparatively, on-net minutes recorded a significant increase of 24.83% whiles off-net minutes decreased by 2.96% in 2020 against 2019.

7. On-net is used when a call or message originates on a home operator's network and terminates to another mobile number that resides with an operator. Off-net applies when the call or message originating on a different network. The concept of domestic voice traffic is used to distinguish between the calls originating and terminating in Ghana vis-à-vis calls from and to countries outside Ghana, which are international calls.

1.7 Mobile Voice Traffic per Operator

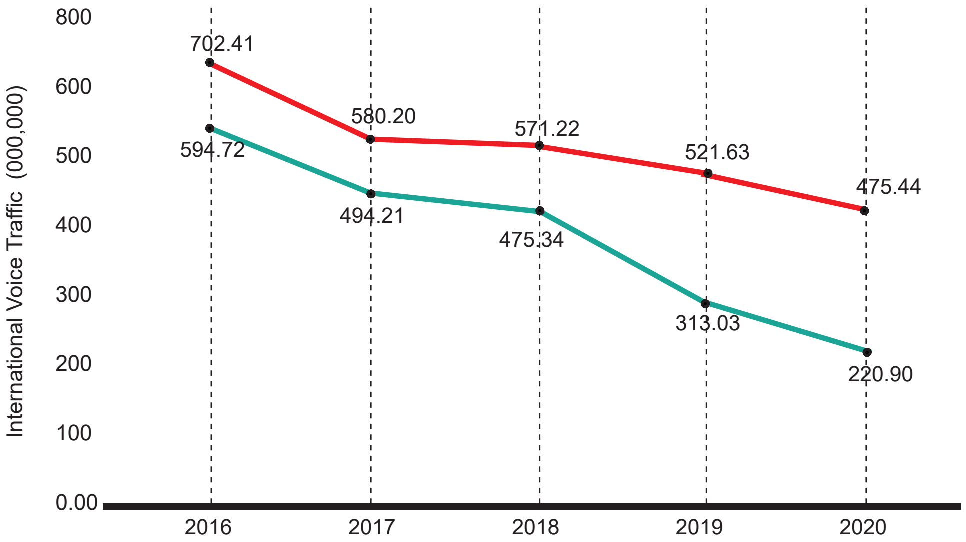
MTN subscriptions generated 89.79 billion minutes representing 90.36% of total mobile voice traffic in the year 2020 as compared to 70.52 billion minutes in 2019. (Figure 8). Vodafone subscriptions generated 6.68 billion minutes of voice subscriptions in 2019 as compared to 5.22 billion minutes which represents 5.25% of total voice traffic. AirtelTigo subscriptions also recorded 4.17 billion minutes, which represents 4.20% of total voice traffic in 2020. Glo subscriptions generated 0.19 billion minutes representing 0.19% of total voice traffic for the year 2020.

Figure 8: Mobile Voice Traffic per Operator



Source: NCA; Mobile Network Operators, 2020

Figure 9: Distribution of International Voice Traffic



Source: NCA; Mobile Network Operators, 2020

1.8 Mobile Voice Traffic (International)

In 2020, outgoing international voice traffic decreased to 0.47 billion minutes from the previous year's figure of 0.52 billion minutes (Figure 9). Incoming international voice traffic also decreased from the previous year's figure of 0.31 billion minutes to 0.22 billion minutes in the year 2020. Total International calls have seen a steady decline since 2016. It declined from 1.30 billion minutes in 2016 to 0.69 billion minutes in 2020. The continuous decline in international mobile voice traffic can be attributed to a myriad of factors including the upsurge in the use of over-the-top services such as WhatsApp for calls and messaging as alternative to the legacy voice calls.

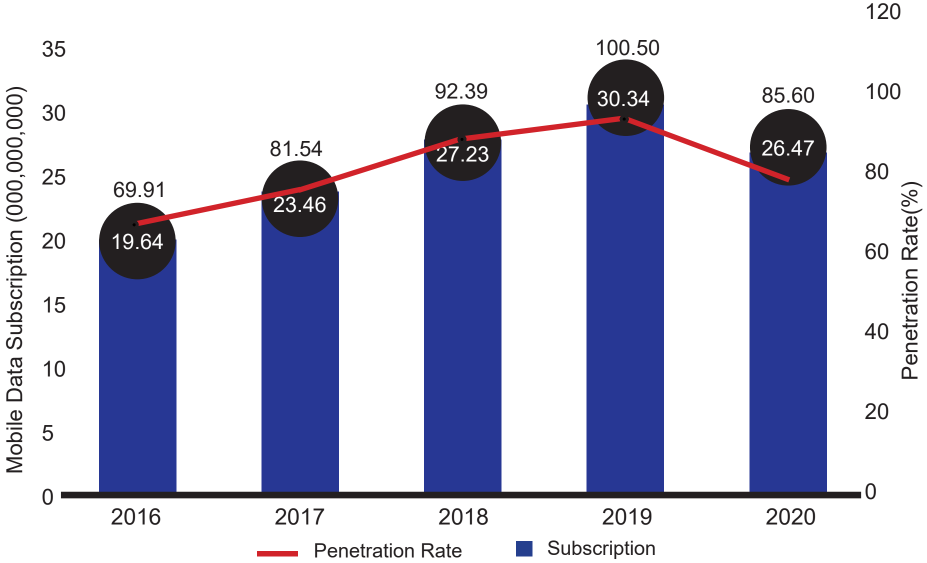
1.9 Mobile Data Subscriptions and Penetration Rate[8] (%)

Total mobile data subscription decline from 30.34 million in 2019 to 26.47 million in 2020, representing a decline of 12.76%. Over the five-year period (2016 - 2020), mobile data subscription grew exponentially from 19.64 million in 2016 to 30.34 million in 2019 until it experienced a dip in 2020 with 26.47million subscriptions, that notwithstanding, the compound annual growth rate for the five-year period was 7.6%. Mobile data penetration rate also fell from 100.50% in 2019 to 85.60% in year 2020 as a result of the decline in mobile data subscription. This also comes at the back of an impressive

8. The Regulator, together with the Service Providers, redefined the methodology used in counting data subscriptions to correct an issue of double counting. This resulted in a significant reduction in the numbers that were reported for the year under review.

growth in penetration rate over the five-year period from 69.91% in 2016 to 85.60% in 2020.

Figure 10: Mobile Data Subscriptions and Penetration Rate (%)

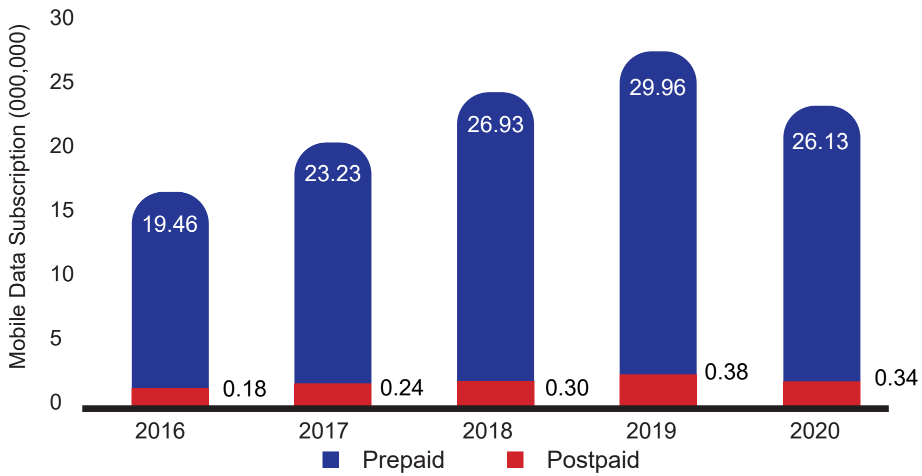


Source: NCA; Mobile Network Operators, 2020

1.10 Distribution of Postpaid and Prepaid Data Subscriptions

Figure 11 shows the total distribution of postpaid and prepaid mobile data subscriptions by operators. Prepaid data subscription has consistently dominated the mobile data in the last five years. Again, prepaid data subscription growth rate continually increased from 2016 to 2019, until it recorded a decline in 2020.

Figure 11: Distribution of Prepaid and Post-paid Data Subscriptions

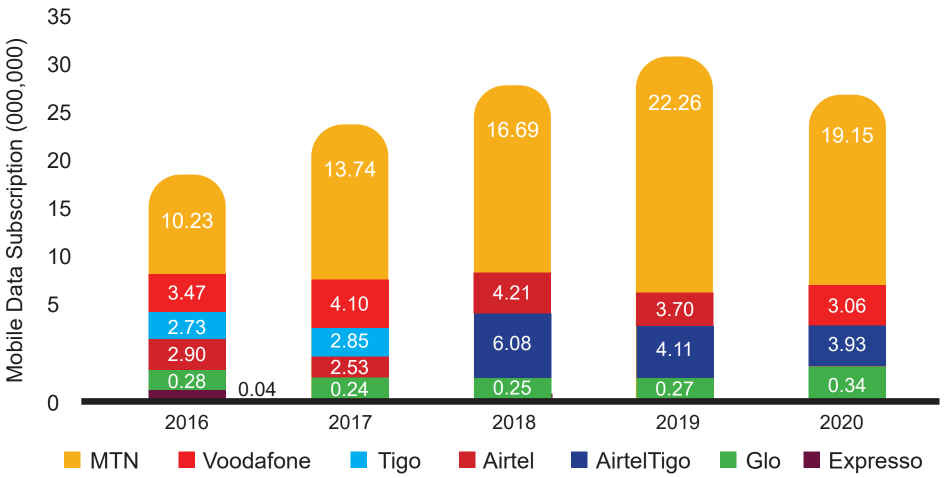


Source: NCA; Mobile Network Operators, 2020

1.11 Mobile Data Subscriptions and Market Share per Operator

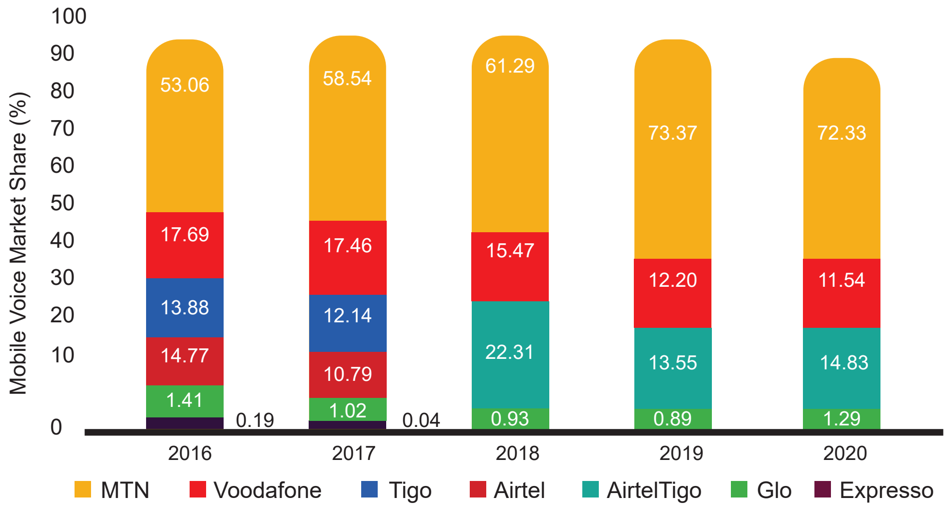
MTN recorded a total of 19.15 million subscriptions, followed by AirtelTigo, which recorded 3.93 million subscriptions. Vodafone's data subscriptions stood at 3.06 million and Glo recording 341,517 data subscriptions.

Figure 12: Mobile Data Subscriptions per Operator



Source: NCA; Mobile Network Operators, 2020

Figure 13: Market Share (%) of Mobile Data Subscription



Source: NCA; Mobile Network Operators, 2020

In terms of market share, MTN is leading with 72.33% of total mobile data subscriptions, followed by Airteltigo with a market share of 14.83% and Vodafone with 11.54% market share. Glo ends the year with 1.29% market share.

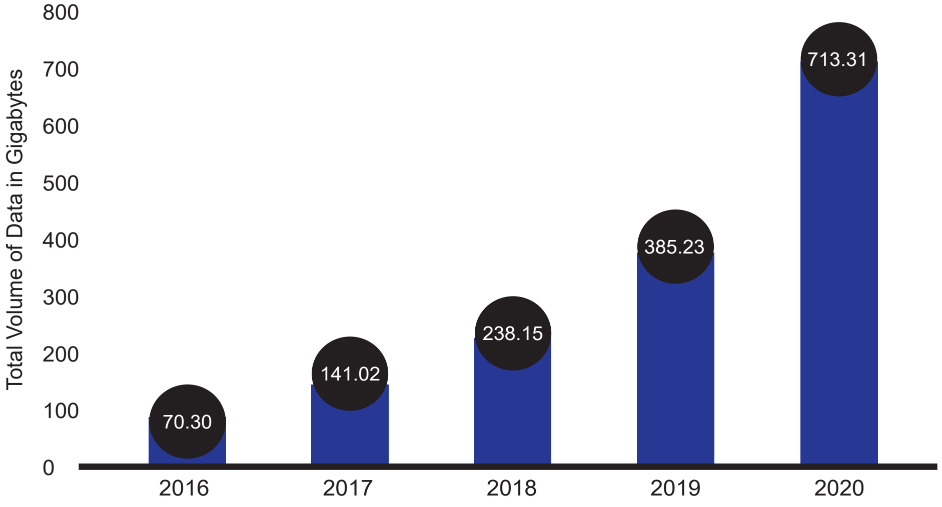
1.12 Mobile Data Traffic

Over the five-year period, Mobile data traffic grew from 70.30 million gigabytes to 713.31 million gigabytes in 2020 representing a CAGR of 78.48%. Mobile data traffic increased from 385.23 million gigabytes in 2019 to 713.31 million gigabytes in 2020, representing a growth rate of 85.17%. The average data usage per subscription[9] grew from 12.69 GB in 2019 to 26.95GB in 2020. The high growth in mobile data traffic may be associated with the COVID-19 pandemic which lead to more virtual meetings and events online. To ease congestion on network infrastructure of service providers as a result of the growth in traffic during the pandemic, the Government of Ghana (Ministry of

9. Average data usage per subscription is the total data volume generated in the year divided by the total number of mobile data subscriptions in the year.

Communications) through the National Communications Authority (NCA) granted additional 5MHz frequency spectrum to MTN and Vodafone for free, to enable them enhance the quality of service delivered to consumers.

Figure 14: Mobile Data Traffic

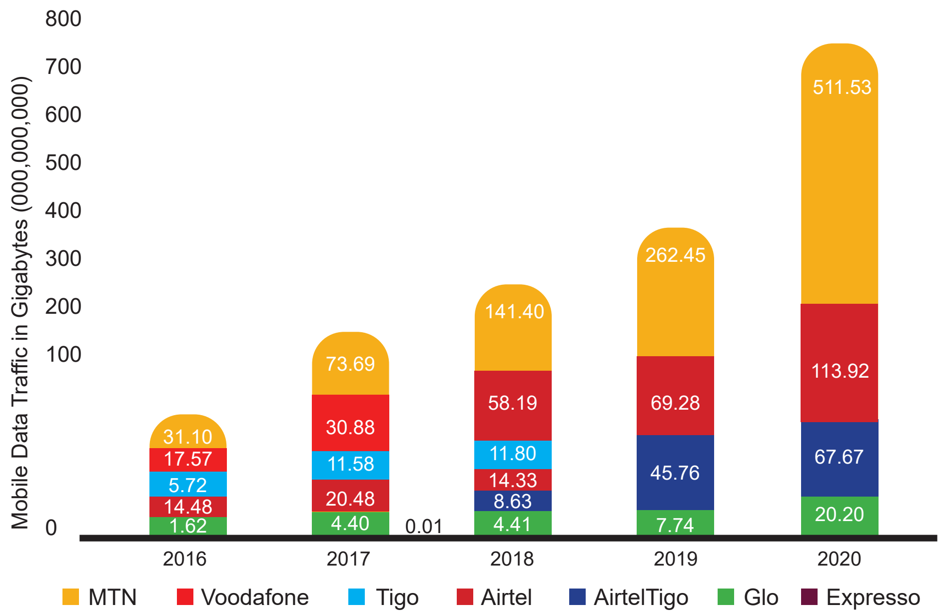


Source: NCA; Mobile Network Operators, 2020

1.13 Mobile Data Traffic per Operator

With the volume of data generated, MTN contributed 71.71% of total mobile data traffic in 2020 with 511.53 million gigabytes. Vodafone generated 113.92 million gigabyte, which corresponds to 15.97% of total mobile data traffic. AirtelTigo generated 67.67 million gigabytes representing 9.49% whereas Glo generated 20.20 million gigabytes of data representing 2.83% of total data traffic generated in the year under review.

Figure 15: Mobile Data Traffic per Operator

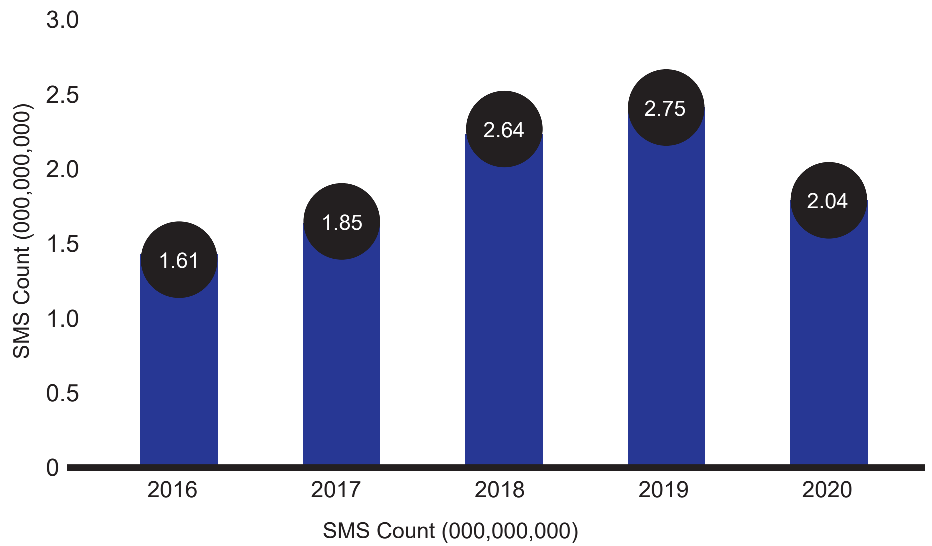


Source: NCA; Mobile Network Operators, 2020

1.14 Total Short Messaging System (SMS)

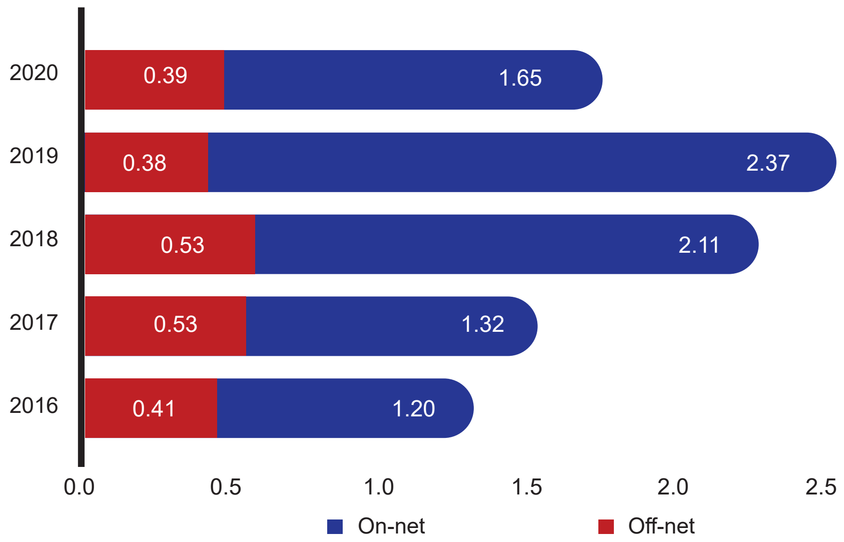
Total Short Messaging Service (SMS) counts declined by 25.73%, from 2.75 billion in the previous year to 2.04 billion in 2020. The Compound Annual Growth Rate (CAGR) for the five-year period under review was 6.2% with SMS counts increasing from 1.61 billion in 2016 to 2.04 billion at the end of 2020.

Figure 16: Total SMS Count in billions



Source: NCA; Mobile Network Operators, 2020

Figure 17: Distribution of Onnet and Offnet SMS Counts



Source: NCA; Mobile Network Operators, 2020

1.15 On-net and Off-net SMS Counts[10]

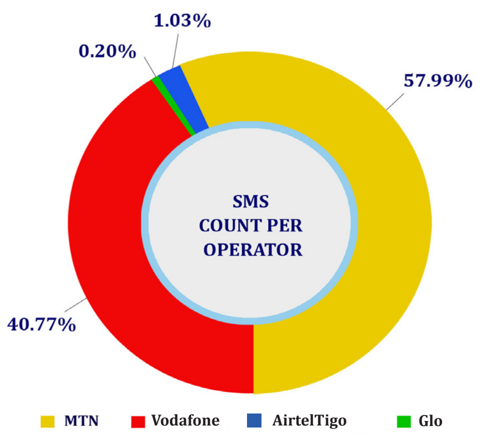
On-net SMS counts recorded a decline of 30.38% from 2.37 billion in 2019 to 1.65 billion in the year under review. However, off-net counts recorded a slight increase from 0.38 billion in 2019 to 0.39 billion in 2020. On-net SMS contributed to 80.88% of total domestic SMS generated while Off-net SMS counts accounted for 19.22% of the total SMS count in 2020.

1.16 Total SMS Counts per Operator

MTN generated 57.99% (1.18 billion) of the SMS counts in 2020, with Vodafone accounting for 40.77% (0.83 billion). AirtelTigo recorded 1.03% (0.02 million) SMS counts and Glo with 0.20% (0.004 billion) of total SMS counts.

10. On-net and Off-net SMS Counts represents short messages sent to people on the same network and different network respectively.

Figure 18: SMS Count per Operator in 2020



Source: NCA; Mobile Network Operators, 2020

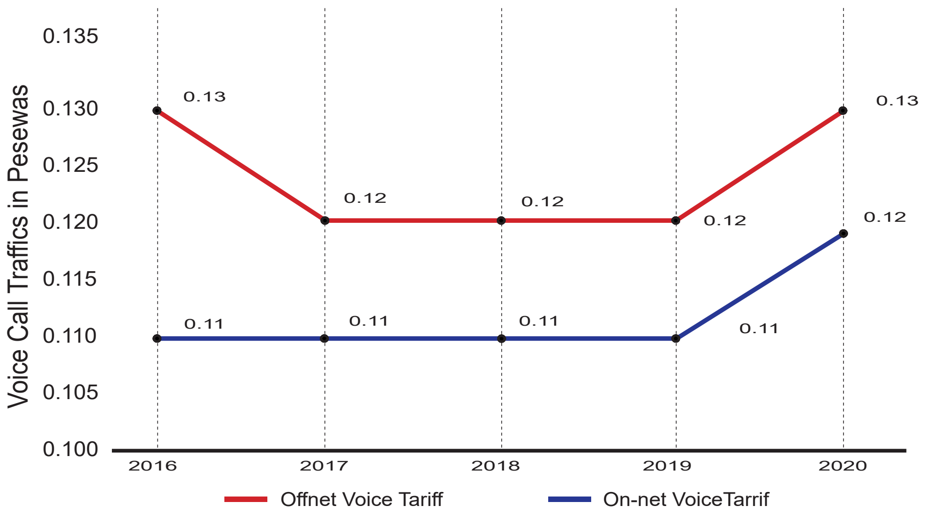
1.17 Tariffs[11]

Prices of services provided by Mobile Network Operators in Ghana have remained relatively stable over the past five years. The cost represents the average of all operators.

1.17.1 Voice Tariffs

Off-net voice tariff increased from 0.12p in 2019 to 0.13p in 2020. It had been stable for the past three years until the year under review where it went up by a pesewa. On-net voice tariff also increased from 0.11p in 2019 to 0.12p in 2020. The average on-net tariff had been stable for four years in a row at 0.11p until it increased to 0.12p in the year under review.

Figure 19: Voice call Tariffs in pesewas



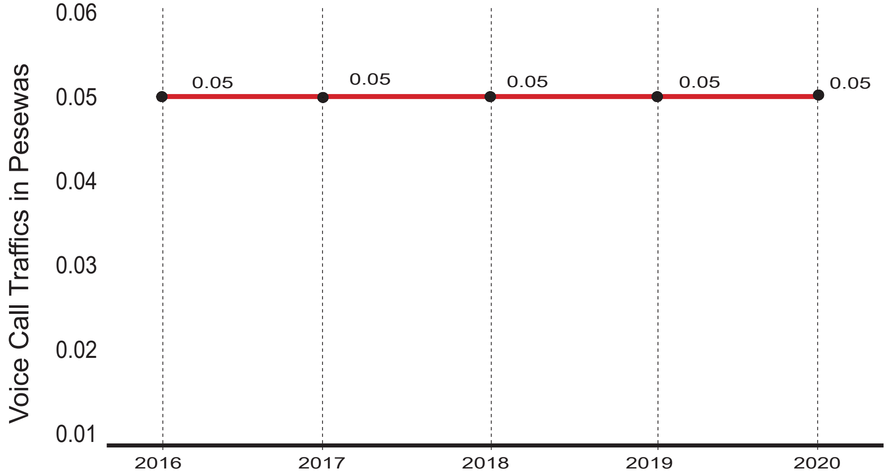
Source: NCA; Mobile Network Operators, 2020

11. Tariffs are the average price of service that a consumer pay for using a particular service offered by an operator. It is calculated by finding the average cost of a service taken into account all operators offering that particular service.

1.17.2 SMS Tariffs

The average industry cost of SMS continued to be at 0.05p for both On-net and Off-net SMS. The price has remained the same for the five-year period under review.

Figure 20: SMS Tariff in pesewas

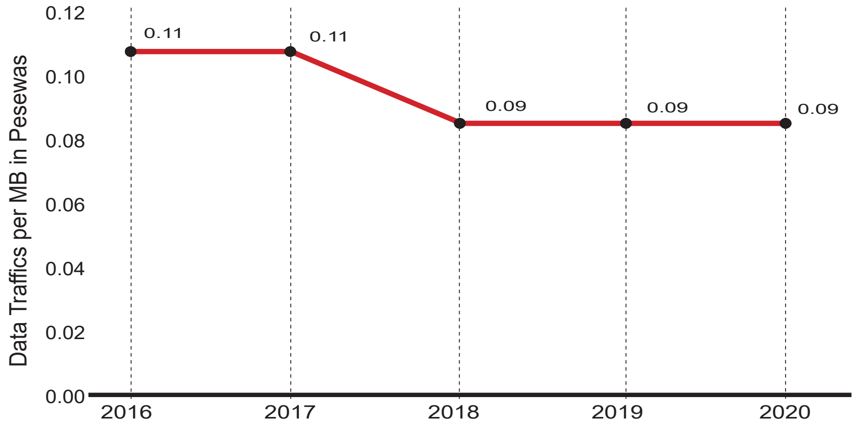


Source: NCA; Mobile Network Operators, 2020

1.17.3 Mobile Data Tariffs

Tariffs for mobile data remained unchanged from the previous year's average price of 0.09p. Over the past five years, Mobile data tariff has decreased from 0.11p in 2016 to 0.09p in 2020 however, prices have remained stable at 0.09p for the third year running.

Figure 21: Mobile Data Tariff per MB

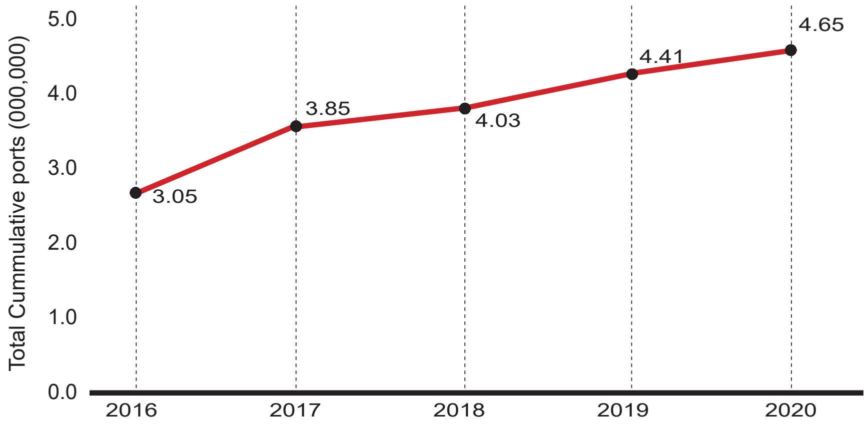


Source: NCA; Mobile Network Operators, 2020

1.18 Mobile Number Portability[12]

In the year 2020, a total of 236,111 mobile numbers were ported from one network to the other. At the end of 2020, the total number of mobile numbers that has been ported cumulatively since its inception in 2011 was 4.65 million.

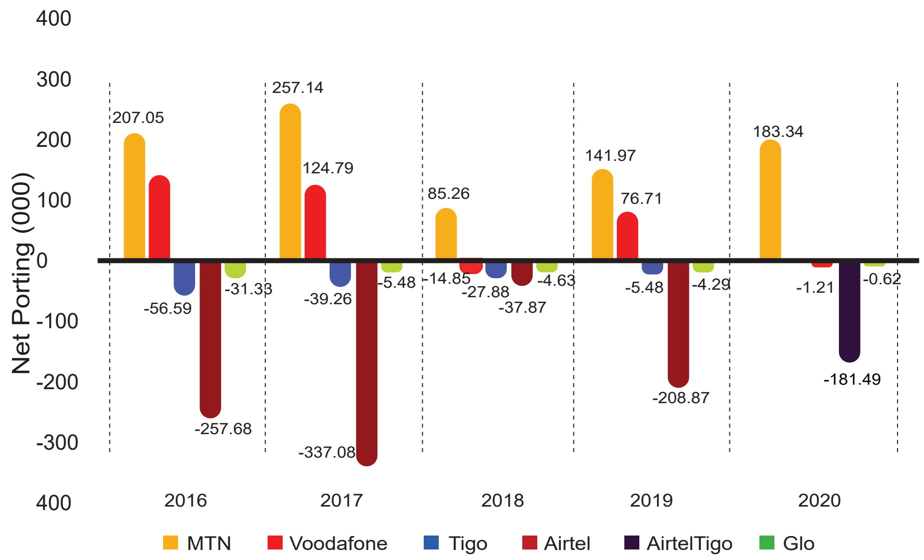
Figure 22: Cumulative Total Porting



Source: NCA; Porting XS, 2020

From Figure 23, net porting for each Mobile Network Operator at the end of 2020 indicates that MTN net port was 183,340 subscriptions while Vodafone's was 1,211 subscriptions leaving the network. AirtelTigo ended the year with 181,499 subscriptions leaving and Glo's net porting accounting for 622 subscriptions porting from the network.

Figure 23: Net porting per operator



Source: NCA; Porting XS, 2020

12. Mobile Number Portability (MNP) is a service that makes it possible for a mobile telecom subscriber to change mobile service provider while retaining the same mobile phone number. It is aimed at liberalising the telecommunication sector to promote competition within the industry. Mobile Number Portability was launched successfully on 7th July, 2011 making Ghana the first country to successfully implement MNP within the West Africa sub-region.

SUMMARY OF CHAPTER ONE

Mobile Voice

40.46 Million Subscribers

130.85% Penetration Rate

Mobile Voice

99.29% Prepaid Subscribers

0.71% Postpaid Subscribers

Mobile Data

26.47 Million Subscribers

85.60% Penetration Rate

Mobile Data

98.72% Prepaid Subscribers

1.28% Postpaid Penetration

Voice Traffic

99.36 Billion Minutes Showing an increase of 22.22%

Data Traffic

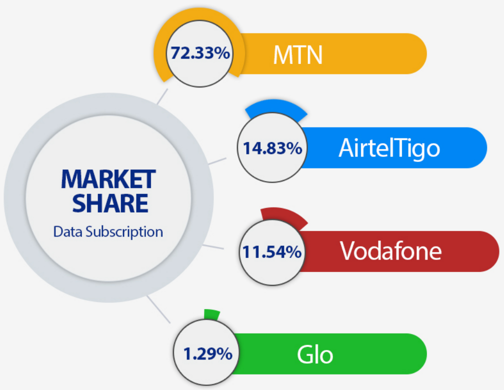
725.31 million gigabytes representing a growth rate of 85.17%

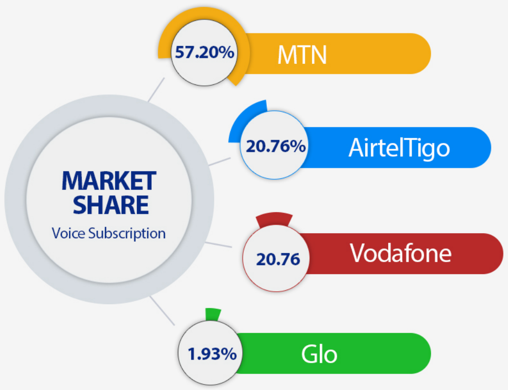
Net Addition

395,468 decline in mobile voice net additions in 2020

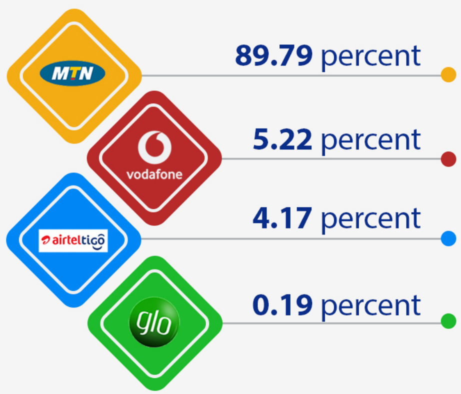
SMS Count

2.04 Billion SMS count showing a decline of 25.73%

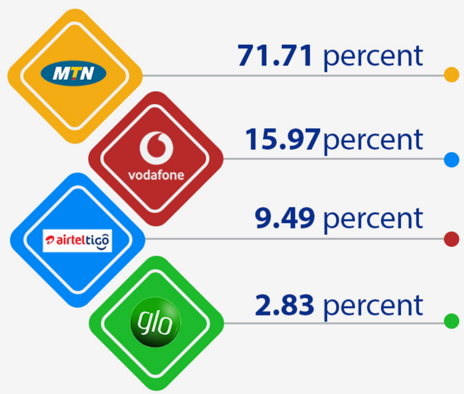




Voice Traffic Per Operator



Data Traffic Per Operator



Off-net Traffic

7.27 Billion Minutes → **7.32%** of total domestic voice traffic

On-net Traffic

92.09 Billion Minutes → **92.68%** of total domestic voice traffic

Traffic Growth Rate

25% Increase in on-net minutes

21% Decrease in off-net minutes

Off-net SMS

0.39 Billion SMS Count → **19.22 %** Total SMS Count

On-net SMS

1.65 Billion SMS Count → **80.88%** Total SMS Count

SMS Growth Rate

30% Decrease in on-net SMS count

3% Increase in off-net minutes

Chapter Two

FIXED NETWORK

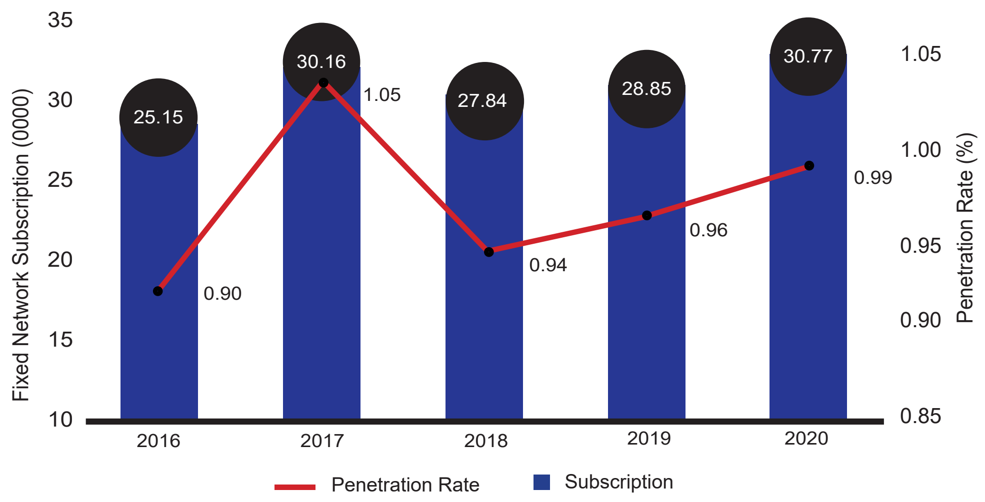
2.0 Introduction

This chapter provides an overview of fixed network services[13] provided by Operators in Ghana. The chapter focuses on fixed voice subscription and penetration rates, fixed data subscription and penetration rate, market share, and volume of fixed voice and data traffic. Currently, there are three operators licenced to serve the populace with fixed network services namely Vodafone, AirtelTigo and MTN.

2.1 Fixed Voice Subscriptions

Fixed voice subscriptions have experienced a steady growth over the past years. Fixed voice subscriptions at the end of 2020 were 307,668 indicating an increase (6.68%) from 288,531 in 2019. The penetration rate of fixed voice subscriptions saw a marginal increase from 0.96 in 2019 to 0.99% in 2020.This is illustrated in Figure 26.

Figure 26: Fixed Voice Subscriptions and Penetration rate (%)



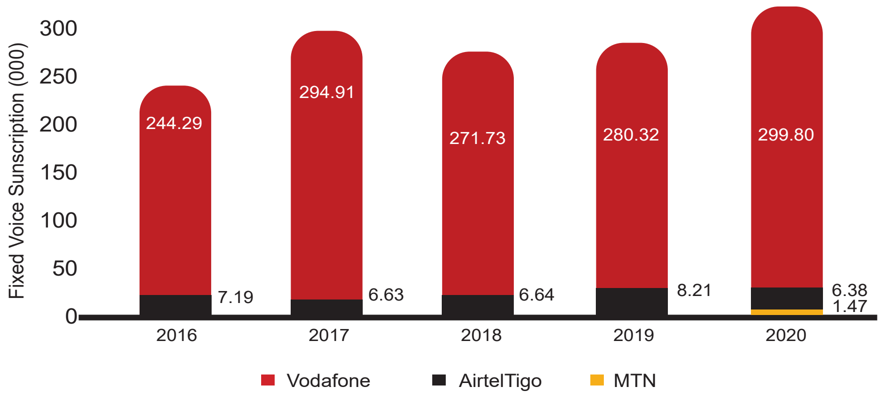
Source: NCA; Fixed Network Operators, 2020

2.2 Fixed Voice Subscriptions per Operator

Vodafone leads the fixed voice market with 299,802 subscriptions. AirtelTigo ended the year with 6,389 subscriptions recording a decline in 2019's subscriptions of 8,210. MTN ended 2020 with 1,477 subscriptions.

13. Fixed Network is a connection to an end customer, by means of a cable, through which a user can make phone calls or connect to the internet.

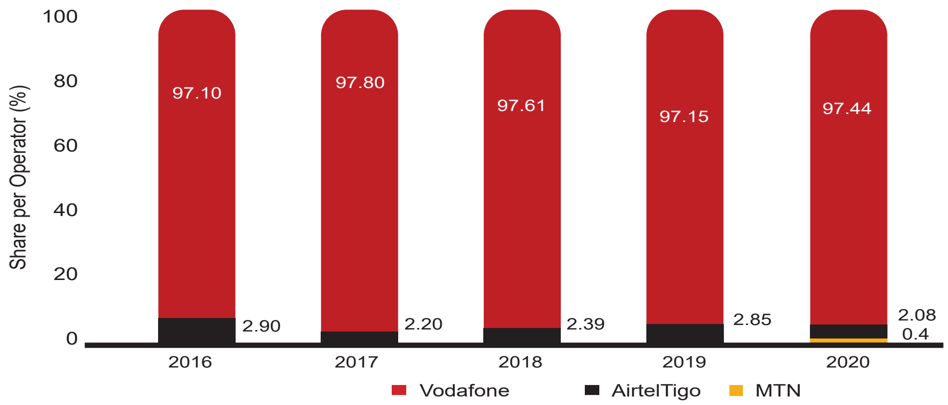
Figure 27: Fixed Subscription per operator



Source: NCA; Fixed Network Operators, 2020

Vodafone subscriptions account for 97.44% of total fixed voice market with AirtelTigo subscriptions accounting for 2.08% of the market. MTN has a market share of 0.48%.

Figure 28: Market Share per Operator[14]

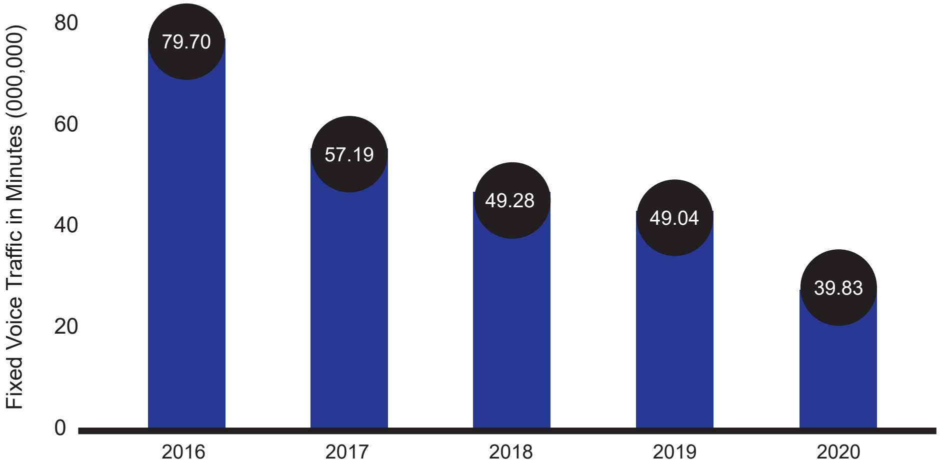


Source: NCA; Fixed Network Operators, 2020

2.3 Fixed Voice Traffic in Minutes

Traffic generated from fixed voice subscriptions in 2020 was 39.83 million minutes compared to 49.04 million minutes in the previous year, representing a decline of 18.78%. Over the five-year period, fixed voice traffic continues to decline from 79.70 million minutes in 2016 to 39.83 million minutes in 2020.

Figure 29: Fixed Voice Traffic



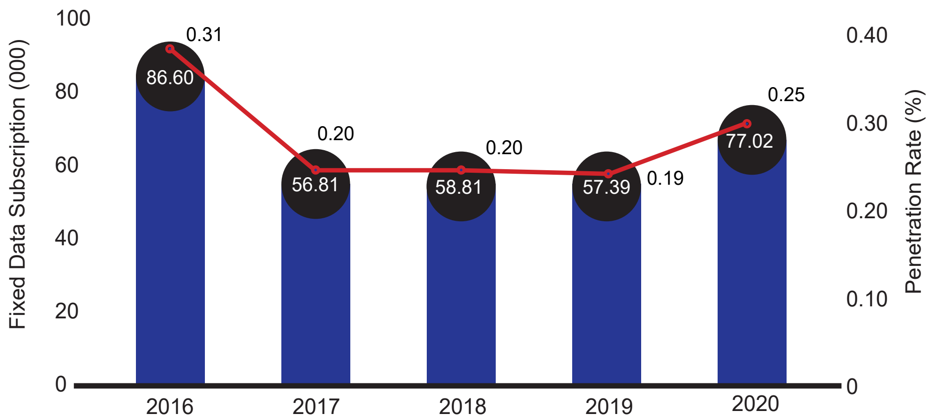
Source: NCA; Fixed Network Operator, 2019

2.4 Fixed Data Subscriptions and Penetration Rate (%)

Fixed data subscriptions increased from 57,393 in 2019 to 77,022 in 2020 representing a growth rate of 34.2%.

The rise in subscription also resulted in rise in penetration rate from 0.19% in the previous year to 0.25% in the year under review.

Figure 30: Fixed Data Subscriptions and Penetration rate (%)

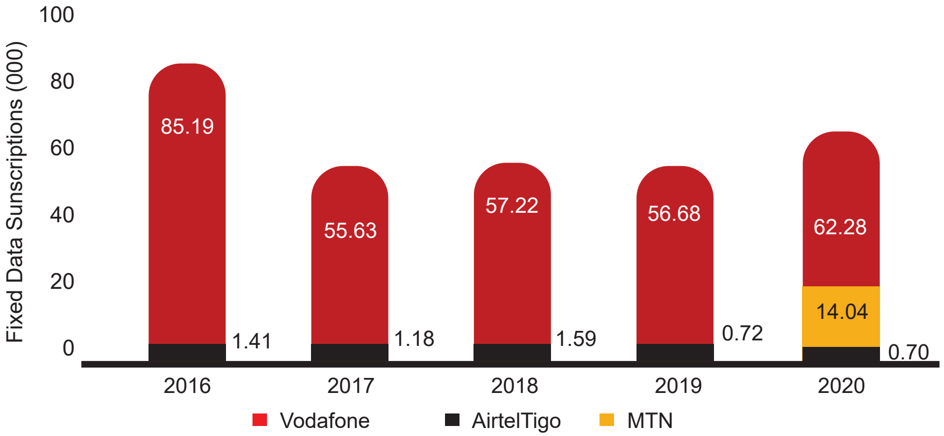


Source: NCA; Fixed Network Operator, 2020

2.5 Fixed Data Subscription per operator

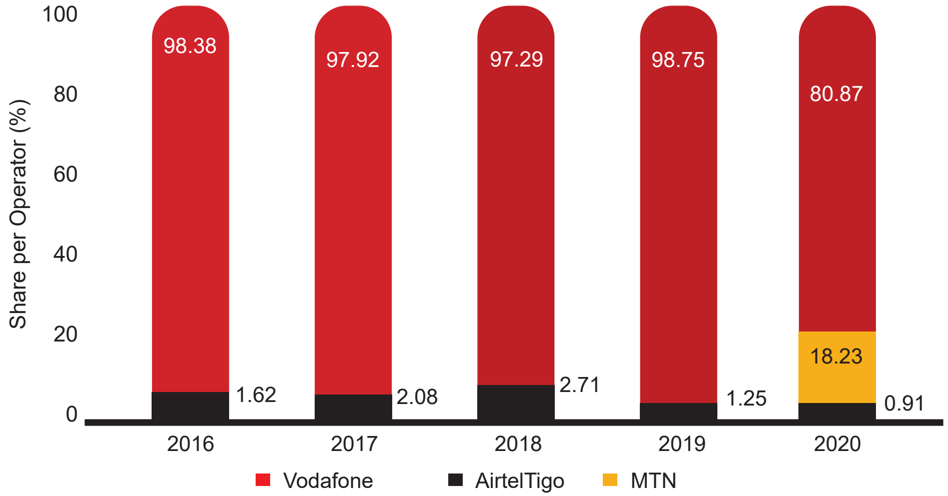
At the end of 2020, Vodafone's subscriber base was 62,284 followed by MTN with 14,038 whereas AirtelTigo recorded 700 subscriptions.

Figure 31: Fixed Data Subscriptions per Operator



Source: NCA; Fixed Network Operator, 2020

Figure 32: Share per Operator (%)



Source: NCA; Fixed Network Operator, 2020

Over the five-year period, Vodafone has dominated the fixed broadband market. Vodafone's market share decreased from 98.75% in 2019 to 80.87% in 2020 as MTN's fixed broadband subscriptions made up 18.23% of the market. AirtelTigo's market share reduced from1.25% in the previous year to 0.91%.

SUMMARY OF CHAPTER TWO

Fixed Voice

6.68% Increase
Subscription
307,668 Subscribers

0.03% Increase
Penetration
0.99% Rate

Fixed Data

34.2% Increase
Subscription
77,022 Subscribers

0.06% Increase
Penetration
0.25% Rate

Market Share per Operator

Fixed Voice

Operator	Subscribers	Percent
vodafone	299,802	97.44
airteltigo	6,389	2.08
MTN	1,477	0.48

Fixed Voice Traffic

39.83 million minutes representing a decline of 18.78%

Traffic per Operator

Operator	Share
Vodafone	90.14%
MTN	9.86%
AirtelTigo	0.00%

Market Share per Operator (Fixed Data)

Operator	Subscriber	Share
vodafone	62,284	80.87%
MTN	14,038	18.23%
airteltigo	700	0.91%

Chapter Three

BROADBAND WIRELESS ACCESS

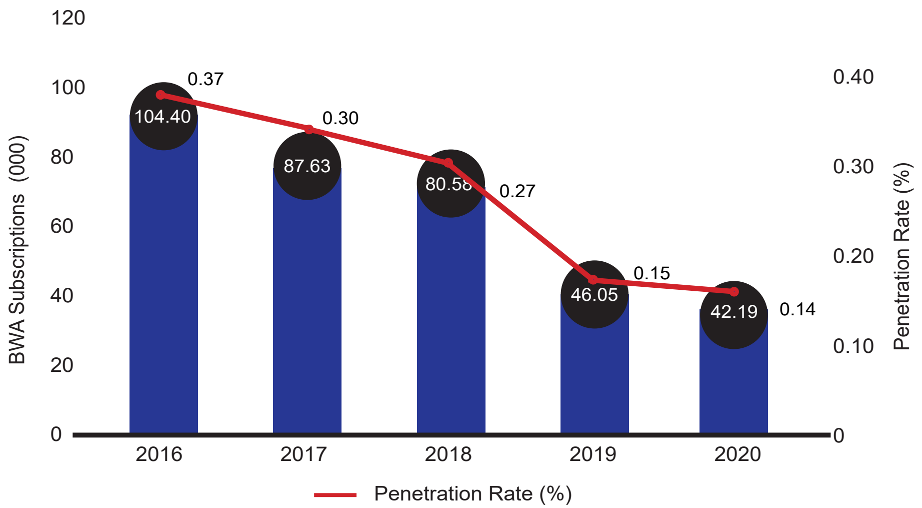
3.0 Introduction

There are five (5) Broadband Wireless Access (BWA)[14] service providers in Ghana namely; Broadband Home, Blu Communications, Busy Internet, Surfline and Telesol. This chapter however highlights the services provided by four operators excluding Busy Internet. It provides data on BWA subscription and penetration rates, market share and volume of traffic.

3.1 BWA Subscriptions and Penetration Rate (%)

Broadband wireless access subscriptions decreased from 46,050 in 2019 to 42,192 in 2020 leading to an decrease in BWA penetration rate from 0.15% in 2019 to 0.14% in 2020.

Figure 33: BWA Subscriptions and Penetration rate



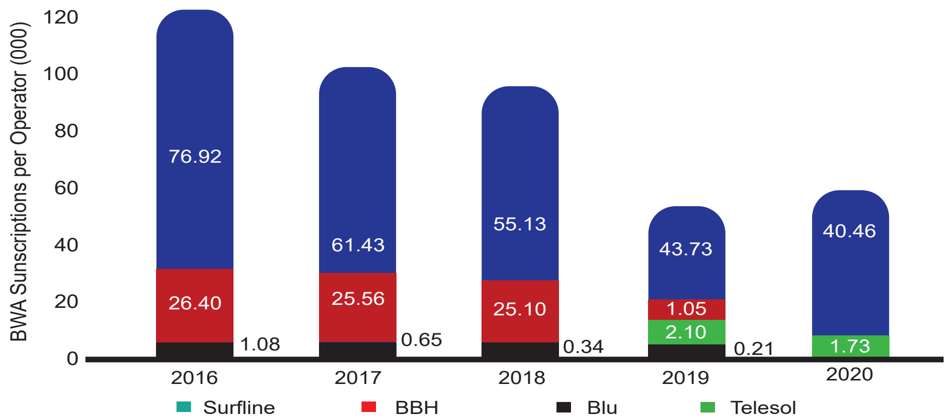
Source: NCA; Broadband Wireless Operator, 2020

14. Broadband wireless access (BWA) provides broadband data access through wireless media to consumer and business markets.

3.2 BWA Subscriptions per Operator

Surfline has consistently been the largest broadband wireless access operator in Ghana by subscription, with a total subscription base of 40,462 as at the end of the year 2020 followed by Telesol with 1,730 subscribers. BBH [15] had 1,056 subscriptions in the year under review and Blu1 [16] reported 195 subscriptions in the year 2020. Surfline ended the year with a market share of 96.64% while Telesol followed with 3.81% of the market.

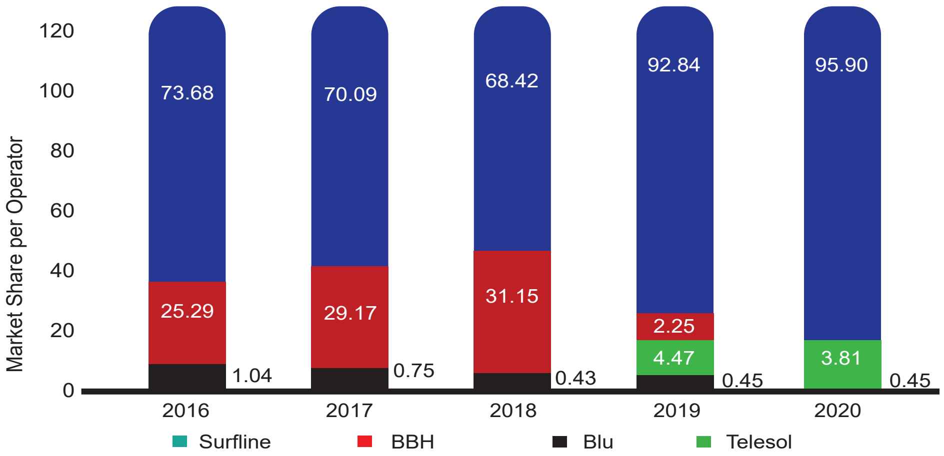
Figure 34: BWA Subscriptions per Operator



Source: NCA; Broadband Wireless Operator, 2020

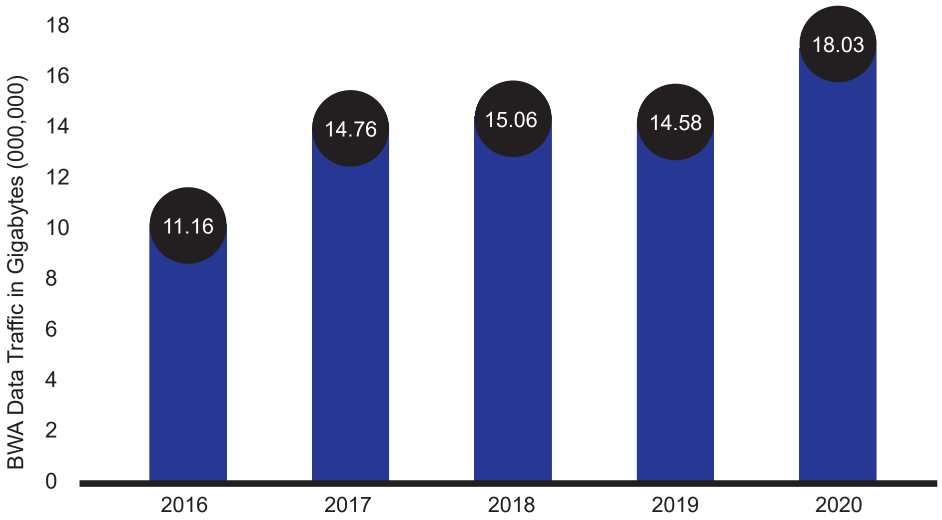
15. BBH subscriptions are as at the end of September 2020 when they last submitted data to the Authority and was not accounted for in the total BWA subscriptions.
16. Blu subscriptions are as at end of January 2020, the last time they submitted data to the Authority and was not accounted for in the total BWA subscriptions.

Figure 35: Share of Subscriptions



Source: NCA; Broadband Wireless Operator, 2020

Figure 36: BWA Total Volume of Traffic in Gigabytes



Source: NCA; Broadband Wireless Operator, 2020

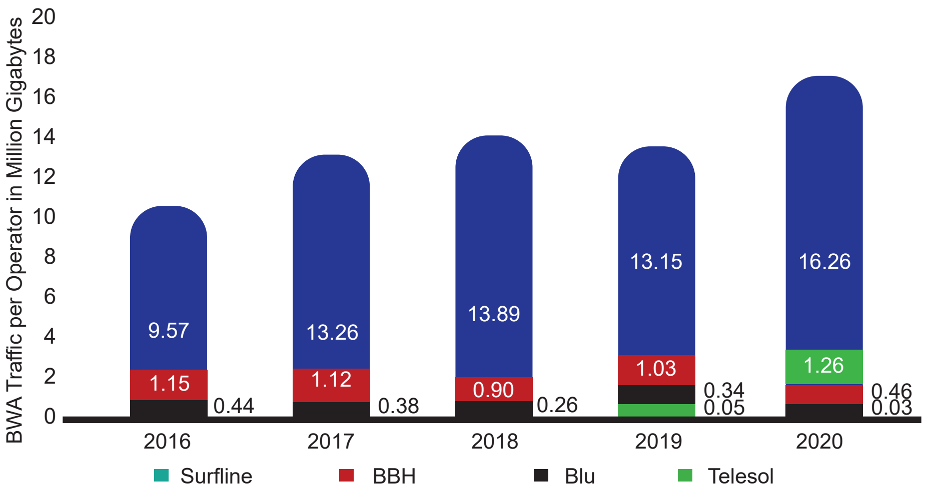
3.3 BWA Traffic in Gigabytes

Total data traffic generated by BWA's at the end of 2020 was 18.04 million gigabytes indicating an increase of 23.73%, from the 14.58 million gigabytes recorded in the previous year. Over the past five years, data generated by the BWA's have increased from 11.17 million gigabytes in 2016 to 18.04 million gigabytes in 2020 representing a 12.7% Compound Annual Growth Rate (CAGR).

3.4 BWA Traffic per Operator

Surfline generated the highest volume of traffic with 16.26 million gigabytes followed by Telesol with 1.27 million gigabytes. BBH generated 0.46 million gigabytes whereas Blu Telecommunications' subscription base generated 0.04 million gigabytes.

Figure 37: BWA Traffic per Operator



Source: NCA; Broadband Wireless Operator, 2020

SUMMARY OF CHAPTER THREE

BWA

42,192

-8.38% increase from the previous figure

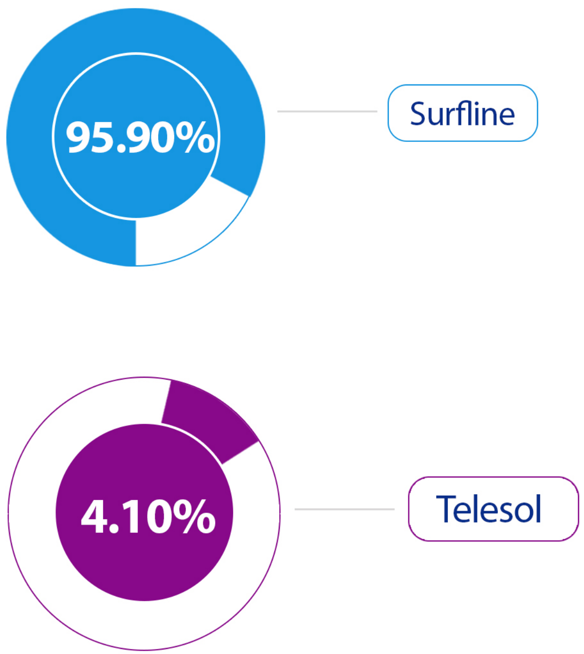
Subscriptions

0.14%

-6.67% increase from the previous figure

Penetration

BWA Market Share



BWA Total Traffic

18.04 Million Gigabytes

23.73% Growth Rate

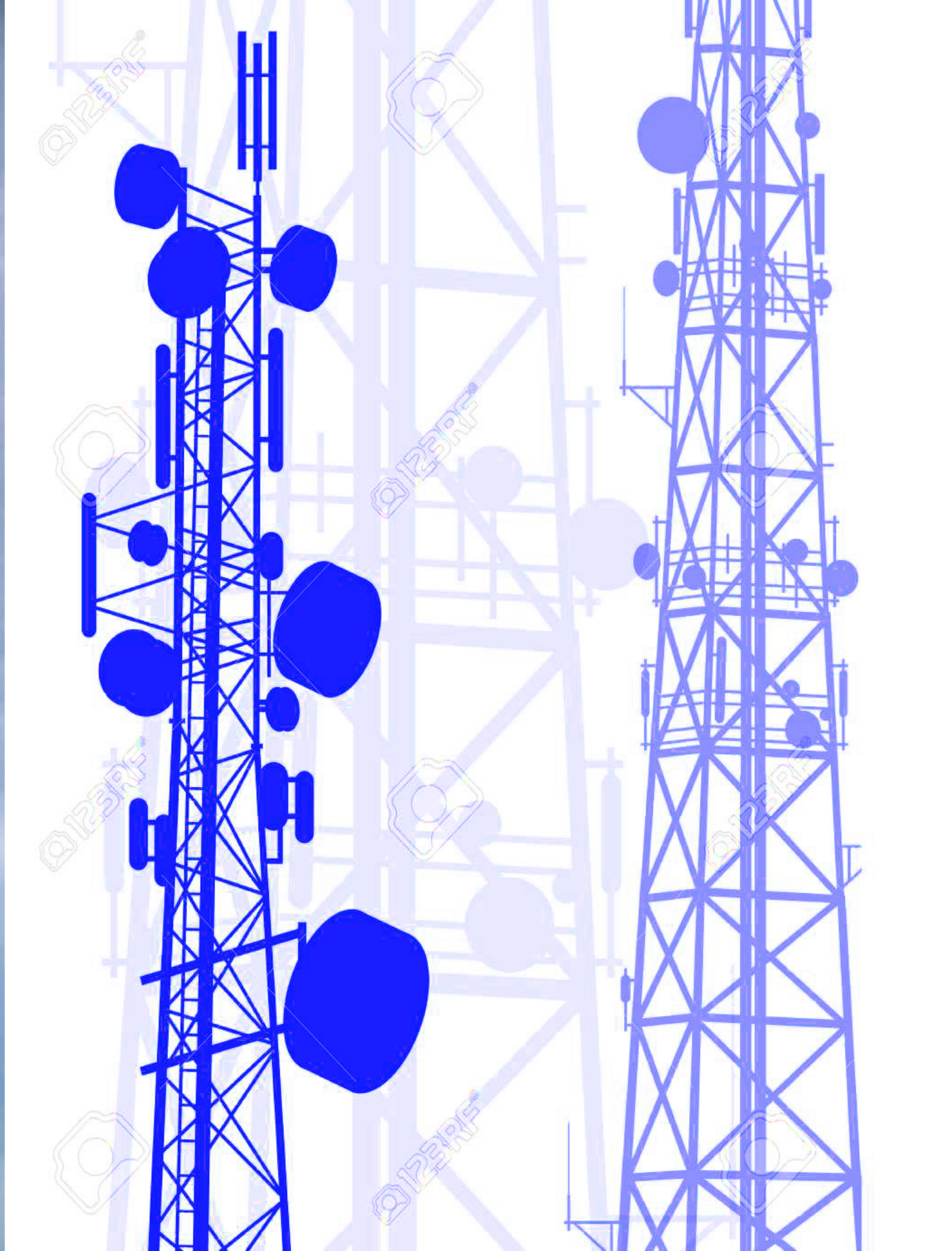
BWA Traffic per Operator

in million gigabytes

Surfline	16.26
Telesol	1.27
BBH	0.46
Blu	0.04

BWA Subscription per Operator

Surfline	Telesol	BBH	Blu
40,462	1,730	95	195



Chapter Four

INFRASTRUCTURE

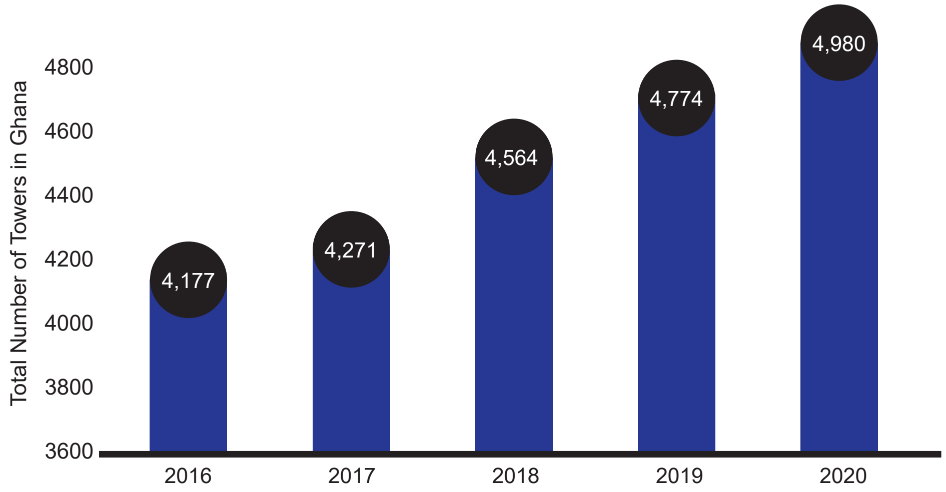
4.0 Introduction

This chapter presents information on towers managed by Tower Infrastructure Companies[1] in Ghana and excludes those managed by the Mobile Network Operators. It covers the market share of Tower Infrastructure Companies in Ghana, types of towers and tenancy ratio. After the acquisition of Eaton Towers by American Towers in 2019, there are two Tower Infrastructure Companies in Ghana namely Helios Tower Ghana (HTG) and American Tower Company (ATC).

4.1 Number of Towers Managed by Tower Infrastructure Companies in Ghana

Tower Infrastructure is an essential part of network improvements and development. There has been continuous increase in the number of towers managed by Tower Companies in the country. The number of towers increased by 106 in the year under review from 4,774 in 2019 to 4,980 in 2020.

Figure 38: Year-on-Year Number of Towers



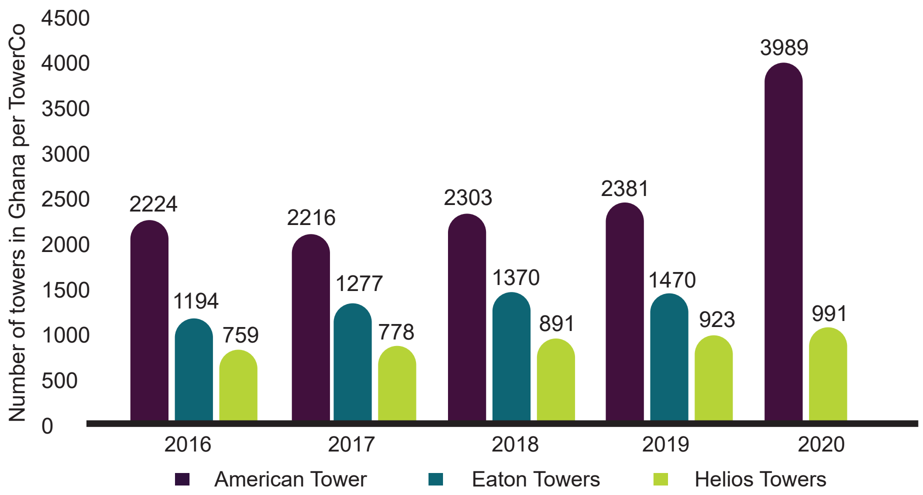
Source: NCA; TowerCo

4.2 Number of Towers by Operator and Market Share

American Tower Company (ATC) manages 3,989 towers which translates into 80.1% market share while Helios Tower Ghana manages the remaining 991 which translates into 19.9% (Figure 39).

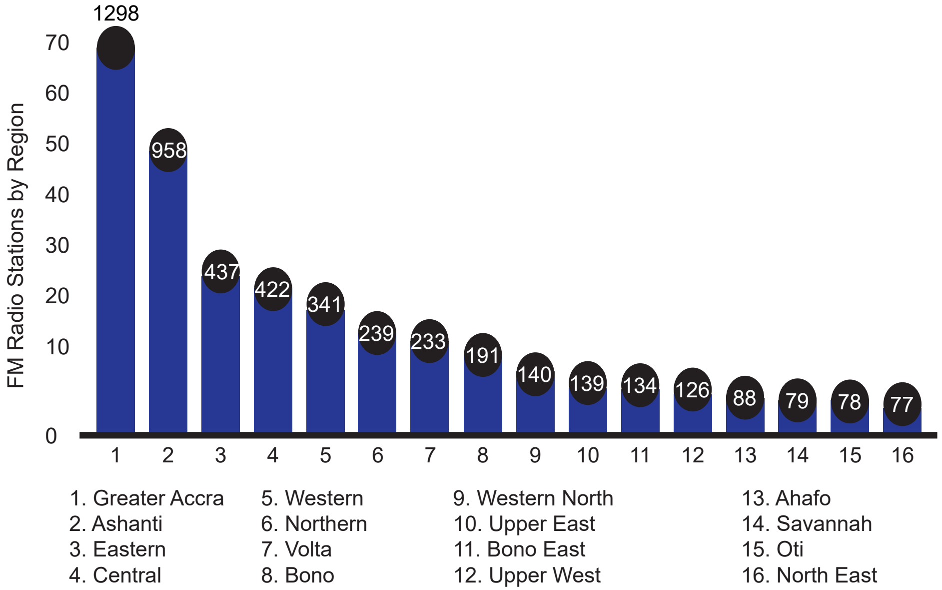
1. Tower infrastructure companies are communications entities that have been given the authorisation by NCA to build, erect, construct or otherwise acquire and own communication towers that are open to sharing by licensed network providers.

Figure 39: Total number of Towers by Operator in Ghana



Source: NCA; TowerCo

Figure 40: Regional Distribution of Towers in Ghana



Source: NCA; TowerCo

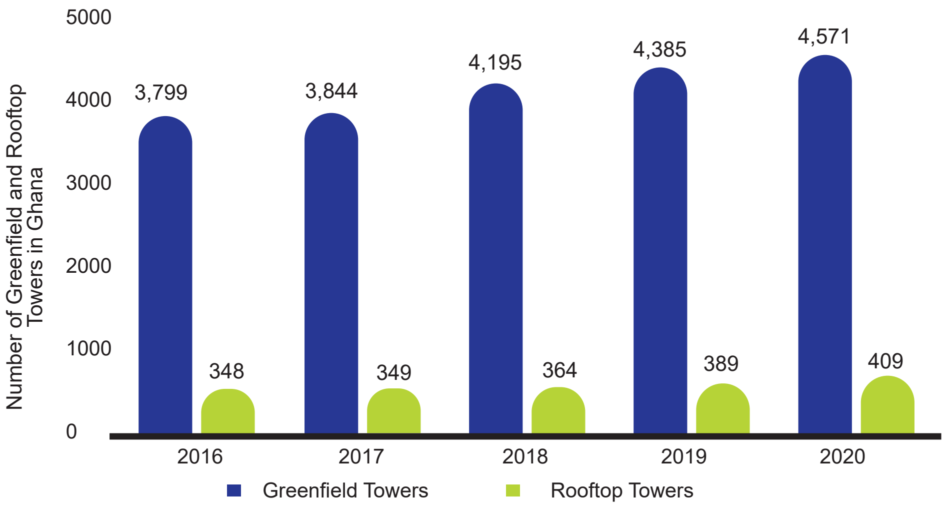
4.3 Regional Distribution of Towers

Greater Accra region has the highest number of towers (1,298), which can be attributed to the population size and business activities in the region. Ashanti Region follows with 958 towers whereas North East has the least number of towers with 77.

4.4 Types of Towers in Ghana

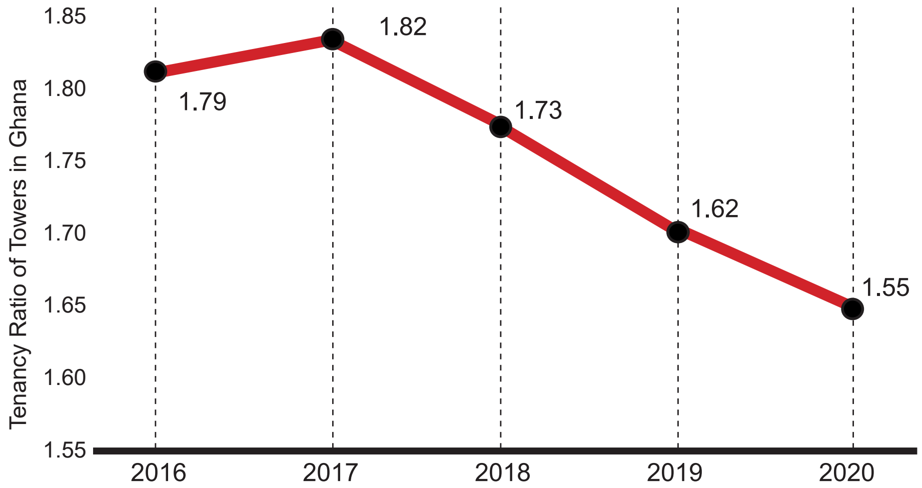
Most towers in Ghana are Greenfield towers compared to rooftop towers. Greenfield Towers make up 91.79% of total number of towers in the country followed by Rooftop Towers accounting for 7.51% of total towers in Ghana with the remaining 0.70% being other types of towers.

Figure 41: Types of Towers in Ghana



Source: NCA; TowerCo

Figure 42: Tenancy Ratio



Source: NCA; TowerCo

4.5 Tenancy Ratio

Tower sharing is one of the significant growth drivers for the telecom industry as it provides benefits like cost reduction and faster network rollout to underserved and unserved areas. Tenancy ratio decreased from 1.62 in 2019 to 1.55 in 2020. Over the five-year period, tenancy ratio has been less than 2.

4.6 Regional Breakdown of Tenancy Ratio

The regional distribution of towers based on tenancy ratio in 2020 was between 1.23 and 1.92 with a national average of 1.55. Greater Accra recorded the highest tenancy ratio of 1.92, which is higher than the national average of 1.55 whereas Savannah region recorded the lowest tenancy ratio of 1.23.

SUMMARY OF CHAPTER FOUR

Market Share

Number of Towers in Ghana

4,980
Towers

Growth Rate
4.32%

88.10%

American Tower

3,989
Towers

19.90%

Helios Towers

991
Towers

Types of Towers

Green Field Towers

91.79%
Represent the total number of Towars

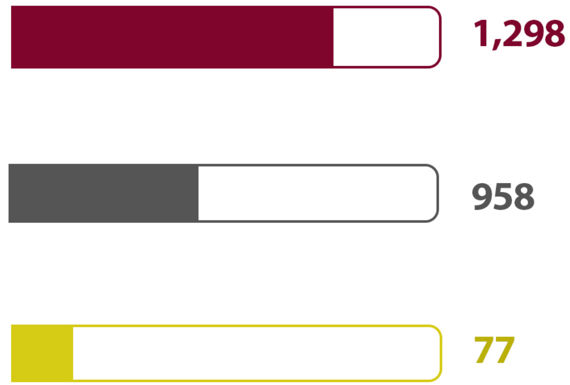
Roof Top Towers

7.51%
Represent the total number of Towars

Regional Breakdown of Tenancy Ratio

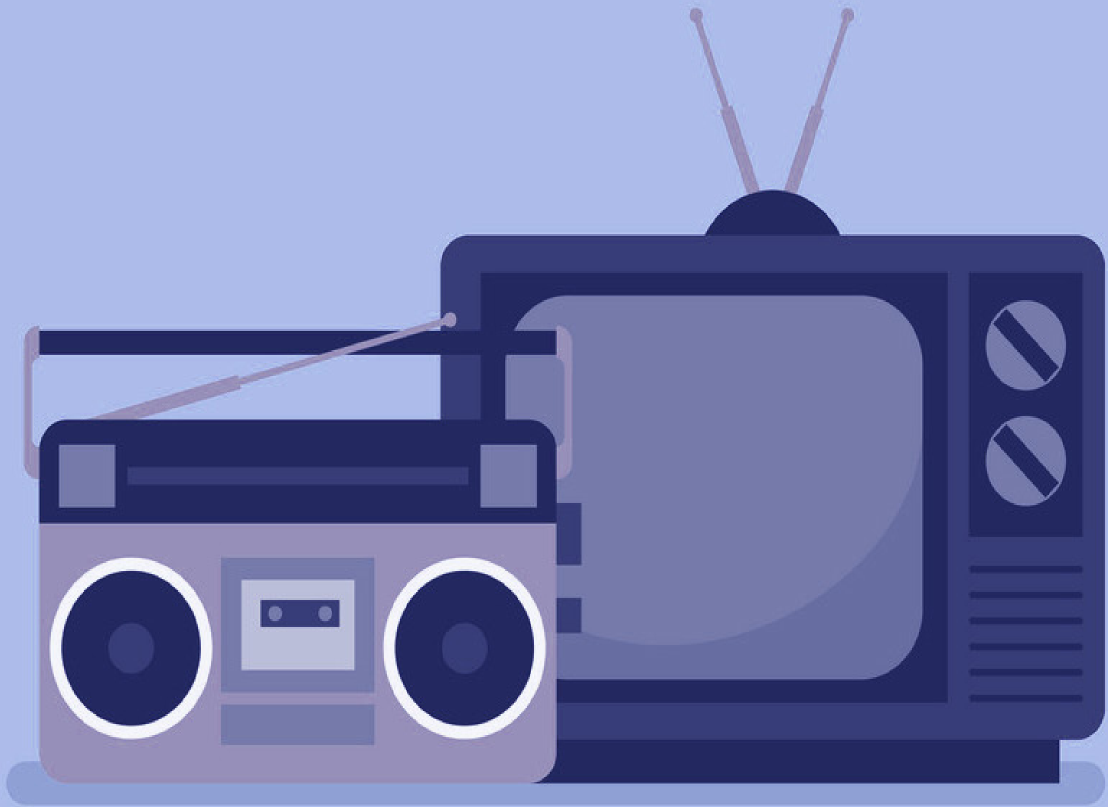
1.23	**1.55**	**1.92**
Savanah	National Average	Greater Accra

Regional Distribution of Towers



Color Representation

- Greater Accra
- Ashanti
- North East



Chapter Five

BROADCASTING SERVICES

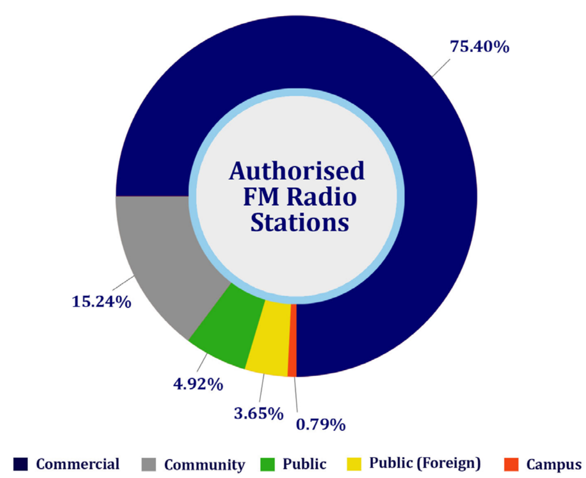
5.0 Introduction

This Chapter gives information about frequency modulation (FM) radio and television (TV) broadcasting industry in Ghana. At the end of 2020, there was a total of 630 Authorised FM Stations and 143 authorised TV stations in Ghana. Out of the 630 FM station, 459 FM Stations were operational and 171 FM Stations were not yet operational. Out of the 143 Authorised TV Stations, 115 were operational while 28 TV stations were not operational at the end of 2020.

5.1 Types of Authorised Frequency Modulation (FM) radio stations

There are five types of authorisations in FM Radio Broadcasting in Ghana, namely; Commercial, Community, Campus, Public and Public Foreign Stations. Out of the 630 authorised FM radio stations in Ghana, 475 (75.40%) are Commercial FM Stations, 96 (15.24%) are Community FM Stations, 31 (4.92%) are Public Stations and 23 (3.65%) Campus Stations. There are 5 (0.79%) Public Foreign Stations in the country as well.

Figure 46: Types of Authorised FM Radio Stations as at 2020

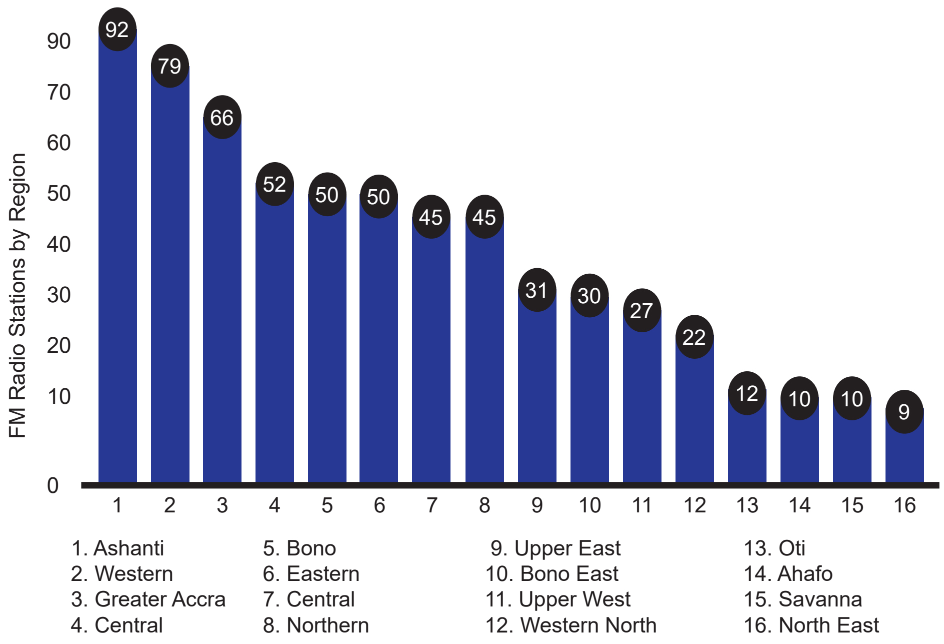


Source: NCA,2020

5.2 Distribution of Authorised FM Stations on Regional Basis

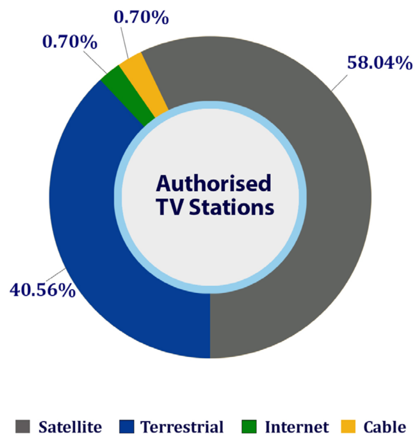
Ashanti Region has the highest Authorised FM Stations with 92 FM Stations, followed by Western Region with 79 Stations. North East Region has the least number of authorised FM Stations in Ghana with 9 FM Stations.

Figure 47: Regional Distribution of Authorised FM Stations



Source: NCA,2020

Figure 48: Number of Authorised TV Stations by Mode of Transmission



Source: NCA,2020

There are 15 Categories of Television Services that are authorised by the Authority. Most Authorised TV Category is the Satellite Television Broadcasting (Free-to-home direct to home bouquet).

5.3 Television (TV) Broadcasting Platforms

There are four (4) platforms used to transmit Television signal in Ghana, these are; Satellite Platform, Terrestrial Platform, Internet and Cable Platforms. Satellite accounts for 58.04% of total authorised TV stations with 83 TV Stations, followed by Terrestrial broadcasting with 58 TV Stations (40.56%). There is One TV Station each for both Cable and Internet Platforms.

SUMMARY OF CHAPTER FIVE

FM and TV Stations Authorized

630

Total number of FM stations

Operational	459
Not Operational	171

143

Total number of TV stations

Operational	115
Not Operational	28

Types and Distribution of FM Stations

Authorized FM Stations

1. Commercial 475
2. Community 96
3. Public 31
4. Campus 23
5. Foreign 5

Regional Distribution of Authorized FM Stations

Ashanti Region
92
Highest Authorized FM Stations

Western Region
79
Second Highest Authorized FM Stations

North East Region
9
Least Authorized FM Stations

Platforms for Television (TV) Broadcasting

58.04%
Satellite Platform

40.56%
Terrestrial Platform

0.70%
Internet Platform

0.70%
Cable Platform

Chapter Six

MAJOR HAPPENINGS IN THE INDUSTRY

6.1 MTN Ghana declared as a Significant Market Power (SMP)

In June 2020, National Communications Authority declared MTN Ghana as a significant Market Power. This was done in accordance to section 4.3 of the National Communications policy, 2005 and with reference to Section 20 (10) of the Electronic Communications Act, 2008 (Act 775).

This declaration, enjoined the NCA to take certain steps to correct the imbalances in the telecommunications' industry. In line with the above, the NCA issued five (5) directives to MTN Ghana as follows:

1. The application of a 30% asymmetrical interconnect rate
2. A price floor/ceiling
3. The review and approval of all MTN pricing by the NCA
4. The removal of on-net and off-net price differentials
5. The implementation of a national roaming scheme

6.2 The Regulator, (NCA) Offered Free Spectrum to MTN and Vodafone in April in the Heat of the Lockdown

The National Communications Authority made available additional spectrum (extra 5MHz of frequency) to MTN (2x5 in 2600 MHz) and Vodafone (2x5 in 800 MHz) to be used for free. This spectrum was initially given for three months to assist the two leading operators in the country to cope with the surge in traffic as a result of people working from home due to the covid19 pandemic and the resulting lockdown. However, this gesture was extended till the end of the year.

6.3 Government to Take Over AirtelTigo

In October, the Government of Ghana reached an agreement with AirtelTigo to take over 100% shares in the company. This decision was arrived at after the parent company of AirtelTigo (Bharti Airtel) expressed their desire to exit the Ghanaian market earlier in the year. The agreement was given approval by the Board of Bharti Airtel and a statement issued by the Board to the Bombay Stock Exchange in October stating both parties are concluding a commercial agreement for the transfer of AirtelTigo on a going concern basis to the Government of Ghana.

6.4 Vodafone introduces Zero Charges on all Vodafone Cash transactions

In August 2020, Vodafone Ghana completely waived all charges on any amount of money transferred from Vodafone cash to all other networks. This came after Vodafone and other Mobile Money service providers in the country offered zero charges to customers for daily transactions below GHS 100 earlier in the year.

6.5 Changes in the Rate of the Communications Service Tax

In September 2019, the Government increased the communications Service tax from 6% to 9%. However, in August 2020, the Government once again announced a reduction of the tax to 5% for the 6 months due to the impact of COVID-19 on consumers.

APPENDIX

Table 1: Mobile Voice Subscriptions and Penetration Rate

Subscriptions	2016	2017	2018	2019	2020
Mobile Voice	**38,305,078**	**36,715,761**	**40,934,875**	**40,857,077**	**40,461,609**
Growth rate (%)	*9.4*	*-4.1*	*11.49*	*-0.19*	*-0.97*
Net Additions	3,296,691	-1,589,317	888,285	(77,798)	(395,468)
Population	28,094,823	28,776,565	29,474,851	30,190,081	30,922,666
Penetration rate (%)	*136.30*	*127.60*	*138.88*	*135.33*	*130.85*

Source: NCA; Mobile Network Operators, 2020

Table 2: Distribution of Prepaid and Postpaid Subscriptions

Voice Subscriptions	2016	2017	2018	2019	2020
Prepaid	37,918,623	36,275,284	40,391,558	40,216,604	40,173,414
Share(%)	98.99	98.80	98.67	98.43	99.29
Growth Rate (%)	**8.97**	**-4.33**	**11.35**	**-0.43**	**-0.11**
Postpaid	*386,455*	*440,477*	*543,317*	*640,473*	*288,195*
Share(%)	0.01	0.01	0.01	0.02	0.01
Growth Rate (%)	83.59	13.98	23.35	17.88	-55.00
Total	*38,305,078*	*36,715,761*	*40,934,875*	*40,857,077*	*40,461,609*

Source: NCA; Mobile Network Operators, 2020

Table 3: Mobile Voice Subscriptions per Operator

Mobile Network Operator		2016	2017	2018	2019	2020
MTN	Subscriptions	19,296,157	17,832,546	20,092,798	22,555,848	23,144,302
	Market Share (%)	*50.33*	*48.48*	*65.52*	*55.21*	*57.18*
Vodafone	Subscriptions	8,289,913	9,028,161	9,813,234	9,122,403	8,400,565
	Market Share (%)	*21.62*	*24.54*	*32.00*	*22.33*	*20.76*
Tigo	Subscriptions	5,339,052	5,217,875			
	Market Share (%)	*13.93*	*14.18*			
Airtel	Subscriptions	4,591,051	3,986,163			
	Market Share (%)	*11.98*	*10.84*			
AirtelTigo	Subscriptions			10,289,491	8,453,053	8,135,618
	Market Share (%)			33.55	*20.69*	*20.11*
Glo	Subscriptions	695,306	627,752	739,352	725,773	781,124
	Market Share (%)	*1.81*	*1.71*	*2.41*	*1.78*	*1.93*
Expresso	Subscriptions	93,599	23,264			
		0.25	*0.08*			
Industry Total		**38,336,742**	**36,786,096**	**40,958,139**	**40,857,077**	**40,461,609**

Source: NCA; Mobile Network Operators, 2020

Table 4: Distribution of Domestic Traffic per Operator

Mobile Operator		2016	2017	2018	2019	2020
MTN	Traffic	31,184,751,056	43,842,841,382	58,625,073,109	70,521,752,504	89,786,199,833
	Share (%)	*61.61*	*71.66*	*80.86*	*86.78*	*90.36*
Vodafone	Traffic	11,679,786,800	11,236,871,661	9,268,358,493	6,682,666,929	5,215,491,661
	Share (%)	*23.07*	*18.37*	*12.78*	*8.22*	*5.25*
Tigo	Traffic	4,278,221,650	3,483,638,837	2,241,434,284	-	-
	Share (%)	*8.45*	*5.69*	*3.09*		
Airtel	Traffic	3,247,652,993	2,507,664,075	1,134,300,736		
	Share (%)	6.42	4.10	*1.56*		
AirtelTigo	Traffic			1,156,888,791	3,953,752,066	4,174,073,901
	Share (%)			*1.60*	*4.87*	*4.20*
Glo	Traffic	224,026,298	113,183,248	79,037,480	108,413,410	188,390,005
	Share (%)	*0.44*	*0.18*	*0.11*	*0.13*	*0.19*
Expresso	Traffic	5,291,716	574,674			
	Share (%)	*0.01*	*0.00*			
Total Voice Traffic		**50,619,730,513**	**61,184,773,877**	**72,505,092,892**	**81,266,584,909**	**99,364,155,400**

Source: NCA; Mobile Network Operators, 2020

Table 5: Distribution of Off-Net and On-Net Traffic (Domestic)

	2016	2017	2018	2019	2019
On-Net					
Traffic	40,034,168,879	51,054,275,008	63,337,163,519	73,774,794,534	92,094,192,477
Share (%)	*79.09*	*83.44*	*87.36*	*90.78*	*92.68*
Growth (%)	*20.23*	*27.53*	*24.06*	*16.48*	*24.83*
Off-Net					
Traffic	10,585,561,634	10,130,498,869	9,167,929,374	7,491,790,375	7,269,962,924
Share (%)	*20.91*	*16.56*	*12.64*	*9.22*	*7.32*
Growth (%)	*3.23*	*-4.30*	*-9.50*	*-18.28*	*-2.96*
Total	**50,619,730,514**	**61,184,773,877**	**71,348,204,101**	**81,266,584,909**	**99,364,155,401**

Source: NCA; Mobile Network Operators, 2020

Table 6: Distribution of Inbound and Outbound Traffic (International)

	2016	2017	2018	2019	2020
Inbound International					
Traffic	594,721,824	494,285,309	474,844,085	313,030,354	220,895,472
Share	*45.85*	*46.00*	*45.40*	*37.50*	*31.72*
Growth	*-17.37*	*-16.89*	*-3.93*	*-34.08*	*-29.43*
Outbound International					
Traffic	702,405,599	580,197,745	571,134,846	521,630,329	475,444,765
Share	*54.15*	*54*	*54.58*	*62.5*	*68.44*
Growth	*-17.27*	*-17.40*	*-1.56*	*-8.76*	*-8.85*
Total	**1,297,127,423**	**1,074,483,054**	**1,045,978,931**	**834,660,683**	**696,340,237**

Source: NCA; Mobile Network Operators, 2020

Table 7: Mobile Data Subscriptions and Penetration Rate

Subscriptions	2016	2017	2018	2019	2020
Prepaid	19,463,829	23,225,101	26,930,768	29,960,572	26,130,249
Postpaid	178,323	239,049	301,384	380,721	339,714
Mobile Data	**19,642,152**	**23,464,150**	**27,232,152**	**30,341,293**	**26,469,963**
Growth rate (%)	*9.60*	*19.46*	*16.06*	*11.42*	*-12.76*
Net Additions	1,721,157	3,821,998	3,768,002	3,109,141	-3,871,330
Population	28,094,823	28,776,565	29,474,851	30,190,081	30,922,666
Penetration rate (%)	*69.91*	*81.54*	*92.39*	*100.50*	*85.60*

Source: NCA; Mobile Network Operators, 2020

Table 8: Mobile Data Subscriptions per Operator

Mobile Network Operator		2016	2017	2018	2019	2020
MTN	Subscriptions	10,226,520	13,736,988	16,689,717	22,260,198	19,146,862
	Market Share (%)	*52.06*	*58.54*	*61.29*	*73.37*	*72.33*
Vodafone	Subscriptions	3,474,090	4,097,805	4,213,054	3,700,970	3,055,454
	Market Share (%)	*17.69*	*17.46*	*15.47*	*12.20*	*11.54*
Tigo	Subscriptions	2,725,489	2,848,021			
	Market Share (%)	*13.88*	*12.14*			
Airtel	Subscriptions	2,902,009	2,532,873			
	Market Share (%)	*14.77*	*10.79*			
AirtelTigo	Subscriptions			6,076,649	4,110,972	3,926,130
	Market Share (%)			*22.31*	*13.55*	*14.83*
Glo	Subscriptions	277,372	238,312	252,732	269,153	341,517
	Market Share (%)	*1.41*	*1.02*	*0.93*	*0.89*	*1.29*
Expresso	Subscriptions	36,672	10,151			
	Market Share (%)	*0.19*	*0.04*			
Total		**19,642,152**	**23,464,150**	**27,232,152**	**30,341,293**	**26,469,963**

Source: NCA; Mobile Network Operator, 2020

Table 9: Mobile Data Traffic in Gigabyte (GB) per Operator

Mobile Network Operator		2016	2017	2018	2019	2020
MTN	Data Traffic (GB)	31,099,891	73,687,491	141,396,759	262,451,963	511,530,510
	Market Share (%)	*44.2*	*52.3*	*59.37*	*68.13*	*70.53*
Vodafone	Data Traffic (GB)	17,374,115	30,878,064	58,192,034	69,276,035	125,919,024
	Market Share (%)	*24.7*	*21.9*	*24.44*	*17.98*	*17.36*
Tigo	Data Traffic (GB)	5,717,830	11,581,093	11,795,779	-	-
	Market Share (%)	*8.1*	*8.2*	*4.95*	-	-
Airtel	Data Traffic (GB)	14,483,797	20,475,845	14,329,275	-	-
	Market Share (%)	*20.6*	*14.5*	*6.02*	-	-
AirtelTigo	*Data Traffic (GB)*	-	-	*8,028,510*	45,759,166	67,669,723
	Market Share (%)	-	-	*3.90*	*11.88*	*9.33*
Glo	Data Traffic (GB)	1,620,845	4,395,203	4,407,590	7,738,808	20,196,277
	Market Share (%)	*2.3*	*3.1*	*2.2*	*2.01*	*2.83*
Total		**70,296,478**	**141,017,696**	**238,149,947**	**385,225,972**	**713,312,591**

Source: NCA; Mobile Network Operators, 2020

Table 10: Distribution of Off-net and On-net SMS count

	2016	2017	2018	2019	2020
ON-NET SMS					
Traffic	1,198,236,550	1,322,354,207	2,106,301,048	2,367,716,985	1,648,715,441
Growth (%)	*(1.82)*	*10.36*	*55.01*	*15.51*	*(30.37)*
OFF-NET SMS					
Traffic	409,734,902	503,750,129	528,189,581	381,146,115	392,946,906
Growth (%)	*(5.20)*	*22.95*	*0.88*	*(25.00)*	*3.10*
Total	**1,607,971,452**	**1,826,104,336**	**2,558,004,990**	**2,748,863,100**	**2,041,662,347**

Source: NCA; Mobile Network Operator, 2020

Table 11: SMS Counts per Operator

Mobile Network Operator	2016	2017	2018	2019	2020
MTN	616,931,266	814,318,300	1,182,942,766	1,400,664,864	1,184,006,344
Vodafone	430,280,952	463,475,522	1,124,902,232	1,286,085,070	832,384,480
Tigo	417,188,292	468,091,327	266,197,198	n/a	n/a
Airtel	134,859,264	99,565,628	38,192,723	n/a	n/a
AirtelTigo	n/a	n/a	14,236,856	58,597,086	21,124,918
Glo	8,703,617	7,653,559	8,018,854	3,516,080	4,146,605
Expresso	8,062	n/a	n/a	n/a	n/a
Total	**1,607,971,453**	**1,853,104,336**	**2,634,490,629**	**2,748,863,100**	**2,041,662,347**

Source: NCA; Mobile Network Operator, 2020

Table 12: Pricing of Mobile Services

Average Industry Tariffs	2016	2017	2018	2019	2020
On-net Voice	**0.11**	**0.11**	**0.11**	**0.11**	**0.12**
Off-net Voice	*0.13*	*0.12*	*0.12*	*0.12*	*0.13*
On-net SMS	0.05	0.05	0.05	0.05	0.05
Off-net SMS	0.05	0.05	0.05	0.05	0.05
Data/MB	*0.11*	*0.11*	*0.09*	*0.09*	*0.09*

Source: NCA; Mobile Network Operator, 2020

Table 13: Cummulative Mobile Number Portability

Year	Total No. of Ports	Cumulative Total Port	Growth Rate (%)
2016	627,197	3,047,387	26.9
2017	*800,451*	*3,847,838*	*27.6*
2018	179,528	4,027,366	-77.6
2019	384,558	4,411,924	114.2
2020	236,111	4,648,035	-38.6

Source: NCA; Mobile Network Operator, 2020

Table 14: Net Porting per Operator

Mobile Network Operator	2016	2017	2018	2019	2020
MTN	207,045	257,140	85,255	141,970	183,342
Vodafone	138,607	124,793	(14,849)	76,710	(1,211)
Tigo	(56,593)	(39,257)	(27,881)	(5,482)	-
Airtel	(257,680)	(337,083)	(37,867)	(208,868)	-
Airtel Tigo	-	-	-	-	(181,499)
Glo	(31,329)	(5,479)	(4,632)	(4,287)	(622)
Expresso	(49)	(114)	(27)	(43)	(10)

Source: NCA; Mobile Network Operator, 2020

Table 15: Revenue and CAPEX of Mobile Network Operators

	2016	2017	2018	2019	2020
Revenue	1,727,376,219	1,748,899,747	5,911,531,269	6,487,122,000	7,269,539,000
CAPEX	1,030,168,000	1,355,411,000	1,433,175,000	1,319,288,524	1,723,978,000
Net Additions	-24,080	50,061	-23,172	10,152	19,137

Source: NCA; Mobile Network Operator, 2020

Table 16: Fixed Voice Subscriptions and Penetration Rate (%)

Subscriptions	2016	2017	2018	2019	2020
Fixed Network Subscriptions	251,490	301,551	278,379	288,531	307,668
Growth Rate (%) in Subscription	*-8.74*	*19.9*	*-7.68*	*3.65*	*6.63*
Net Additions	-24,080	50,061	-23,172	10,152	19,137
Country Population	28,094,823	28,776,565	29,474,851	30,190,081	30,922,666
Penetration Rate (%)	*0.9*	*1.05*	*0.94*	*0.96*	*0.99*

Source: NCA; Mobile Network Operator, 2020

Table 17: Fixed Voice Subscriptions per operator

Fixed Network Operators		2016	2017	2018	2019	2020
MTN	Subscriptions	-	-	-	-	1477
	Share (%)	-	-	-	-	0.48
Vodafone	Subscriptions	244,299	294,915	271,732	280,321	299,802
	Share (%)	97.1	97.8	97.61	97.15	97.44
AirtelTigo	Subscriptions	7,191	6,636	6,647	8,210	6,389
	Share (%)	2.9	2.2	2.39	2.85	2.08
Total Industry Subscriptions		**79,698,363**	**57,193,277**	**49,279,204**	**49,042,265**	**39,834,307**

Source: NCA; Mobile Network Operators, 2020

Table 18: Fixed Voice Traffic in Minutes

Mobile Network Operator		2016	2017	2018	2019	2020
Vodafone	Traffic	69,400,892	50,020,696	45,226,383	49,042,238	35,907,849
	Shares (%)	*87.1*	*87.5*	*91.8*	*100*	*90.14*
Airtel	Traffic	10,297,471	7,172,581	4,052,821	27	3,926,459
	Shares (%)	*12.9*	*12.5*	*8.2*	*0*	*9.9*
MTN	Traffic	-	-	-	-	*1,294*
	Shares (%)	-	-	-	-	*0.00*
Total Traffic (Minutes)		**79,698,363**	**57,193,277**	**49,279,204**	**49,042,265**	**39,835,602**

Source: NCA; Fixed Network Operators, 2020

Table 19: Fixed Data Subscriptions and Penetration Rate (%)

Subscriptions	2016	2017	2018	2019	2020
Fixed Data	86,596	56,810	58,808	57,393	77,022
Growth Rate (%)	*0.15*	*-0.34*	*0.04*	*-0.02*	*0.34*
Net Additions	11,504	-29,786	1,998	-1,415	19,629
Country Population	28,094,823	28,776,565	29,474,851	30,190,081	30,922,666
Penetration Rate (%)	*0.31*	*0.20*	*0.20*	*0.19*	*0.25*

Source: NCA; Fixed Network Operator, 2020

Table 20: Fixed Data Subscriptions per Operator

Mobile Network Operator		2016	2017	2018	2019	2020
Vodafone	Subscriptions	85,190	55,627	57,216	56,677	62,284
	Shares (%)	*98.38*	*97.92*	*97.29*	*98.75*	*80.87*
Airtel	Subscriptions	1,406	1,183	1,592	716	700
	Shares (%)	*1.62*	*2.08*	*2.71*	*1.25*	*0.91*
MTN	Subscriptions					*14,038*
	Shares (%)					*18.23*
Total Industry Subscriptions		**86,596**	**56,810**	**58,808**	**57,393**	**77,022**

Source: NCA; Fixed Network Operator, 2020

Table 21 BWA Subscriptions and Penetration rate (%)

Subscriptions	2016	2017	2018	2019	2020
BWA	104,402	87,639	80,581	46,050	51,468
Growth rate (%)	*0.16*	*-16.06*	*-8.05*	*-42.85*	*11.77*
Net Additions	14,156	-16,763	-7,058	-34,531	5,418
Population	28,094,823	28,776,565	29,474,851	30,190,081	30,922,666
Penetration rate (%)	*0.37*	*0.30*	*0.27*	*0.15*	*0.17*

Source: NCA; BWA Network Operator, 2020

Table 22: BWA Data Traffic in Gigabytes

	2016	2017	2018	2019	2020
Surfline	9,571,977	13,261,059	13,894,836	13,153,292	16,263,920
BBH	1,151,472	1,124,126	903,401	1,034,714	464,745
Blu	442,383	381,917	264,963	345,440	39,703
Telesol				51,449	1,268,272
Total	**11,165,832**	**14,767,102**	**15,063,200**	**14,584,895**	**18,036,640**

Source: NCA; BWA Network Operators, 2020

Table 23: BWA Subscriptions per Operator

Broadband Wireless Access Operator		2016	2017	2018	2019	2020
Surfline	Subscriptions	76,919	61,426	55,134	43,735	49,738
	Growth rate (%)	24.10	*-20.14*	*-10.24*	*-20.68*	*13.73*
	Market Share (%)	*73.68*	*70.09*	*68.42*	*92.84*	*96.64*
BBH	Subscriptions	26,402	25,560	25,100	1,058	0
	Growth rate (%)	-1.43	*-3.19*	*-1.80*	*-95.78*	*-100.00*
	Market Share (%)	*25.29*	*29.17*	*31.15*	*2.25*	*0.00*
Blu	Subscriptions	*1,081*	653	347	211	0
	Growth rate (%)	*-26.96*	*-39.59*	*-46.86*	*-39.19*	*-100.00*
	Market Share (%)	*1.04*	*0.75*	*0.43*	*0.45*	*0.00*
Telesol	Subscriptions	n/a	n/a	n/a	2,104	1,730
	Growth rate (%)	n/a	n/a	n/a	n/a	-17.78
	Market Share (%)	n/a	n/a	n/a	4.47	*3.81*
Total		**104,402**	**87,639**	**80,581**	**47,108**	**51,468**

Source: NCA; BWA Network Operators, 2020

Table 24: Number of Towers and Share per Operator

Tower Company		2016	2017	2018	2019	2020
Eaton Towers	Number of Towers	1,194	1,277	1,370	1470	-
	Market Share (%)	28.6	*29.9*	*30*	*30.79*	-
American Towers	Number of Towers	2,224	2,216	2,303	2,381	3,989
	Market Share (%)	53.2	*51.9*	*50.5*	*49.9*	*80.1*
Helios Towers	Number of Towers	*759*	778	891	923	991
	Market Share (%)	*18.2*	*18.2*	*19.5*	*19.3*	*19.9*
Industry Total		**4,177**	**4,271**	**4,564**	**4,774**	**4,980**

Source: TowerCo, 2020

Table 25: Types of Tower Installations

TOWER	2016	2017	2018	2019	2020
Greenfield	3,799	3,844	4,195	4,385	4,571
Rooftop	348	348	340	357	374
Indoor Network	22	19	24	27	28
Mobile Sites	1	11	2	5	7
Total Number of Towers	**4,170**	**4,222**	**4,561**	**4,774**	**4,980**

Source: TowerCo, 2020

Table 26: Tower Tenancy Ratio

	2016	2017	2018	2019	2020
Total Number of Towers	4,177	4,271	4,564	4,774	4,980
Total Number of Tenants	7,467	7,765	7,837	7,753	7,729
Tenancy Ratio	**1.79**	**1.82**	**1.73**	**1.62**	**1.55**

Source: TowerCo, 2020

Table 27: Revenue and CAPEX of Tower Infrastructure Companies

	2016	2017	2018	2019	2020
Revenue	778,594,852	939,311,995	1,011,938,284	920,124,849	976,987,326
CAPEX	259,939,227	280,291,646	366,882,381	314,843,791	555,083,911

Source: TowerCo, 2020

Table 28: Regional Distribution of Authorised FM Radio Stations in Ghana as at the end of 2020

NO	NAME OF REGIONS	TOTAL NO. AUTHORISED	PUBLIC	PUBLIC (FOREIGN)	COMMUNITY	CAMPUS	COMMERCIAL	TOTAL NO. IN OPERATION	TOTAL NO. NOT IN OPERATION
1	ASHANTI	**92**	2	1	12	3	74	72	20
2	BONO	**50**	1	-	3	2	44	39	11
3	BONO EAST	**30**	2	-	4	-	24	26	4
4	AHAFO	**10**	-	-	1	-	9	7	3
5	CENTRAL	**52**	2	-	10	3	37	40	12
6	EASTERN	**50**	2	-	11	1	36	37	13
7	GREATER ACCRA	**66**	2	3	8	4	49	60	6
8	NORTHERN	**45**	3	-	7	2	33	23	22
9	SAVANNAH	**10**	3	-	4	-	3	8	2
10	NORTH EAST	**9**	1	-	4	-	4	2	7
11	UPPER EAST	**31**	2	-	9	3	17	17	14
12	UPPER WEST	**27**	2	-	8	2	15	17	10
13	VOLTA	**45**	3	-	4	1	37	35	10
14	OTI	**12**	1	-	3	-	8	8	4
15	WESTERN	**79**	2	1	8	2	66	52	27
16	WESTERN NORTH	**22**	3	-	0	-	19	16	6
TOTAL		**630**	**31**	**5**	**96**	**23**	**475**	**459**	**171**

Source: NCA; (2020)

Table 29: Authorised TV Stations as at the end of 2020

NO.	TYPE OF TELEVISION SERVICE	TOTAL NO. OF AUTHORISED STATIONS	TOTAL NO. OF STATIONS ON AIR	TOTAL NO. OF STATIONS NOT ON AIR
1.	Analogue Terrestrial Television	2	2	0
2.	Digital Terrestrial Free-To-Air Television Programme Channel (Nationwide Coverage)	36	36	0
3.	Digital Terrestrial Free-To-Air Television Programme Channel (Regional Coverage)	6	5	1
4.	Digital Terrestrial Pay Television (Service only)	1	1	0
5.	Digital Terrestrial Pay Television (Service and Frequency)	5	5	0
6.	Digital Terrestrial Television (Network only)	0	0	0
7.	Digital Terrestrial Radio Service on TV Multiplex	8	2	6
8.	Satellite Television Broadcasting (Pay TV Direct-To-Home Bouquet)	4	4	0
9.	Satellite Television Broadcasting (Free-To-Air Direct-To-Home Bouquet)	9	8	1
10.	Satellite Television Broadcasting (Free-To-Air Direct-To-Home Single Channel)	69	50	19
11.	Digital Terrestrial Television additional Services (eg. Teletext, etc)	0	0	0
12.	Digital Terrestrial Mobile Television Service (Stand-alone Authorisation)	0	0	0
13.	Digital Cable Television	1	1	0
14.	Television over Internet Protocol (Pay TV)	1	0	1
15.	Subscription Management Service for a Satellite Television Broadcasting (Pay TV Direct-To-Home Bouquet)	1	1	0
TOTAL		**143**	**115**	**28**

Source: NCA; (2020)

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