BOTSWANA COMMUNICATIONS REGULATORY AUTHORITY

BROADBAND FACTS AND FIGURES

DECEMBER 2020

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ACRONYMS

3G	Third Generation
4G	Fourth Generation
BOCRA	Botswana Communications Regulatory Authority
BoFiNet	Botswana Fibre Networks Pty Ltd
CAPEX	Capital Expenditure
CDN	Content Delivery Network
DSL	Digital Subscriber Line
JINX	Johannesburg Internet Exchange
LINX	London Internet Exchange
LTE	Long-Term Evolution
PoP's	Points of Prescence
QoS	Quality of Service
UASF	Universal Access and Service Fund
WACS	West Africa Cable System

FOREWORD

Botswana Communications Regulatory Authority (BOCRA or the Authority) hereby releases the annual report on Broadband Facts and Figures. This year marks the second publication of this non-technical report, which offers descriptive insight into the broadband market in Botswana. BOCRA is one of the few regulators that publish this kind of report in the region and aims to maintain the publication as an informative report for consumers, policy makers, ICT players and other interested users. Therefore, the Authority takes advantage of its early pioneering position to be creative in the structure of the report and the contents. This report provides information on the available broadband solutions and coverage of broadband as well as related market development information. The report additionally considers the impact of COVID-19 pandemic on broadband.

All the figures and tables herein presented were created from information[1] submitted by broadband providers. Immediate feedback to BOCRA is encouraged and must be sent to businessdevelopment@bocra.org.bw.

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[1] While facts and figures presented herein have been proofread, reporting omissions and errors are acknowledged, with the believe that such are not material to the extent of misleading readers and stakeholders.

EXECUTIVE SUMMARY

The year 2020, characterised by unprecedented Covid19 pandemic, was a period during which the importance of broadband internet became pronounced in Botswana and all over the world. Use of digital/electronic channels to conduct business remotely and carry out commerce became a necessity as extreme social distancing regime became the new normal. Social media became the most indispensable platform for connecting family and friends, as well as for disseminating official information related to management of the pandemic. For Botswana, all these translated to quick action by Government, the regulator Botswana Communications Regulatory Authority (BOCRA), broadband providers and related stakeholders to ensure wide reach and affordability of high quality broadband services. The importance of pursuing the National Broadband Strategy became apparent because the strategy was created primarily to facilitate extensive installation and use of broadband.

The role of BoFiNet in advancing broadband capability nationally and internationally cannot be over emphasised. BoFiNet has facilitated country wide access to backbone broadband infrastructure, supporting all public telecommunication operators and Internet Service Providers. BoFiNet has ensured continued connectivity to the global internet platforms in support of the Government's efforts to ensure participation in the information society.

BOCRA, as the communications regulator, continues to play its role in creating an environment that allows the broadband ecosystem to flourish. The Authority has fully liberalised the broadband market within the constraints of scarce regulatory resources such as spectrum. As a result, the adoption of mobile broadband in Botswana has grown tremendously reaching 101 subscriptions per 100 head of population in March 2020. Fixed and fixed wireless broadband reached 3 subscriptions per 100 head of population while household access to broadband was recorded at 63%, with the most prevalent access technology being mobile broadband.

The Authority is paying attention to pertinent broadband issues such as affordability and quality of service. Mobile broadband has become more affordable with prices being reduced by up to 46% for 30 day prepaid packages in 2020. Management of quality of service has gained traction with service providers submitting required performance reports and the Authority adopting new methods of network assessments.

BOCRA supports rollout of new networks, notably FTTx and 4G/LTE. The Authority is also positioning to manage trials and market rollout of the highly anticipated 5G networks.

Botswana has been able to maintain its competitiveness in the region in terms of development of broadband. Such competitiveness is made possible through continued partnerships between the Government, BOCRA, broadband providers and consumers of broadband.

INTRODUCTION

Broadband can be characterised as high-speed, always-on Internet connectivity. Broadband began to appear in some high-income countries in the late 1990s, using the copper wire in ordinary telephone connections (i.e. digital subscriber line or DSL) or the coaxial cable in cable television networks (i.e. cable modem). In 2001, the first high-speed mobile networks were launched. Today, commercialised fixed broadband networks reach download speeds of 1,000 Mbps over fibre optic and mobile broadband reaches 300 Mbps over fourth generation 4G/Long Term Evolution (LTE) networks. By the end of 2019, there were some 1.178 billion fixed broadband subscriptions and 5.826 billion mobile broadband subscriptions[2] around the world. The emergence of broadband has already stimulated unending discussion of it being a powerful general-purpose technology. Broadband has driven widespread changes in the Telecommunications, Media and Technology (TMT) sector enabling services such as cloud computing and mobile apps. Equally, broadband is influencing innovation across many other sectors including commerce, education, health, transport and government. The impact of broadband internet on the economy is therefore a subject of growing interest.

Broadband has become a key priority of the 21st Century and its transformative power makes it an enabler for economic and social growth. Broadband is an essential tool for empowering people, creating an environment that nurtures the technological and service innovation and triggering positive change in business processes as well as in society as a whole. Increased adoption and use of broadband in the next decade and beyond will be driven by the extent to which broadband-supported

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[2] ITU

services and applications are not only made available to but are also relevant and affordable for consumers.

BOTSWANA'S INTERNATIONAL BROADBAND CAPABILITY

Broadband capability created by BoFiNet

Botswana boasts of cutting edge international broadband capability that is anchored on use of diverse sea-landing points, multiple Points of Presence abroad, cache capability, direct peering with global players and most importantly notable network redundancy.

The capability is largely driven by Botswana Fibre Networks (BoFiNet), a state-owned enterprise with a mandate to provide Botswana with the necessary primary infrastructure for broadband connectivity, nationally and internationally.

BoFiNet is a wholesale provider of national and international broadband internet infrastructure, with international connectivity through at least eight cross-border links in six areas namely Tlokweng, Ramatlabama, Ramokgwebana, Kazungula, Mamuno and Ngoma. Another route through Beitbridge in Zimbabwe has been added providing access to Johannesburg. BoFiNet is the single largest internet wholesaler with about 66.30 Gbps incoming (out of total capacity of 90.79Gbps to Botswana going to different internet service providers) and 66.30Gbps outgoing international internet bandwidth.

Figure 1 shows Botswana's location and the terrestrial broadband infrastructure that provides backbone connectivity in the SADC region. All SADC countries are connected to the regional backbone infrastructure that is owned and operated by various entities, in some instances by Governments of the various countries. The backbone infrastructure is designed to promote intra-regional connectivity and exchange of internet traffic with reduced dependency on European, Asian and American networks.
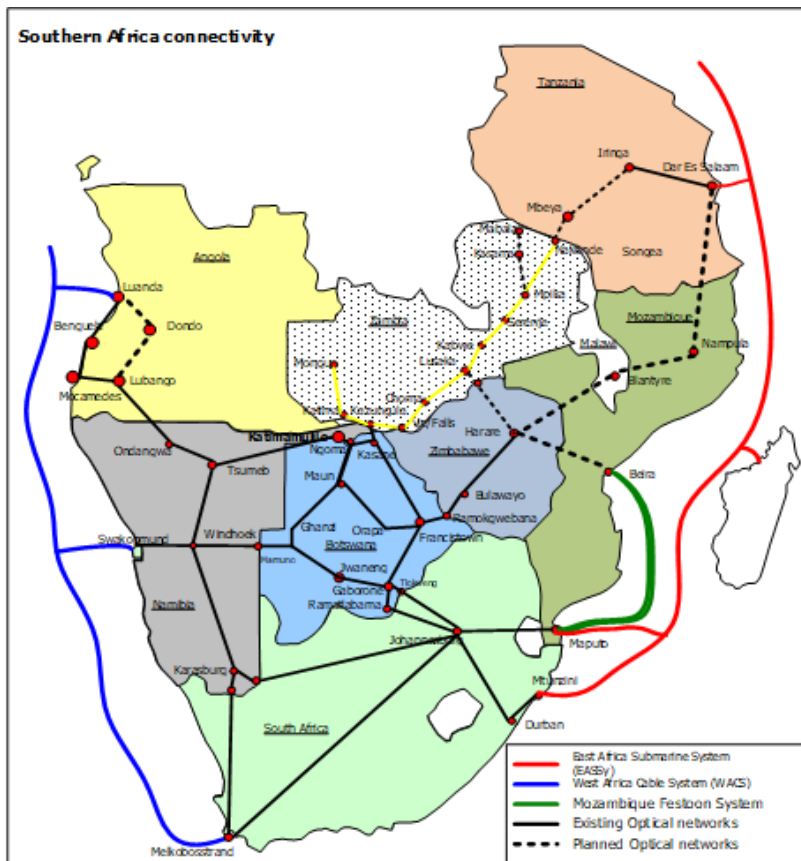
Figure 1: Southern African international bandwidth connectivity map.
(Source: BoFiNet, 2020)

BoFiNet owns and Operates International Points of Presence (PoPs) in South Africa, the United Kingdom and Namibia and connects to major Internet Exchange Points at London Internet Exchange (LINX), Johannesburg Internet Exchange (JINX), NAP Africa (Johannesburg) to facilitate enjoyable user experience and high quality of service. The interconnection infrastructure is shown in Figure 2.
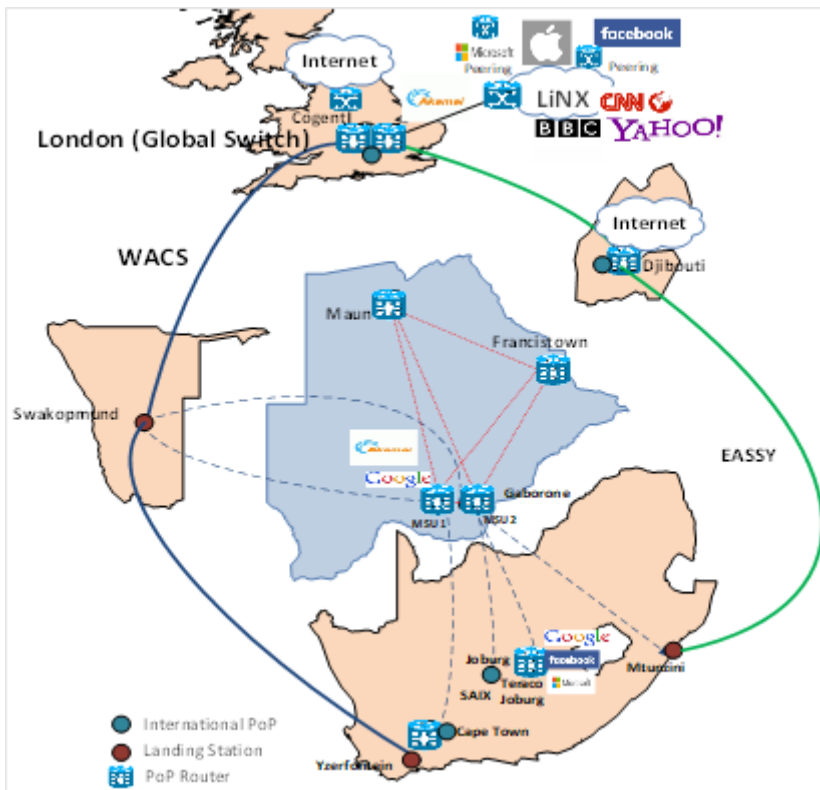
Figure 2: PoP and Exchange points connected to Bofinet. (Source: BoFiNet, 2020)

BoFiNet peers with the world's biggest content providers. Currently, existing direct peering is with the following:

- Google
- Microsoft
- Netflix
- Facebook
- Apple
- Akamai

The content providers have also implemented their Content Delivery Network (CDN) infrastructure locally in Botswana through partnership agreements with BoFiNet. This arrangement enables content to be cached inland closer to users hence giving an improved user experience.

Competition in the International Bandwidth Market that serves Botswana

The international internet bandwidth market is heavily contested particularly in the transit routes of South Africa. The transit routes are used by service providers located in Botswana to reach the regional and global internet exchange points as well as coastal landing points in South Africa. The internet providers in Botswana source internet bandwidth from providers including BoFiNet, Seacom, Liquid Telecom, Paratus and Botswana Telecommunications Corporation Limited.

BOTSWANA'S NATIONAL BROADBAND CAPABILITY

Role of BoFiNet

BoFiNet plays a crucial role in providing backbone infrastructure for national broadband. BoFiNet has national fibre of 10,600 km countrywide connecting cities, major towns, villages and selected strategic locations. About 206 out of targeted 399 localities in Botswana are connected to high-speed open access network infrastructure. Figure 3 below shows the fibre coverage across the country.

The BoFiNet infrastructure is deployed for use by public telecommunications operators (Botswana Telecommunications Corporation or BTCL, Mascom Wireless and Orange Botswana) and Internet Service Providers (ISPs). The infrastructure is used for inter-city and intra-city connectivity.

Figure 3: BoFiNet fibre map coverage in Botswana. *(Source: BoFiNet, 2020)*

Broadband Uptake and Availability

Convergent Goals on broadband connectivity

The National Broadband Strategy of 2018 (NBS) is an overarching national strategy designed to provide a roadmap to achieving universal connectivity of high speed broadband network in cities, towns, villages, farming communities and other areas of socioeconomic interest.

The BOCRA Strategy 2019-2024 and the Universal Access and Services Fund (UASF) Strategy 2019-2024 are cascades of the NBS and provide convergent goals of universal connectivity to broadband at affordable prices.   In Botswana, broadband is embraced as a facilitator of information exchange and commerce. Broadband is largely offered via mobile infrastructure which has very high penetration level at over 160%. Fixed wireline and fixed wireless broadband penetration are minimal at a total of around 3.5%. It is only recently that there were major network

development plans that would increase outreach and penetration of fixed wireline and fixed wireless broadband.

<u>Uptake of Fixed Wireless Broadband</u>

Fixed wireless broadband refers to terrestrial fixed wireless internet with an advertised download speed of at least 256 Kbit/. An analysis was conducted on the uptake of fixed wireless broadband for the period ending June 2020. The analysis covered ISPs who are the main providers of fixed wireless broadband. Public telecommunication operators were covered as well, although they currently provide fixed wireless broadband at a limited scale.   `

Figure 4 and 5 are jointly discussed in this section with respect to internet speeds and customer subscription types for fixed wireless broadband. Residential customers constitute the highest number of fixed wireless broadband subscriptions at 89% of the market. The largest number of residential subscriptions, at 50%, are for the 256Kps to 2Mbps customer segment. Residential customers prefer the speeds primarily because of affordability factors. On the other hand, the business customers mainly subscribe to speeds of 2Mbps to 10Mbps and such subscriptions constitute a significant 87% of the market. This is primarily because business customers derive more value from high bandwidth access.

FIXED WIRELESS ACCESS SPEEDS AS AT JUNE 2020

	256KBPS to <2MBPS	2MBPS to <10MBPS	≥10MBPS
Residential	13,748	12,033	1,904
Business	195	2876	221
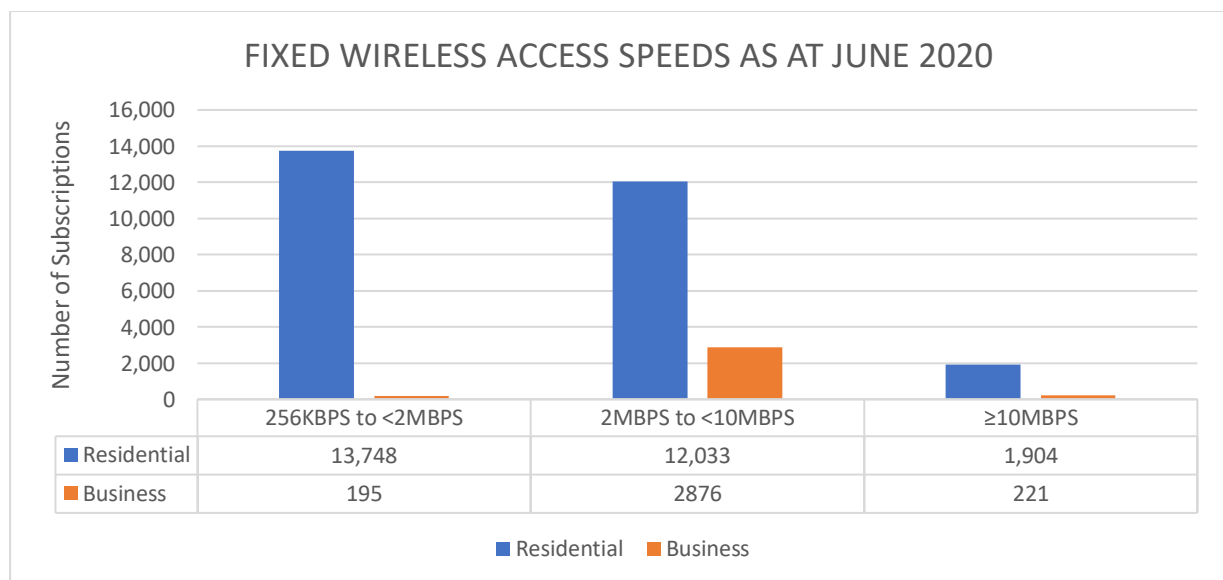
Figure 4: Analysis of Fixed Wireless Access Speeds in June 2020 (Source: BOCRA, 2020)

A comparison between June 2019 and June 2020 indicates that residential access has increased by 46% from 18,977 subscriptions to

27,676 subscriptions. The growth in residential subscriptions is attributable to customers who were working remotely due to extreme social distancing as prescribed by the COVID-19 protocols and as such businesses had to connect their employees for business continuity. Fixed wireless subscriptions by businesses also increased by 32% from 2,500 subscribers in June 2019 to 3,292 subscribers in June 2020.

Further analysis showed that urban areas consist of 96.24% of fixed wireless broadband subscriptions and 3.63% are subscriptions in rural areas. Agricultural areas account for 0.09% of subscriptions. ISPs have plans to roll out more fixed wireless broadband in the rest of country in 2021 and beyond. This will increase access to internet in villages, bringing connectivity closer to the National Broadband 2018 Strategy targets. Figure 5 shows the current share of subscriptions in Urban, Rural and Agricultural areas in Botswana as at June 2020.
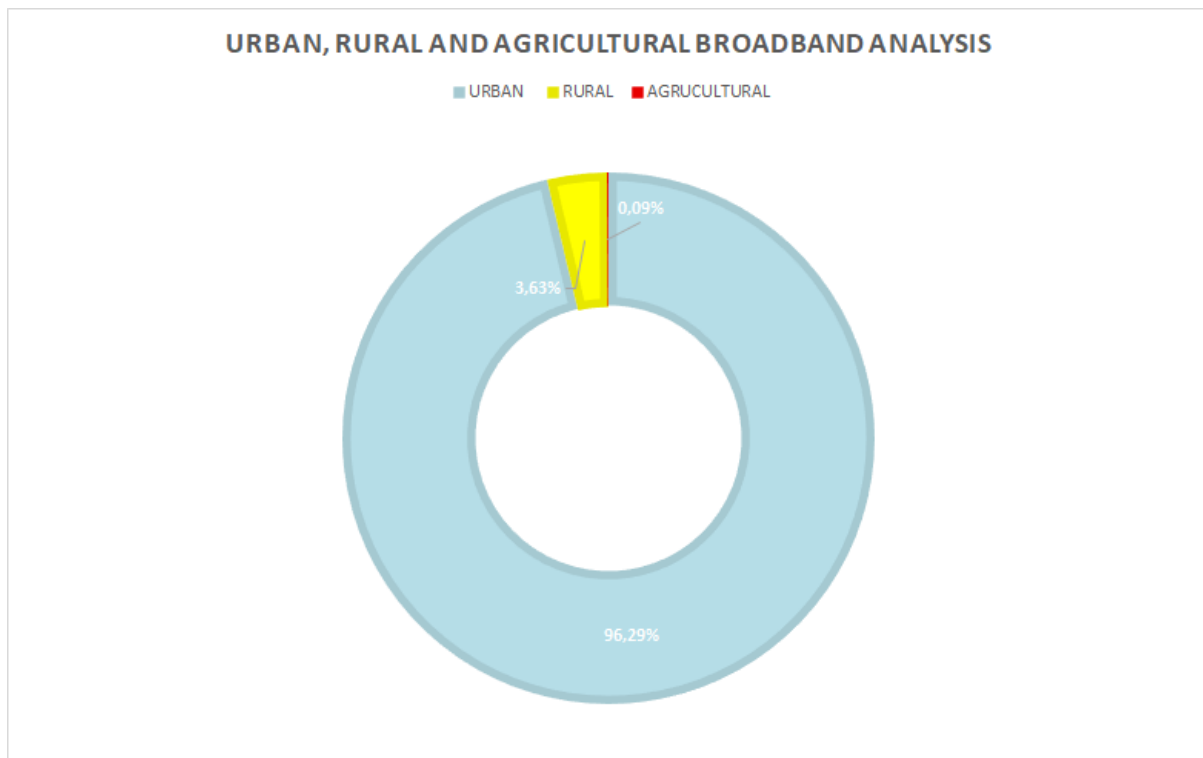

Figure 5: Analysis of Broadband in Urban, Rural and Agricultural Areas in Botswana. (Source: BOCRA, 2020)

The significant divide in access to broadband internet between urban and rural areas may be explained by the varying economic status of the areas. The scantily available fixed broadband infrastructure in rural and agricultural areas may also be a contributing factor. The employment of

UASF, to deal with the digital divide, has borne significant results as will be illustrated in later sections of the report.

Uptake of Fixed Wired Broadband: Asymmetric Digital Subscriber Lines (ADSL)

Asymmetric Digital Subscriber Line (ADSL) is the most prevalent type of fixed wired broadband and it is provided through BTC network infrastructure. BTC plays in the wholesale and retail ADSL markets, meaning that they offer wholesale ADSL to ISPs and then compete with the ISPs in the retail market. ADSL is mainly offered using a standard copper telephone line. One of the advantages of ADSL is that it can be priced affordably on the basis of the contention rates. The disadvantage of ADSL is that it can be unreliable in terms of throughput which depends on the distance from the telephone exchange. Figure 6 shows the trend of ADSL subscriptions over the past four years. The chart shows a decline in subscriptions over the years from 59 590 in March 2017 to 29 352 in March 2019 and a slight increase to 33 628 subscriptions in March 2020. The depicted decline was attributable to data-cleaning and validation that was conducted over the years that resulted in deletion of invalid count of customers.
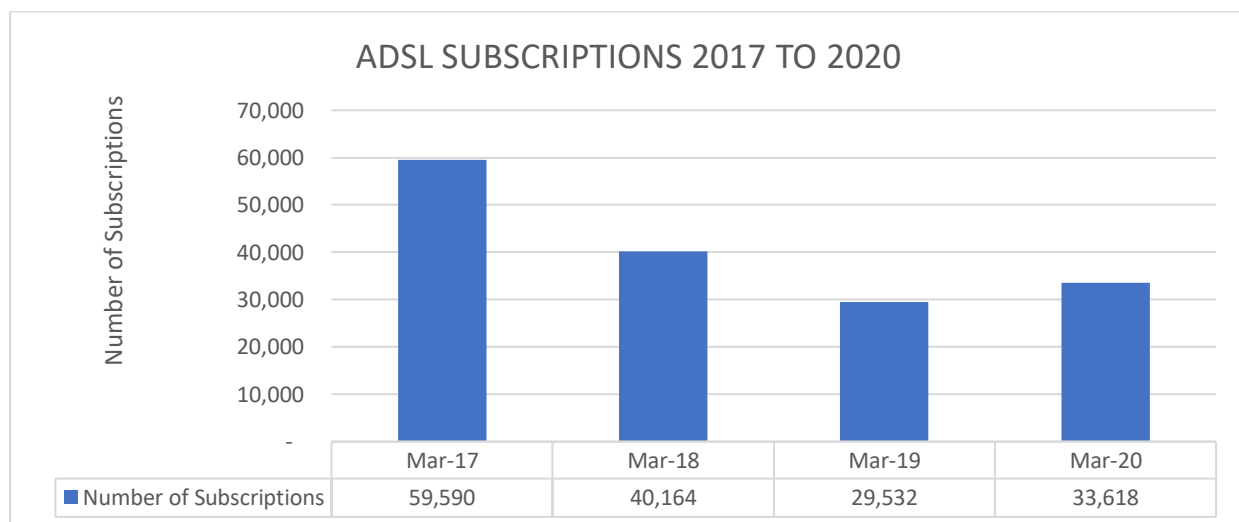
Figure 6: ADSL Subscriptions for four years 2017 to 2020 (Source: BOCRA, 2020)

Uptake of Fixed Wired Broadband: Fibre To The Location

Fibre To The Location (FTTx) is a fairly new technology in Botswana, first introduced at large scale and at wholesale level by BoFiNet in 2015/16. The initial rollout was confined to Fibre To The Business (FTTb) targeting businesses and industries in Gaborone and other major population centres. Fibre To The Home (FTTh) followed in subsequent years mainly

as an offering by public telecommunications operators in Gaborone ahead of BoFiNet's programme which was implemented at a larger scale in 2019. BoFiNet planned to initially rollout FTTh at wholesale level in the capital city Gaborone followed by Francistown, the second city and the rollout would over time be expanded to other areas. The wholesale model is such that public telecommunication operators and the ISPs buy wholesale FTTx from BoFiNet and provide final connection to the businesses and homes.

To safeguard the long term beneficial use by households, BOCRA closely regulates the prices and minimum guaranteed speeds as well as Terms and Conditions for FTTx.

Availability of Mobile Broadband
Figures 7 and 8 depict network coverage for 3G and 4G or Long-Term Evolution (LTE) by Mobile Network Operators in Botswana as at September 2020. The extensive network coverage is supported by 1670 (one thousand six hundred and seventy) 3G base stations and 1333 (one thousand three hundred and thirty-three) 4G/LTE base stations that are located to serve the inhabited or most travelled parts of the country. There has been an increase in the number of base stations for both 3G and 4G. The increase in number of base stations between 2019 and 2020 is 7% and 40% respectively. The increase in base stations shows commitment by public telecommunication operators to achieve universal service through mobile broadband networks.
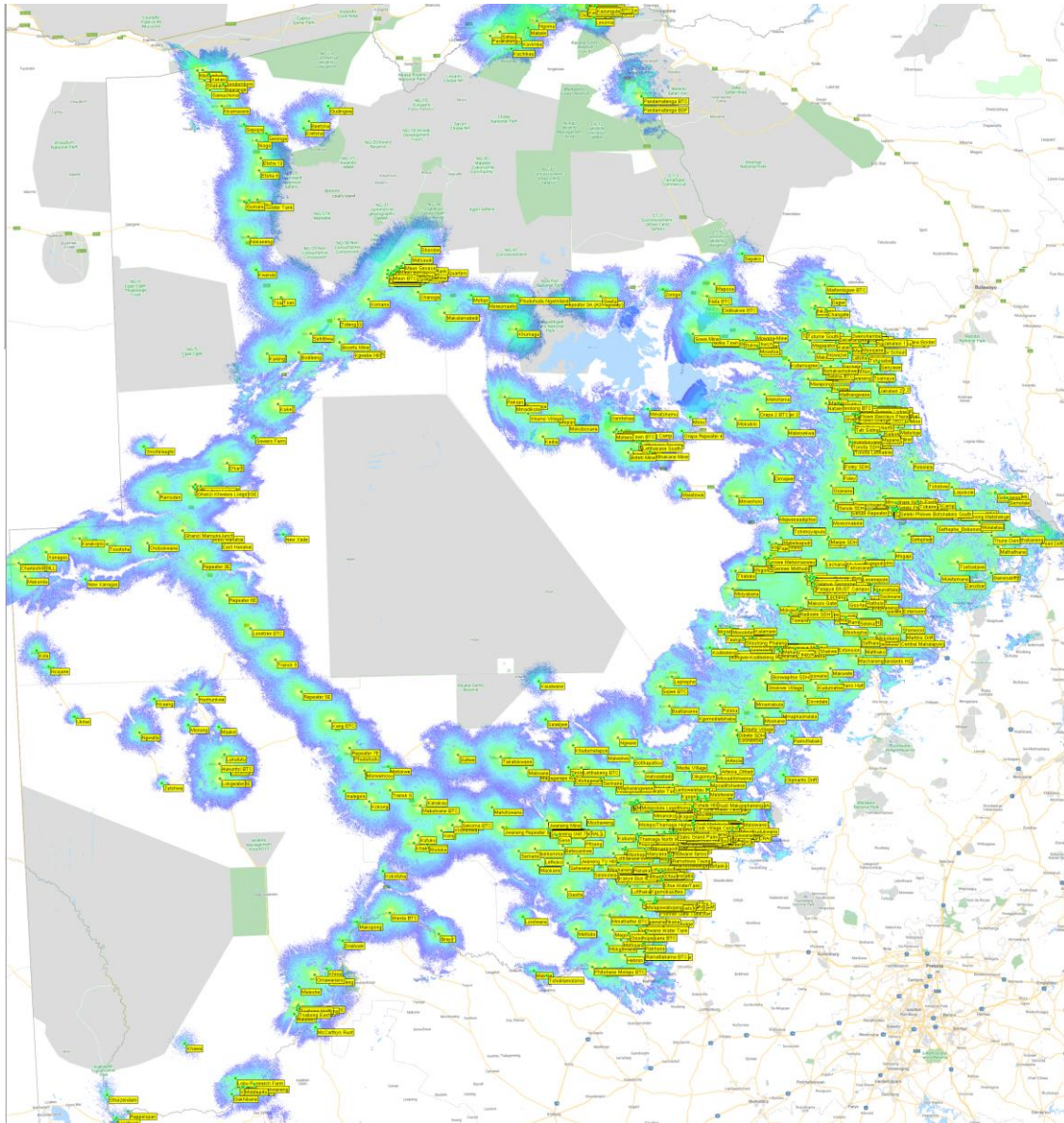
Figure 7: 3G coverage map in Botswana (Source: BOCRA, 2020)
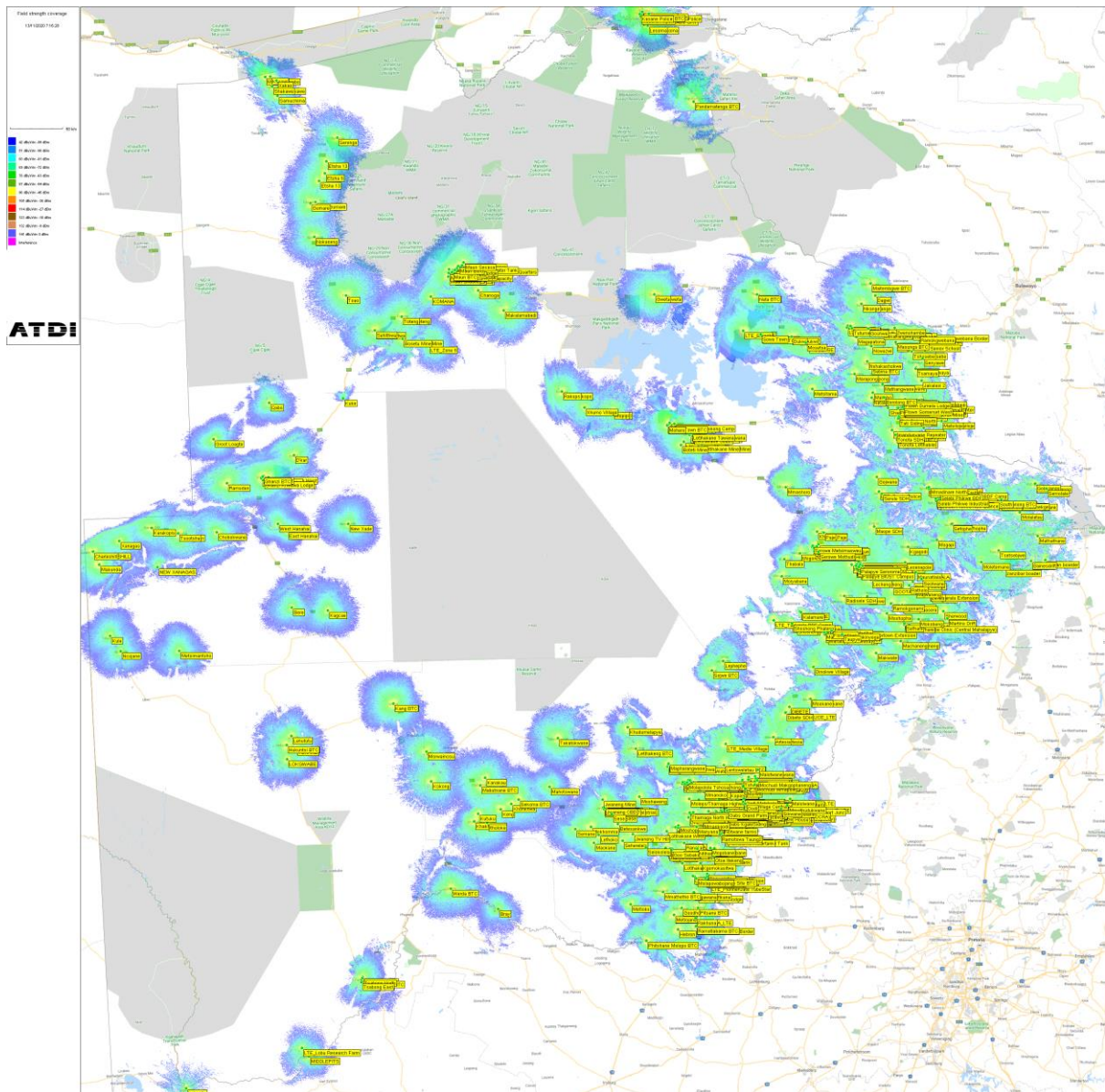
Figure 8: 4G map coverage. (Source: BOCRA, 2020)

It is estimated that 3G network covers 66% of the population while 4G network covers 62%. These translate to 396 towns/villages and 174 towns/villages respectively.

<u>Rollout of 5G</u>

5G is expected to revolutionise the delivery for mobile broadband, with expected speeds of over hundred-fold compared to the 4G technology. The technology will not only increase speed, but also promises low latency, low power consumption and reliable communications paving way for time critical applications. 5G requires more spectrum that what is already being used by 3G and 4G. There are some pockets of spectrum available in the prime 5G bands. 5G can also use spectrum above 24GHz which has not been used by its predecessors. One way to avail spectrum

for 5G is to re-farm some from older technologies. The regulator is currently working on modalities of availing spectrum, both for trial and rollout in the year 2021.

Mobile Broadband Subscriptions

The number of mobile broadband subscriptions has increased by 16.3% (284,812) from 1,752,547 in March 2019 to 2,037,359 in March 2020 as shown in figure 9. The significant increase in uptake of mobile broadband is attributable to several reasons including; ownership of more than one SIM-cards by consumers to enjoy different mobile offers by operators; improved affordability due to recent price reductions; reduced movement during extreme social distancing leading to extensive use of electronic platforms; self-service on utilities as well as surfing the internet to apply for movement permits. An increase in the number of subscriptions is expected during 2021 and beyond as Botswana moves towards a digital economy and operators introduce more affordable products and services in the market.

MOBILE BROADBAND SUBSCRIPTIONS 2016 TO 2020

	Mar-16	Mar-17	Mar-18	Mar-19	Mar-20
Number of subscriptions	1,360,236	1,404,065	1,523,545	1,752,245	2,037,359
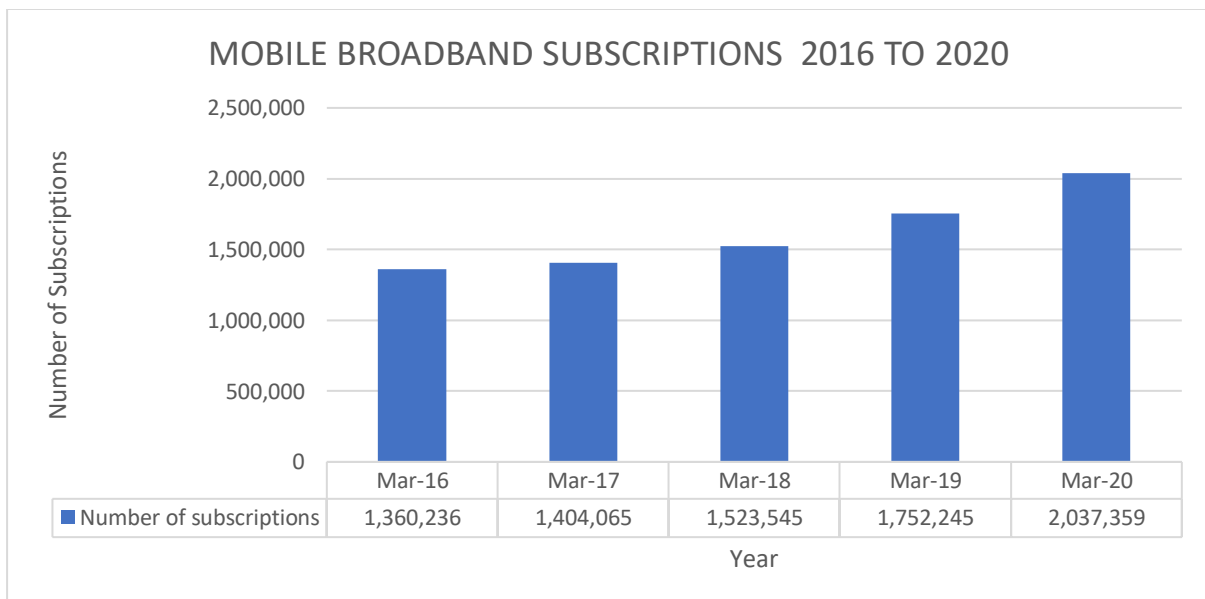
Figure 9: Broadband Subscriptions as at March 2020 (Source: BOCRA, 2020)

Mobile Broadband (or Data) Traffic

Mobile broadband coverage has increased significantly across Botswana over the recent years as operators continued to roll out new base stations in various locations and the demand for internet grew. Prepaid mobile broadband traffic increased from 3 billion Megabytes in March 2016 to 33 billion Megabytes in March 2020.

Post-paid mobile broadband traffic increased from 1.2 billion Megabytes in March 2016 to 3.3 billion Megabytes in March 2020. Mobile operators

are increasingly introducing innovative offers to the market to meet the needs of different customers. Customers are also building affinity with mobile solutions because of their convenience. Figure 10 shows traffic trends over the years.

MOBILE BROADBAND (OR DATA) TRAFFIC 2016 TO 2020					
	2016	2017	2018	2019	2020
■ Prepaid Data Traffic	3,130,339,516	6,368,741,561	12,061,734,300	16,413,928,776	33,708,848,494
■ Postpaid Data Traffic	1,255,256,592	1,447,540,810	1,512,390,775	2,315,206,801	3,318,049,528

■ Prepaid Data Traffic   ■ Postpaid Data Traffic
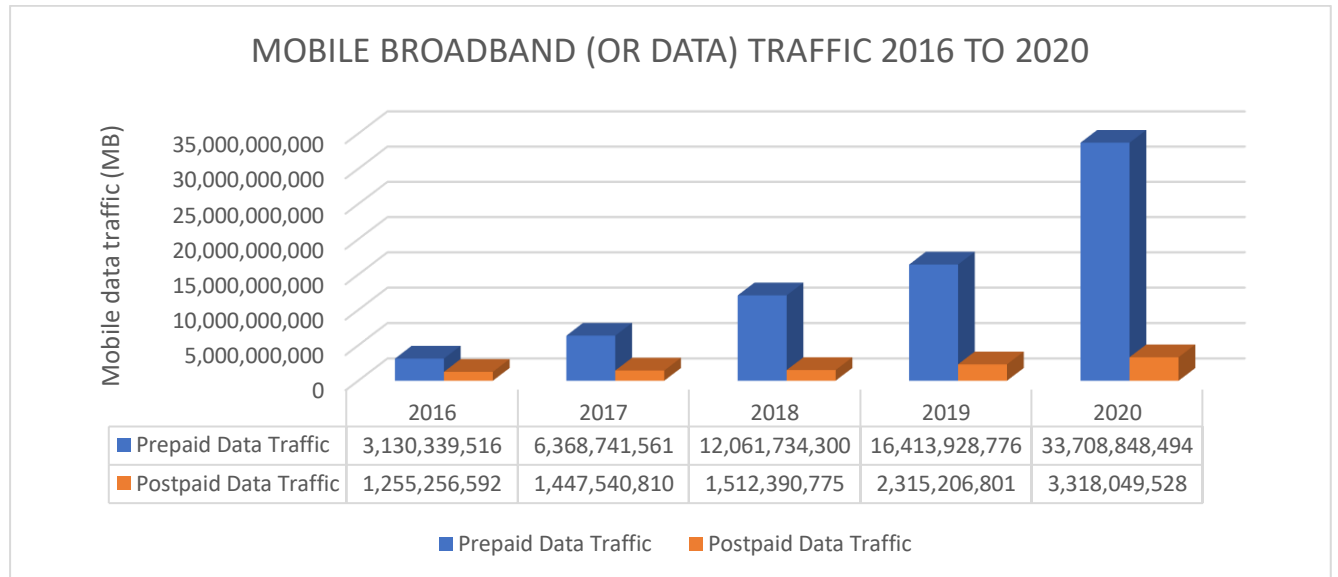
Figure 10: Mobile broadband traffic from March 2016 to March 2020 (Source: BOCRA, 2020)

UNIVERSAL ACCESS AND SERVICE FUND (UASF) AND ITS ROLE IN GROWING BROADBAND

The Universal Access and Services Fund (UASF) was established in April 2014 under the Communications Regulatory Authority (CRA) Act which mandates BOCRA to promote and ensure universal access with respect to provision of communication services. The mandate of the UASF is to ensure the availability of quality and affordable communication services with primary focus on the unserved and underserved areas. This is achieved through provision of financial subsidies to qualifying service providers who took part in competitive bidding and would then be contracted to provide the necessary broadband infrastructure.

The Achievements of UASF
In the last financial year 2019/20, the UASF, through its subsidy programme, facilitated the provision of mobile broadband networks in 68 villages across Kgalagadi, Mabutsane Sub- District and Ghanzi. The

project which started in 2017 included the upgrading of the existing networks and deployment of new infrastructure in some areas in the identified villages.

Seventy-seven (77) primary and secondary schools were connected with 5Mbps dedicated internet. Mascom connected 35 schools, with 32 being primary schools and 3 Junior secondary schools in Kgalagadi. Orange connected 20 schools, 17 of these are primary schools while 3 are junior secondary schools in Mabutsane Sub-District. Ghanzi was connected by BTC with a total of 22 schools comprising 19 primary schools and 3 junior secondary schools. The UASF played a role in job creation as it employed 68 IT Officers for all primary schools connected with internet. Junior secondary schools already had IT Officers as per the government arrangement.

Planned Projects for UASF
For the year 2020/21, the UASF will provide subsidy for deployment of 4G mobile broadband networks in 3 districts namely Kweneng, North West and Southern Districts. There will be 47 villages to be covered in the Kweneng District. Connectivity in the villages will be provided by Orange Botswana to 91 primary schools and 23 junior secondary schools. The targeted bandwidth is 10Mbps for primary schools and 20Mbps for 23 junior secondary schools. IT officers will be assigned to all primary schools.

In the North-West District, broadband network deployment will be to 46 villages. A total of 85 government schools will be provided with broadband dedicated internet; 10Mbps internet connectivity to each of the 70 primary schools, 20 Mbps to each of the 13 junior secondary schools and 2 senior secondary schools with 30 Mbps. IT officers will be assigned to all primary schools.

Southern District is estimated to have a total of 65 villages, excluding Mabutsane Sub-District. Broadband internet connections will be provided to 133 government schools as follows; 10Mbps each to 102 primary schools and at 20Mbps each to 27 junior secondary schools. and 4 Senior secondary schools. IT officers will be assigned to all primary schools.

The efforts by UASF are meant to touch on the lives of the communities at grassroots level, hence the deliberate plans to connect schools initially. It is noted that where schools are provided with connectivity, the rest of

the community would benefit as mobile broadband reception would not be limited to the schools only.

BROADBAND QUALITY OF SERVICE (QoS) AND QUALITY OF EXPERIENCE (QoS) ANALYSIS

BOCRA monitors Quality of Service for the public telecommunication operators which provide mobile broadband. The operators submit monthly network performance reports. The performance reports are based on the guidelines that were issued by BOCRA in 2019 and are still undergoing initial phases of implementation. There are also plans to use inhouse resources supplemented by outsource contractors to measure and monitor broadband quality of service. The ISPs have also started submitting the network reports in line with the new guidelines. Quality of service continues to be a challenge in certain areas due to unavailability of grid power and unprecedented increase in traffic. Operators continue to increase their investment in the network to address poor quality of service.

THE IMPACT OF THE COVID-19 PANDEMIC ON BROADBAND NETWORKS

Every aspect of life has dramatically been affected by the outbreak of the COVID-19 pandemic. The impact on economic activity is very broad; from increase in demand for digital solutions, to decline in consumer spending, reduced business activity in some areas and loss of jobs. There are varying business opportunities and challenges of different magnitudes. During the period of social distancing, ICT solutions or broadly Telecommunications, Media and Technology (TMT) solutions are demanded at an increased rate to facilitate digital access to services as most people work from home.

The three public telecommunications operators and ISPs are not spared from the positive and negative effects of the pandemic. The effects are discussed below.

- Increase in uptake of broadband solution

During the period of lockdowns, operators experienced a spike in demand for broadband solutions. This was reflected in the increase in broadband traffic across both mobile and fixed networks. Broadband traffic growth is particularly attributable to increased use of digital solutions such as virtual meetings, telecommuniting, ebanking. It is also suspected that broadband channelled home entertainment, gaming and social media solutions reached high levels of demand. Underpinning the increased demand were price reductions on mobile broadband by public telecommunications operators.

- Pressure on residential networks

Implementation of working-from-home protocols meant that a large number of people telecommuted. Although no analysis was done to establish traffic patterns in residential neighbourhood networks, it was evident that during lockdown, broadband traffic migrated with telecommuting workers. The migration was from business districts to residential places as offices and industry were shut down save for essential services.

- Service to customers

The scourge has had a significant impact on customers and how operators offer products and services to them. A shift in consumer behaviour with a sharp increase in data consumption was accompanied by some congestion on data network. During lockdown, there was a sharp decline in the sale of airtime through street dealers and this has impacted customers who use the service as well as dealer agents. On the upside, operators observed an increased uptake on the use of the banking recharge channels.

Customers occasionally experienced slow broadband speed and in certain instances a total blackout of service.

A number of initiatives were put in place to alleviate poor network performance and these included the following:

- BOCRA awarded additional spectrum to public telecommunications operators to augment the existing spectrum.
- Public telecommunication operators embarked on network upgrades and expansions.

- BOCRA instituted a regime, through product approval process, defining contention ratios, minimum guaranteed speeds and pricing for FTTh.

AFFORDABILITY OF MOBILE BROADBAND

Mobile broadband prices

During the months of June and July 2020, BOCRA embarked on a mission to reduce broadband prices to enhance affordability of services. BOCRA engaged mobile operators to discuss opportunities for reducing prices for mobile broadband, also referred to as data bundles. The outcome of the engagement was substantial reduction in prices for data bundles and substantial increase in volumes at unchanged prices by Mascom Wireless and Orange Botswana. Prices for BTC data bundles remain unchanged as the service provider posited they were competitive. The tables 1,2 and 3 below show the various data bundles and the improved price and volume offerings with focus on 30-day prepaid packages. It must be noted that packages for 1 day, 7 days and 14-day validities had their prices reduced as well.

Table 1: Orange Botswana 30-day prepaid mobile broadband prices (BWP)

VALIDITY	BUNDLES	2019 OLD PRICES (BWP)	Notes	NEW PRICE as at June 2020 (BWP)
1 Month	2 GB	95,00	Reduced by 27%	69,00
	4GB	145,00	Reduced by 32%	99,00
	8 GB	275,00	Reduced by 46%	149,00
	16 GB	475,00	Reduced by 41%	279,00
	32 GB	675,00	Reduced by 22%	525,00

(Source: BOCRA, 2020)

Table 2: Mascom Wireless 30 day prepaid mobile broadband prices(BWP)

VALIDITY	BUNDLES	2019 OLD PRICES (BWP)	Notes	NEW PRICE as at June 2020 (BWP)
1 Month	2 GB	95,00	Reduced by 27%	69,00
	4GB	145,00	Reduced by 32%	99,00
	8 GB	275,00	Reduced by 46%	149,00
	16 GB	475,00	Reduced by 41%	279,00
	32 GB	675,00	Reduced by 22%	525,00

(Source: BOCRA, 2020)

Table 3: BTC 30-day prepaid mobile broadband prices (BWP)

VALIDITY	BUNDLES	CURRENT PRICES as at Year 2020 (BWP)
1 Month	1GB	75,00
	3GB	90,00
	5GB	110,00
	10GB	220,00
	15GB	300,00

(Source: BOCRA, 2020)

It is noted in the tables that prices reduced by up to 46% between 2019 and 2020. Price reductions for mobile broadband occur every twelve to eighteen months. The most notable price reduction over the years is an offering of P149.00 for an 800MB package of 30 validity in 2016, which in 2020 was converted to P149.00 for 8GB, making the package tenfold cheaper. It is anticipated that the price reductions would translate into increased adoption of digital solutions and usage by consumers.

Pricing for Mobile Broadband in the SADC Region
The price reductions for mobile broadband in 2020 placed Botswana among the most competitive in the SADC region. Table 4 shows SADC prepaid mobile broadband prices as at September 2020.

Table 4: 30 Day Package Prepaid Mobile broadband prices in SADC (converted to BWP) in September 2020

30 Day Package	BTCL (BWP)	Mascom (BWP)	Orange (BWP)		MTN SA (BWP)	VODACOM RSA (BWP)	SAFARICOM KENYA (BWP)	AIRTEL KENYA (BWP)	TELECOM NAMIBIA (BWP)
1GB	75	-	-		71.74	-	-	-	100.72
2GB	-	69	69		105	-	50.56	-	144.20
3GB	90	-	89		165.94	165.94	-	30.33	-
4GB	-	99	99		-	-	-	-	-
5GB	110	-	-		-	252.90	101.11	50.56	289.13
6GB	-	-	119		289.13	-	-	-	-
8GB	-	149	-		-	-	-	-	-
10GB	220	-	-		339.86	339.86	-	-	615.22
12GB	-	-	219		-	-	-	101.11	-
15GB	300	-	-		-	-	202.22	-	-
16GB	-	279	-		-	-	-	-	-
32GB	-	525	499		-	-	-	-	-

(Source: BOCRA, 2020)

The countries that were selected for comparison are some of the biggest economies in Africa, save for Namibia that was selected on the basis of being comparable to Botswana in terms of population and economic status. It is noted that all the selected countries are on the coast, making international broadband internet connectivity more affordable for them. In the case of Botswana, transit passage to the undersea cables for carriage of international internet is leased through Indefeasible Right of Use (IRU) in Namibia and South Africa. The aspect of geographic location places Botswana in a compromised position in terms of competitiveness.

The tables depict that mobile broadband prices in Botswana are generally lower than prices in South Africa and Namibia by considerable proportions. In contrast, Kenyan operators offer much lower prices than Botswana and this is not unexpected given population density, level of development of telecommunications/media/technology and geographic position of Kenya.

CONCLUSION

The development of broadband in Botswana, especially mobile broadband has reached unprecedented level, surpassing penetration of 160%. The penetration of fixed wired and fixed wireless broadband is around 3.5%. The country's large land mass with sparse population creates a barrier to quick and affordable deployment of fixed networks.

The achievement of National Broadband Strategy targets requires a coordinated effort and an amalgam of resources in the private and public sector. It is also expected that the recently pursued programme on Smart Botswana will provide even a better approach to achievement of universal access to broadband.

APPENDIX 1: LIST OF SERVICE PROVIDERS OF BROADBAND INTERNET AS AT JUNE 2020

Below is a list of service providers of broadband internet that responded to the survey that is analysed in this report. The list comprises BoFiNet, public telecommunication operators and ISPs. Prices for retail broadband internet offered by the listed service providers is available in Appendix 2 below.

1. Abaricom
2. Acacia
3. Altron
4. BBI (Croc 684)
5. BoFiNet
6. Botswana Telecommunications Corporation
7. Cene Media
8. Donya
9. Fibre Sourcing
10. GC Sat
11. ICT Dynamix
12. Inq Digital
13. Internet options Botswana
14. IOT Communication
15. Italk Africa
16. Jenny Internet
17. Kasane Computers
18. Kikanet
19. Lighting Fast
20. Mascom Wireless
21. Microtech
22. MTN Business
23. Netsol
24. Ngami Net
25. Omnisat
26. OPQ
27. Orange Botswana
28. Paratus
29. Techno trends
30. Vertigo
31. Zemko

(Source: BOCRA, 2020)

APPENDIX 2: PRICES FOR FIXED BROADBAND AND FIXED WIRELESS BROADBAND IN 2020
[Refer to ISP PRICES AS AT JUNE 2020]