Telecommunications Authority of Trinidad and Tobago

TELECOMMUNICATIONS AUTHORITY OF TRINIDAD AND TOBAGO

TELECOMMUNICATIONS AND BROADCASTING SECTORS ANNUAL MARKET REPORT 2021

ASSESSING DIGITAL TRANSFORMATION

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© September 2022

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Nothing in this report shall be construed as prejudicing any determination or regulatory action undertaken by the Authority in accordance with the Telecommunications Act, Chap. 47:31.

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FOREWORD

Foreword

As the Telecommunications Authority of Trinidad and Tobago (the Authority) celebrates 18 years of regulating the telecommunications and broadcasting sectors, it is our distinct pleasure to present the *16th Annual Market Report: Telecommunications and Broadcasting Sectors 2021* (the Report).

The *National ICT Plan (2018-2022)*[1] (the ICT Blueprint) places emphasis on the growth of the telecommunications and broadcasting sectors in Trinidad and Tobago, through the advancement of strategic programmes and initiatives. The ICT Blueprint highlights the importance of the progress made in information and communications technology (ICT) within recent years and recognises the need to continually monitor and track the developments in the two sectors going forward. To this end, the theme for this year's report is "Assessing Digital Transformation".

This Report also complements the Authority's *Digital Inclusion Survey (2021) Final Report*[2], which was published in May 2022. Both of these statistical reports offer relevant, detailed and up-to-date data sets on various aspects of ICT access, uptake and usage in Trinidad and Tobago, which will aid strategic decision-making, policy formulation and the regulation of the telecommunications and broadcasting sectors.

This Report is a comprehensive compilation of statistics on the performance of the two sectors during the period January to December 2021. It contains data relating to a wide range of telecommunications and broadcasting indicators, such as subscription figures, penetration rates, gross revenues and traffic volumes. Market data received from concessionaires are used by the Authority to monitor and inform regulatory policy decisions aimed at promoting the growth of these sectors.

In 2021, the telecommunications and broadcasting sectors generated TT$5.14 billion[3] in revenues and amassed approximately 3.77 million subscriptions across the mobile voice, fixed voice, fixed Internet, Mobile Internet and pay TV markets.

The Authority wishes to thank the operators in both sectors for their substantial input to this Report, through their timely submission of sector-specific information and statistics, which we are

[1] The *National ICT Plan (2018–2022)*: https://mpa.gov.tt/sites/default/files/file_upload/publications/ICT%20BLUEPRINT%20JULY%202019.pdf

[2] The *National Digital Inclusion Survey (2021) Final Report*: https://tatt.org.tt/DesktopModules/Bring2mind/DMX/API/Entries/Download?Command=Core_Download&EntryId=1628&PortalId=0&TabId=222

[3] Throughout this Report, figures have been rounded and all revenues are expressed in Trinidad and Tobago dollars unless otherwise stated.

confident will benefit all industry stakeholders and, in turn, the wider public who are consumers of the sectors’ services.

Executive Summary

This *16th Annual Market Report: Telecommunications and Broadcasting Sectors 2021* (the Report) presents and reviews statistical information on the performance and market trends observed within the telecommunications and broadcasting industry for the period January to December 2021.

Total revenues increase within the telecommunications and broadcasting industry

The telecommunications and broadcasting industry generated revenues of approximately TT$5.04 billion, or US$743 million, in gross revenues during 2021. This represents an increase of 6.5% in total revenues when compared to the previous year. The telecommunications sector contributed TT$3.81 billion, or 75.6% of total industry revenues, while the broadcasting sector contributed TT$1.23 billion, or 24.4%.

The Internet market retains its position as the most lucrative market

With estimated revenues of TT$2,157.5 million, the Internet market – which comprises both fixed and mobile Internet – accounted for 42.8% of total industry revenues. This was followed by the mobile voice and pay TV markets, which contributed TT$958.2 million (19.0%) and TT$643.1 million (12.8%), respectively.

Total telecommunications and broadcasting subscriptions increase

Subscription-based services, specifically the mobile voice, fixed voice, fixed Internet, mobile Internet and pay TV subscriptions amassed approximately 3.77 million subscriptions. This was the largest subscription figure recorded over the past five years and represented an increase of 65,500 subscriptions, or 1.8%, from 2020.

Revenues in the free-to-air TV market increased, while the free-to-air (FTA) radio revenues decline

The FTA TV market earned TT$63 million which marked the second consecutive year of growth over the past five years, and represents an increase of TT$1.2 million, or 1.9%, from 2020. The FTA radio market, however, maintained the trend of falling annual revenues, having accrued TT$99.6 million, which represents a contraction of TT$8.2 million, or 7.6%, from 2020.

2021 ANNUAL MARKET REPORT

OVERVIEW OF THE MARKETS

1 Overall Market Review

1.1 Overview and Methodology

The *16th Annual Market Report: Telecommunications and Broadcasting Sectors 2021* (the Report) presents statistics relating to the performance of the telecommunications and broadcasting sectors in Trinidad and Tobago. For the purposes of this Report, the telecommunications sector is classified into four markets:

1. Fixed voice
2. Mobile voice
3. International voice
4. Internet: fixed and mobile

The broadcasting sector is categorised into three markets:

1. Free-to-air (FTA) television (TV)
2. Free-to-air (FTA) radio
3. Pay TV

The information presented is based primarily on data submitted by operational concessionaires within the two sectors for the period January to December 2021. Additionally, historical data series and other information made available to the Authority at the time of publication are also used within the Report.

The data received from concessionaires are compiled, reviewed and analysed to produce statistical market indicators. These indicators measure the evolution of the telecommunications and broadcasting sectors based on the number of subscriptions, gross revenues and traffic. The information in this Report is used by the Authority to inform and monitor policy decisions which will facilitate the orderly development of these sectors.

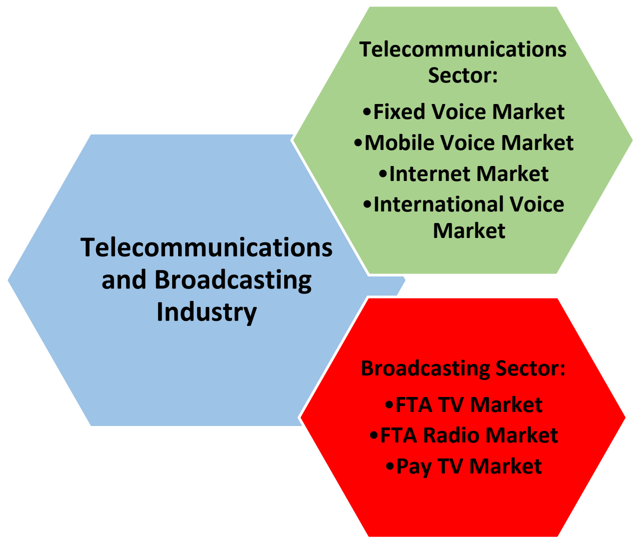


Figure 1 Classification of markets

The Authority also publishes quarterly market updates on the telecommunications and broadcasting sectors to supplement the Report, which can be accessed from the Authority's website: tatt.org.tt.

1.2 Concessions Granted

Under sections 21 and 31 of the Telecommunications Act, Chap. 47:31 (the Act), the Authority is responsible for making recommendations to the Minister with responsibility for telecommunications, regarding the granting and renewal of concessions to telecommunications and broadcasting operators who are authorised to operate a public telecommunications network, provide public telecommunications services or provide public broadcasting services. It should be noted that a concessionaire may be granted more than one type of concession.

As at December 2021, a total of 97 concessions were granted by the Authority as shown in Table 1. A detailed list of these concessions can be found in Appendix II.

Table 1 Number of concessionaires by market

Network Category	Service Provided	Concessionaires
International Telecommunications	Network only	1
	Services only	-
	Network and services	8
Mobile Telecommunications	Mobile voice and Internet services	2
Fixed Telecommunications	Fixed telephony	6
	Fixed Internet	11
Pay TV (Subscription TV)		13
Free-to-Air Radio Broadcasting		36
Free-to-Air TV Broadcasting		5
TV Broadcasting via Cable		15

1.3 Review of the Telecommunications and Broadcasting Industry

1.3.1 Total Revenue Contributions by the Sectors

Figure 2 lists the industry's gross revenues by sector and market, while Figure 3 provides the percentage of revenue contributions for each market towards total industry revenues.

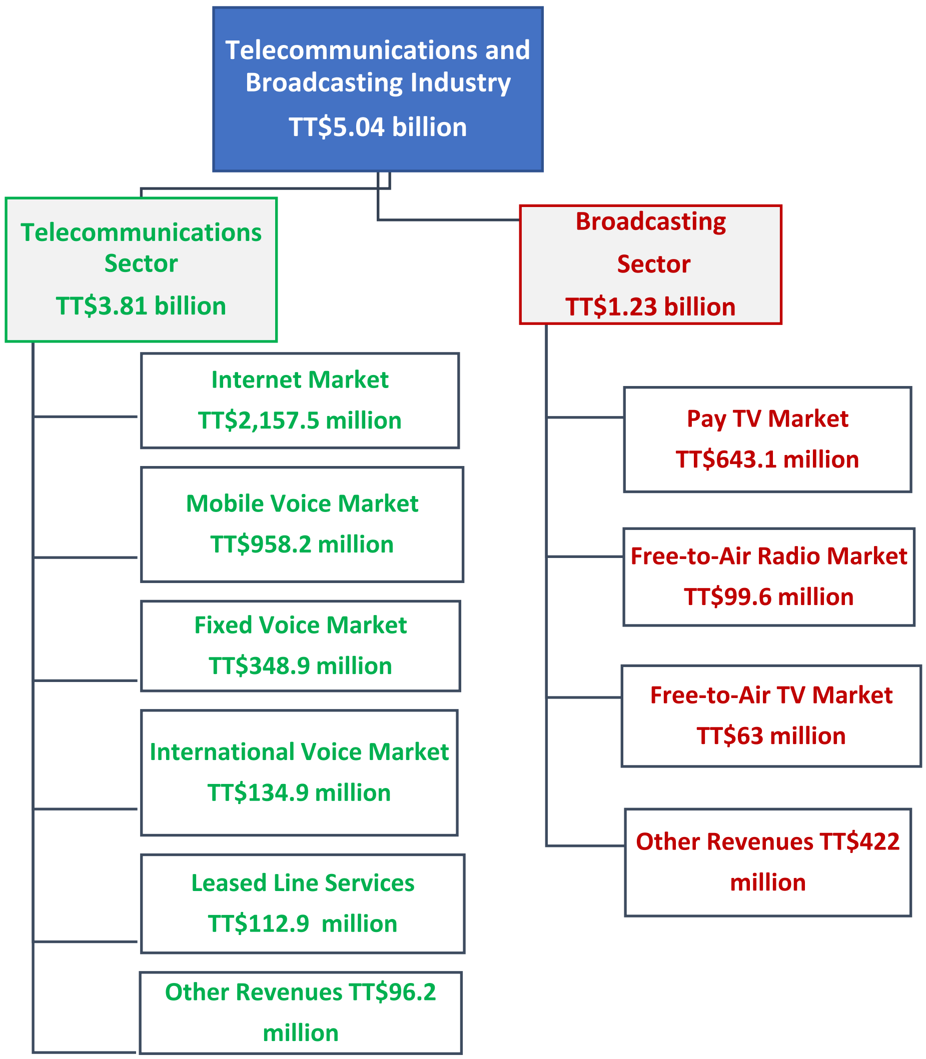


Figure 2 Gross revenues by industry, sector and market in 2021

In 2021, the telecommunications and broadcasting industry generated TT$5.04 billion[4], or US$743 million[5], in gross revenues, which, as a proportion of the gross domestic product (GDP)[6], equals 3.3%. This represents a 6.5% increase in total industry revenues when compared to 2020.

The Internet market accounted for the largest proportion of revenues, earning TT$2,157.5 million (42.8%) of the total industry revenues. The mobile voice market was the second highest earner, with TT$958.2 million (19.0%) of total revenues. This was followed by pay TV and other revenues[7], which generated TT$643.1 million (12.8%) and TT$518.2 million (10.3%), respectively. The fixed voice market[8] was next, with TT$348.9 million (8.3%), followed by the international market which accounted for TT$134.9 million (2.7%). Revenues from leased lines[9] amounted to TT$112.9 million – a 2.2% share of total industry revenues. The FTA radio market and FTA TV market made industry contributions of TT$99.6 million (2.0%) and TT$63 million (1.3%), respectively.

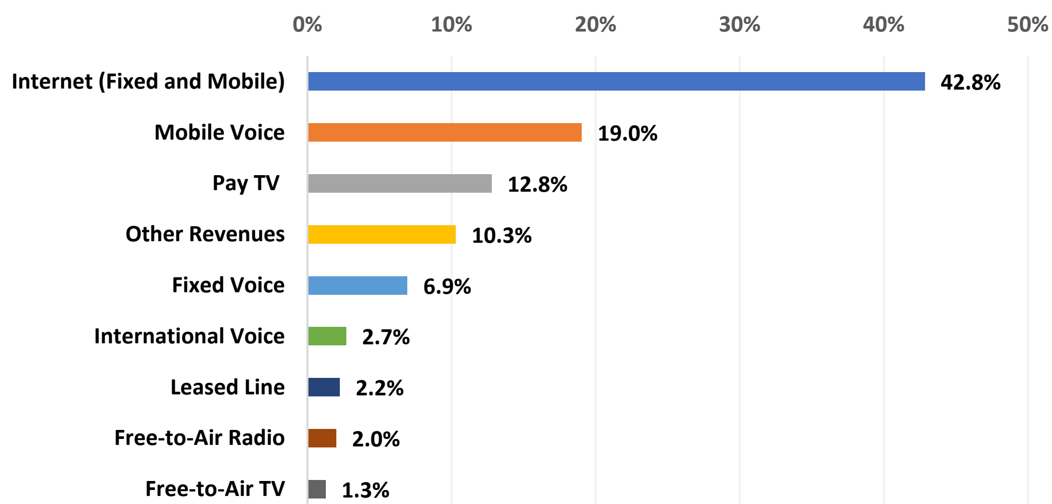


Figure 3 Proportion of total industry revenues contributed by each market in 2021

[4] This figure includes revenues from telecommunications and broadcasting services offered to members of the general public and private leased line services.

[5] Central Bank of Trinidad and Tobago Exchange Rate: US$1 = TT$6.79

[6] Forecasted GDP at current prices for calendar 2021: 150,957.3 million (Source: Ministry of Finance, Review of the Economy 2021)

[7] Other revenues consisted of additional incomes from both the telecommunications and broadcasting sectors, such as those received from wholesale services, and production and airtime for local programming on pay TV.

[8] Fixed voice market revenues include those earned from fixed voice services, excluding international services.

[9] Leased lines include both international and domestic circuits.

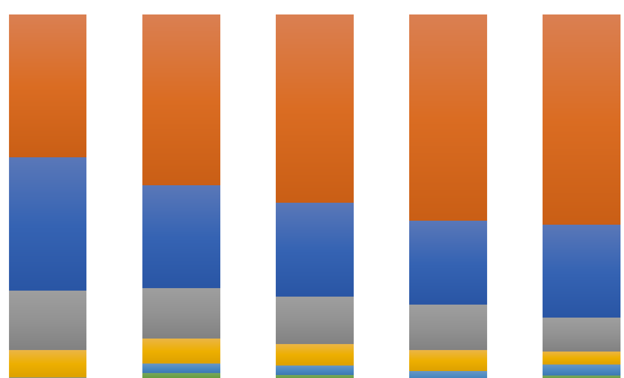
1.3.2 Market Revenue Contribution within the Telecommunications Sector

In 2021, the telecommunications sector generated TT$3.81 billion, or 75.6%, of total industry revenues. This represents a decrease in sector revenues by TT$54 million, or 1.4%, from 2020.

The percentage contribution of the various telecommunications markets toward overall sector revenues for the past five years are shown in Figure 4.

The Internet market generated 56.6% of sector revenues, while the second largest share, 25.2%, originated from the mobile voice market. The fixed and international voice markets contributed 9.2% and 3.5%, respectively. Leased line services occupied 3.0%, with other revenues (telecommunications)[10] contributing the remaining 2.5%.

Compared to 2020, the Internet market, mobile voice market and other revenues (telecommunications) market improved their percentage contributions to the telecommunications sector, while the other markets registered declines.



	2017	2018	2019	2020	2021
Internet (Fixed and Mobile)	38.5%	46.0%	50.8%	55.6%	56.6%
Mobile Voice	36.1%	27.8%	25.3%	22.7%	25.2%
Fixed Voice	16.0%	13.6%	12.8%	12.3%	9.2%
International Voice	7.4%	6.8%	5.8%	5.6%	3.5%
Leased Line	1.2%	2.6%	2.6%	3.0%	3.0%

Figure 4 Percentage contribution by telecommunications markets from 2017 to 2021

[10] Other revenues earned from service providers in the telecommunications sector include other wholesale services (excluding leased lines), high-capacity wireless links and two-way radios.

1.3.3 Market Revenue Contribution within the Broadcasting Sector

The broadcasting sector amassed TT$1.23 billion, or 24.4%, of total industry revenues. The pay TV market earned the majority of this sector's revenues, specifically 52.4%, while other revenues[11] accounted for 34.4%. The FTA radio and FTA TV markets held a share of 8.1% and 5.1%, respectively. Figure 5 highlights the percentage contributions by the individual markets toward the broadcasting sector revenues for the period 2017 to 2021.

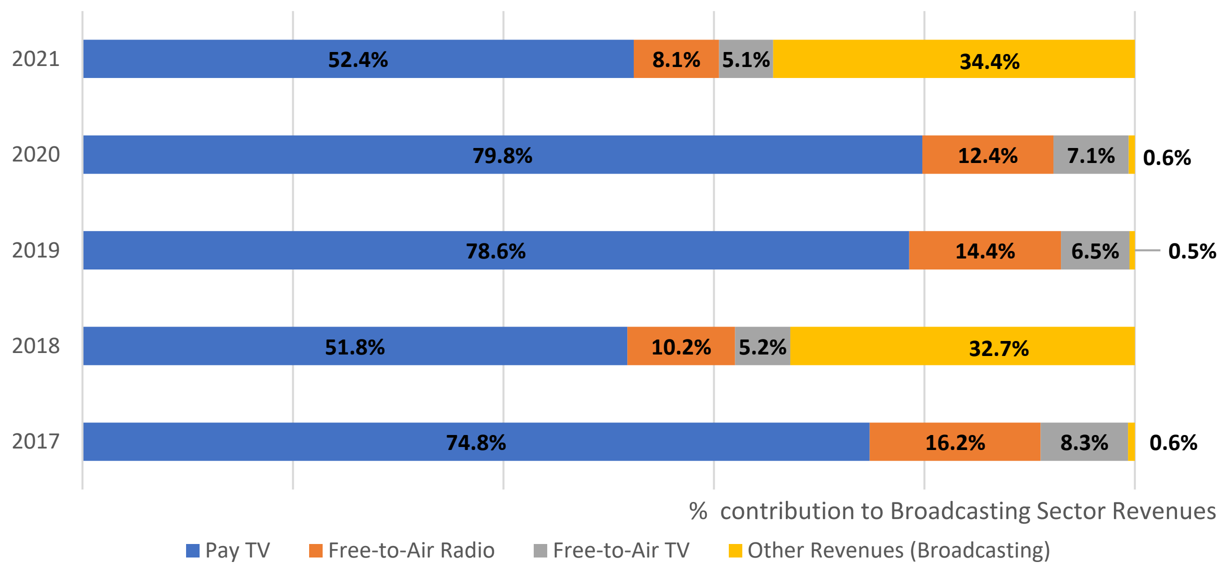


Figure 5 Percentage contributions by broadcasting markets from 2017 to 2021

[11] Other revenues include revenues received from broadcasting services such as radio rental and services, Pay TV advertising, digital signage and interactive learning, etc.

1.3.4 Telecommunications and Broadcasting Subscriptions

In 2021, the subscription-based markets, that is, the mobile voice, fixed voice, fixed Internet, mobile Internet and pay TV markets, collectively amassed approximately 3.77 million subscriptions. Compared to 2020, this total represents an increase of 65,500 subscriptions, or 1.8%.

Table 2 provides subscription figures and growth rates for the past five years, while Figure 6 depicts the percentage contribution of individual markets to total industry subscriptions in 2021.

There were 2 million mobile voice subscriptions in 2021, which accounted for 53% of all industry subscriptions. Mobile Internet retained its position as the second most subscribed to service, with 819,800 subscriptions, or 21.8%. This was followed by the fixed Internet market which had 370,900 subscriptions, representing a share of 9.8%. The fixed voice market garnered 341,400 subscriptions, or 9.1% while pay TV contributed 237,800 subscriptions, or 6.3% of total industry subscriptions.

Table 2 Number of subscriptions by market from 2017 to 2021

	2017	2018	2019	2020	2021
Mobile Voice Subscriptions (millions)	2.03	1.97	2.16	1.99	2.00
Growth rate	-6.2%	-2.9%	9.7%	-7.9%	0.4%
Fixed Voice Subscriptions (‘000s)	318.7	317.7	332.3	323.9	341.4
Growth rate	4.2%	-0.3%	4.6%	-2.5%	5.4%
Fixed Internet Subscriptions (‘000s)	327.0	341.3	339.4	376.8	370.9
Growth rate	11.1%	4.4%	-0.5%	11.0%	-1.6%
Mobile Internet Subscriptions (‘000s)	704.6	678.6	653.3	770.2	819.8
Growth rate	-0.4%	-3.7%	-3.7%	17.9%	6.5%
Pay TV Subscriptions (‘000s)	246.8	234.7	249.8	242.4	237.8
Growth rate	-0.6%	-4.9%	6.4%	-3.0%	-1.9%
Total Subscriptions (millions)	**3.63**	**3.54**	**3.74**	**3.70**	**3.77**
Growth rate	**-2.5%**	**-2.3%**	**5.5%**	**-1.1%**	**1.8%**

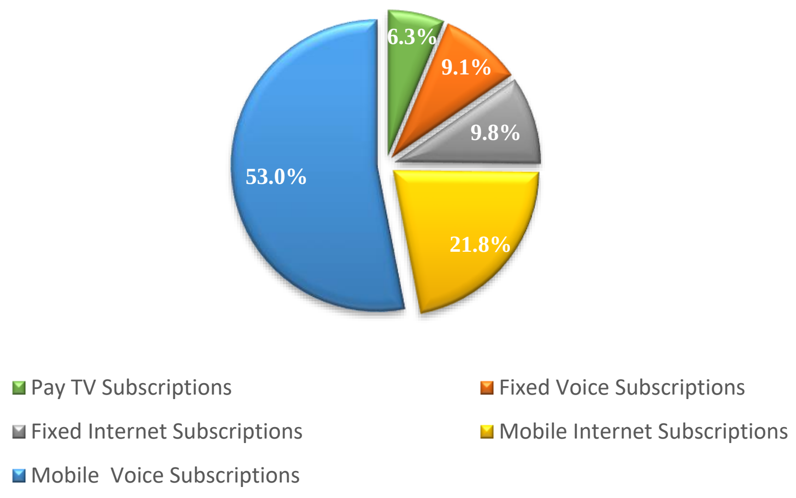


Figure 6 Proportion of subscriptions by market as at December 2021

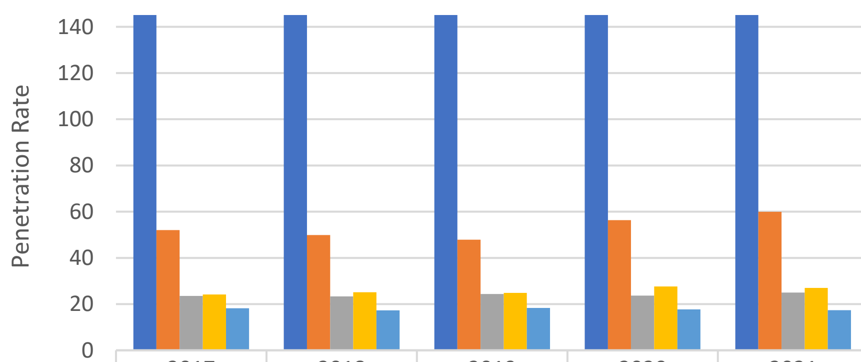
1.3.5 Subscription Penetration Rates

The penetration rates of all subscription-based markets for the last five years are provided in Figure 7.

The mobile voice, mobile Internet and fixed voice markets were the only three markets recording penetration growth in 2021.

The penetration rate for the mobile voice market rose from 145.5 in 2020 to 146 in 2021, while the mobile Internet market grew from 56.3 in 2020 to 59.9. The fixed voice penetration rate for 2021 was 25 – an increase of 1.3 points from the previous year.

The penetration rates for fixed Internet and pay TV both fell in 2021, to values of 27 and 17.4, respectively.



	2017	2018	2019	2020	2021
Mobile Voice Penetration	150.0	145.1	158.6	145.5	146.0
Mobile Internet Penetration	52.0	49.9	47.9	56.3	59.9
Fixed Voice Penetration	23.5	23.4	24.4	23.7	25.0
Fixed Internet Penetration	24.2	25.1	24.9	27.6	27.0
Pay TV Penetration	18.2	17.3	18.3	17.7	17.4

Figure 7 Penetration rates by market from 2017 to 2021

Box 1: Review of the Economy

1. Indications of recovery amidst constrained domestic economic activity

In the aftermath of lockdown measures associated with the COVID-19 pandemic, and with the gradual easing of restrictions, domestic economic activity remained relatively slow. However, according to the Central Statistical Office (CSO), Trinidad and Tobago's Gross Domestic Product (GDP) at constant prices grew by 0.9 percent in 2021 when compared to the previous year[12]. This growth was predominantly due to increased activity in the non-energy sector, which grew by 3.6 percent. Conversely, the country's energy sector contracted by -4.4 percent in 2021.

2. Population growth

The domestic population was estimated to have grown minimally by 0.1 percent from 1,366,725 persons in 2020 to 1,367,588 persons in 2021[13].

3. Labour Force and Unemployment

The imposition of a limited state of emergency in May 2021 following the country's third wave of infections further impacted the domestic labour market. This resulted in many business entities halting their operations indefinitely. In addition to the foregoing, data presented in the Central Bank of Trinidad and Tobago's (CBTT) annual economic survey (2022) highlighted the weakness of the labour market as 1,310 nationals were reported to have been retrenched in 2021[14]. Furthermore, to ascertain the current realities of the domestic labour market, an indicator of demand was developed. This indicator considers the daily average of job advertisements published in print media, as such, it was noted that labour demand declined by as much as 16.0 percent in 2021. Although the exact impact on unemployment remains unknown at the time of publication of this Report, the labour force data shows an increase in the unemployment rate from 4.4 percent to 5.1 percent at the end of the third quarter of fiscal 2020. This rate is expected to increase further given the aforementioned retrenchments statistics stated earlier, among other factors.

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[12] The growth in real GDP is compared across the first three quarters of 2020 and 2021 respectively i.e., January to September 2021.
https://www.central-bank.org.tt/sites/default/files/reports/2021-annual-economic-survey-20220605.pdf

[13] This is based on mid-year estimates.
[14] Ibid. Most of the recorded retrenchments were specific to the distribution, restaurants and hotels, energy, and manufacturing industries.

4. Domestic Inflation rates

Headline inflation for fiscal 2021 was reported to have increased to 2.1 percent, up from 0.6 percent which was reported for 2020. This marked increase is reflective of the inflationary pressures associated within both the food and core components of the Retail Price Index (RPI).

Food inflation accelerated considerably due to increased food prices predominantly driven by exogenous factors. The COVID-19 pandemic brought about disruptions in the global supply chain which consequentially drove food prices upward. This resulted in an uptick in domestic food inflation captured by a rate of 4.4 percent for fiscal 2021, which outweighs the 2.8 percent recorded for fiscal 2020.

Core inflation averaged 1.5 percent in 2021, a marked increase when compared to a rate of 0.1 percent in 2020. This can be explained by rapid increases in the price of sub-indices such as Transport, Housing, Gas and Electricity to name a few[15].

5. Fiscal Operations

Considering the impact of COVID-19 on the domestic economy, fiscal output for the financial year 2020/21 improved markedly. Government spending for this period totaled TT $50.8 billion[16], whilst revenues amounted to TT $37.1billion[17]. Thus, the government's fiscal accounts registered a deficit of TT $13.7 billion for the financial year 2020/21. This deficit represents 8.6 percent of domestic GDP and signaled an improvement of note when compared to 2020, where a deficit of TT $16.7 billion or 11.2 percent of GDP was reported. The upturn in fiscal output in 2021 can be attributed to higher collection in the non-energy sector

[15] Alcoholic Beverages, Tobacco, Fruits, and Other Fuels sub-indices etc. were also listed as explanatory variables.
[16] Government outlay for 2021 equates to 34.0% of GDP.
[17] Revenues generated by the government for 2021 equates to 24.8% of GDP.

6. Key Economic Performance Indicators

The key economic performance indicators for Trinidad and Tobago for the period 2017 to 2021 are presented in Box Table 1.

Box Table 1 Domestic Economic Performance Indicators for the period 2017 to 2021

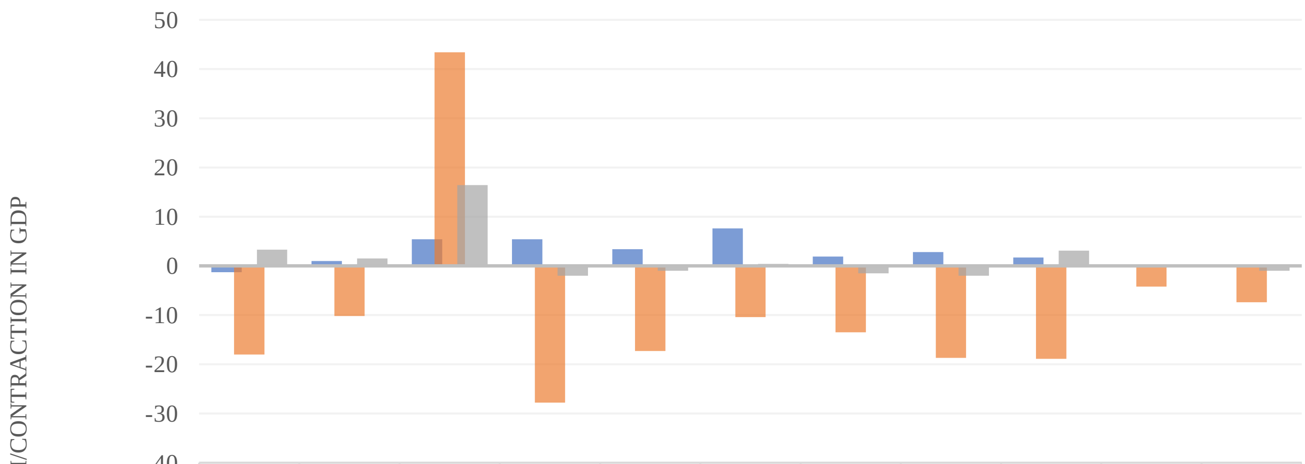
Economic Indicator	2017	2018	2019	2020	2021
[18]Real GDP Growth (current prices, % Δ)	3.1	4.3	-1.9	N/A	0.9*
[19]Energy Sector (constant price % Δ)	0.5	-3.5	-4.5	N/A	-4.4*
[20]Non-energy Sector (constant price % Δ)	-3.4	0.4	1.7	N/A	3.6*
[21]Inflation Rate (%)	1.9	1.0	1.0	0.6	2.1
[22]Unemployment Rate (%)	4.8	3.9	N/A	N/A	N/A
[23]Current Account Balance % of GDP)	6.3	6.8	4.6	2.3*	7.6*
[24]Overall BOP (MM- US$)	-1,096.0	-794.7	-646.1	N/A	N/A
[25]Moody Ratings	Ba1	Ba1	Ba1	Ba1	Ba2
[26]Standard and Poor's Global Rating (S&P)	BBB+/ A-2	BBB+/ A-2(-)	BBB/ A-2	BBB-/ A3	BBB-/ A-3
[27]Exchange Rate (USD)	6.78	6.78	6.78	6.78	6.78
[28]Population (000's)	1,356	1,359	1,363	1,366	1,367
[29]Net Official Reserves (MM- US$)	8,369.8	7,575.0	6,929.0	6,953.8	6,879.6
[30]Import Cover (Month's)	9.7	8.0	7.7	8.4	8.4
[31]GDP (current Prices -MM-TT$)	151,761.6	160,331.7	156,756.0	N/A	N/A

N/A – Not available ** For the period January to September 2021*

[18] Source: TT MOF Review of the Economy 2020
[19] Source: Ibid
[20] Source: Ibid
[21] Source: CBTT Economic Bulletin 2021: January 2021, Volume XXIII, No 1
[22] Source: TT MOF Review of the Economy 2020
[23] Source: Central Bank of Trinidad and Tobago Economic Bulletin 2021: January 2021, Volume XXIII, No 1
[24] Source: TT MOF Review of the Economy 2020
[25] Source: Moody's. Accessed 31st, May 2022. https://www.moodys.com/researchandratings/region/latin-america-caribbean/trinidad-tobago/042087?tb=0&ol=-1&lang=en&type=Ratings_News
[26] Source: TT MOF Review of the Economy 2020
[27] Source: Central Bank of Trinidad and Tobago, US buying rate https://www.central-bank.org.tt/statistics/data-centre/exchange-rates-annual
[28] Source: TT MOF Review of the Economy 2020
[29] Source: Central Bank of Trinidad and Tobago Economic Bulletin 2021: January 2021, Volume XXIII, No 1
[30] Source: CBTT https://www.central-bank.org.tt/statistics/data-centre/selected-econ-indics-annual
[31] Source: Ibid

7. Real GDP growth – A regional comparison (CARICOM states)

Box Figure 1 presents a regional comparison of (%) Real GDP growth over the period 2019 to 2021. The graphical depiction shows that all countries apart from Guyana, in 2020, would have reported negative growth in Real GDP. This trend may be explained by the adverse effects of the COVID-19 pandemic on most economies across the region and the world at large. However, in 2021, all countries represented in Figure 1 registered improvements in economic activity, as their reported statistics tended closer towards positive Real GDP growth rates. Thus, the re-opening of sectors and economies across the region can be listed as one of the explanatory variables for the preceding.



	Barbados	Jamaica	Guyana	Anguilla	Antigua and Barbuda	Dominica	Grenada	St. Kitts and Nevis	St. Lucia	St. Vincent and the Grenadines	Trinidad and Tobago
Real GDP Growth (%) 2019	-1.3	1	5.4	5.4	3.4	7.6	1.9	2.8	1.7	0.3	-0.2
Real GDP Growth (%) 2020	-18	-10.2	43.4	-27.8	-17.3	-10.4	-13.5	-18.7	-18.9	-4.2	-7.4
Real GDP Growth (%) 2021	3.3	1.5	16.4	-2	-1	0.4	-1.5	-2	3.1	-0.1	-1

Box Figure 1 A regional comparison of Real GDP growth (%) over the period 2019 to 2021

Sources: 2021 World Economic Outlook, IMF, Countries' Central Banks Reports and the Eastern Caribbean Central Bank Report.
Calculated by the Ministry of Finance (MoF) based on the Central Statistical Office's GDP estimates (excluding the 2021 forecast) under TTSNA industrial.

8. Economic Outlook – 2022

The Trinidad and Tobago economy is projected to strengthen in 2022. This expected uptick in growth and recovery is premised on estimated expansions in activity in the energy and non-energy sectors. Thus, the government's decision to rollback stringent COVID-19 related measures, thereby reopening the economy is anticipated to fuel economic growth through increased production across all sectors. However, the CBTT still expects the domestic labour market to remain constrained in the short to medium term. This is expected to result in low aggregate demand, which in turn may mitigate against upward pressure on local prices. Imported inflation, however, is expected to be a key feature in the domestic economy due to transitory supply chain disruptions for tradable goods. Hence, this is likely to cause prices to increase domestically.

The fiscal deficit for 2022 is expected to be reduced by way of increased revenue collections. This is in keeping with the government's medium-term objective to achieve a primary surplus. Additionally, the CBTT posited that prudent management of debt levels will be crucial in safeguarding the sovereign's debt sustainability in 2022.

Trinidad and Tobago's external accounts are anticipated to benefit from inflows due to the ascent in international energy prices and increased external demand for non-energy products. Brighter days are projected to be on the horizon and a positive outlook for the domestic economy in 2022. While prices and demand for Trinidad and Tobago's products have increased on the international front, the CBTT cautions that "…continued efforts will need to be made to further structural reforms in order to promote domestic competitiveness in a much more challenging global setting…"

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2021 ANNUAL MARKET REPORT

FIXED VOICE MARKET

Key Indicators for the Fixed Voice Market

GROWTH 2020-2021

FIXED VOICE MARKET

341,400 SUBSCRIPTIONS
Increase of 5.4% from 2020

FIXED VOICE PENETRATION
25 per 100 inhabitants

FIXED VOICE PENETRATION
72 per 100 households

$348.9 M
FIXED VOICE MARKET REVENUE

18%
decrease from 2020

2 Fixed Voice Market Review

As at December 2021, there were 17 operators authorised by the Authority to provide fixed domestic telecommunications services to the public, over wired and/or wireless facilities. In 2021, the following 6 operators offered domestic fixed voice services:

1. Amplia Communications Limited
2. Columbus Communications Trinidad Limited (CCTL)
3. Digicel (Trinidad & Tobago) Limited
4. Lisa Communications Limited
5. Open Telecom Limited
6. Telecommunications Services of Trinidad and Tobago Limited (TSTT)

TSTT offers fixed voice services through its public switched telephone network and is migrating customers to either its fixed wireless network or the network of Amplia Communications Limited.

CCTL offered fixed voice services via its Hybrid Fibre-Coaxial Network, and Amplia Communications Limited and Digicel (Trinidad & Tobago) Limited provided fixed voice services through their Gigabit Passive Optic Networks (GPON).

Open Telecom Limited[32] and Lisa Communications Limited offer fixed voice services via their fixed wireless networks.

[32] Open Telecom Limited had not supplied data at the time of publication.

2.1 Annual Fixed Voice Subscriptions

Over the last five years, the number of fixed voice subscriptions has fluctuated, with 2021 recording the highest figure, of 341,400. This represents an increase of 17,500 subscriptions, or 5.4%, from 2020, as illustrated in Figure 8.

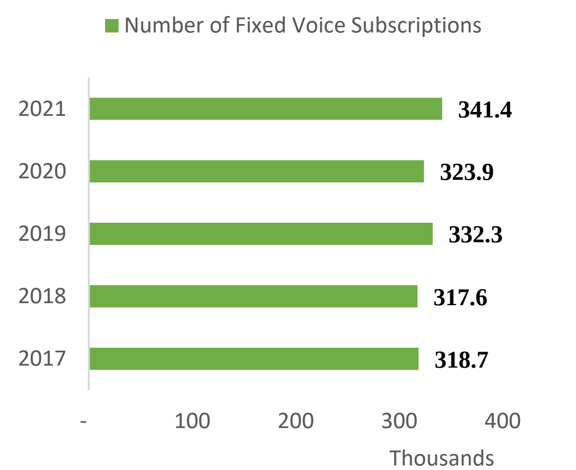


Figure 8 Fixed voice subscriptions from 2017 to 2021

Figure 9 categorises the fixed voice market into residential and business subscriptions from 2017 to 2021 (inclusive of companies subscribing to system services, e.g., PBX trunks). In 2021, there were 290,200 residential subscriptions and 51,300 business subscriptions. Compared to 2020, residential subscriptions increased by 10,500 subscriptions, or 3.8%. The steady decline of business subscriptions from 2017 to 2020 ended in 2021, with growth of 7,100 subscriptions, or 16.1%, from the previous year.

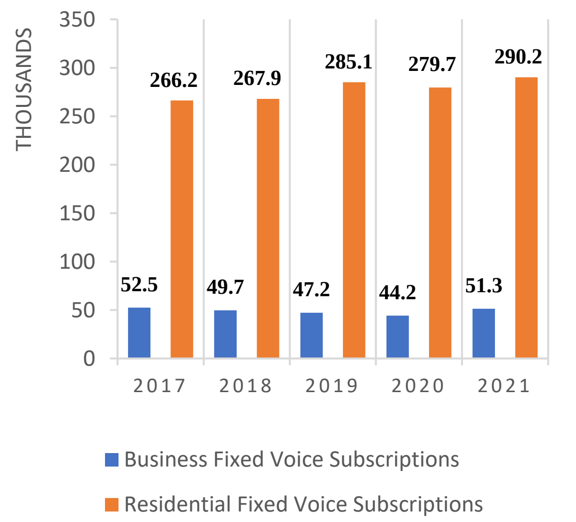


Figure 9 Fixed voice subscriptions by type for 2017 to 2021

As depicted in Figure 10, residential fixed voice subscriptions accounted for 85% of the total market, with the remaining 15% coming from the business sector.

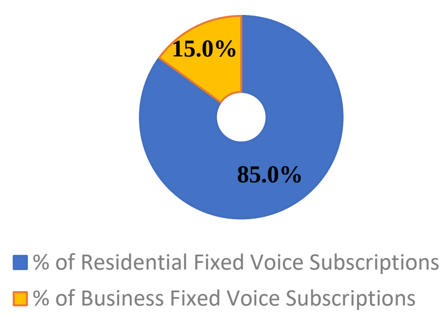


Figure 10 Proportion of fixed voice subscriptions by type for 2021

2.2 Quarterly Fixed Voice Subscriptions

The number of fixed voice subscriptions peaked in the first quarter of 2021, with 348,000, and declined consistently across the remaining quarters, as highlighted in Figure 11.

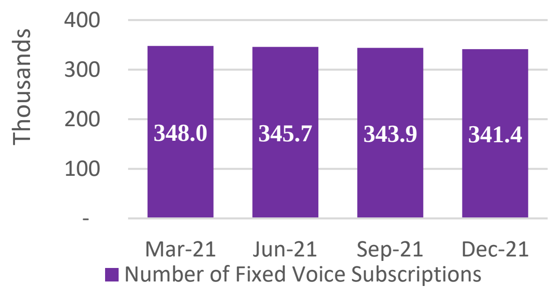


Figure 11 Quarterly fixed voice subscriptions in 2021

A comparison of quarterly fixed voice subscriptions for the years 2020 and 2021 is provided in Figure 12. All quarters of 2021 recorded more subscriptions compared to the corresponding periods of 2020. The greatest variation was observed in the third quarter, with 2021 recording 19,300 more subscriptions than that of 2020.

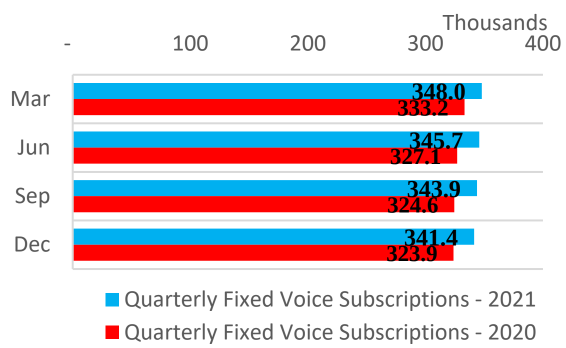


Figure 12 Quarterly fixed voice subscriptions for 2020 and 2021

The percentage breakdown of residential and business fixed voice subscriptions remained relatively stable throughout 2021, as shown in Figure 13.

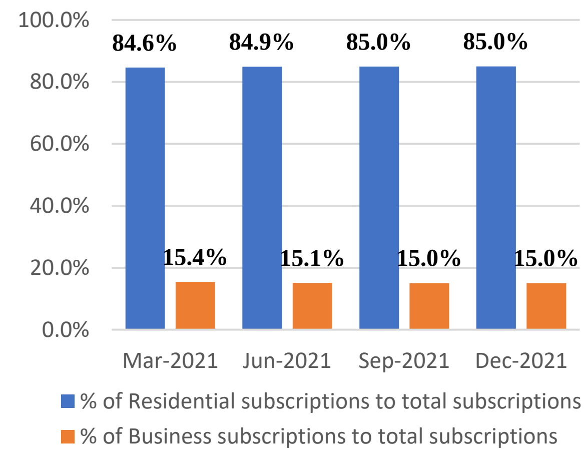


Figure 13 Proportion of quarterly fixed voice subscriptions by type

As Figure 14 illustrates, the total number of fixed voice subscriptions fluctuated across 2017, remained stable in 2018 and grew over 2019. The total fixed voice subscriptions then declined in 2020, before a sharp increase at the beginning of 2021, followed by gradual decline across the remaining quarters.

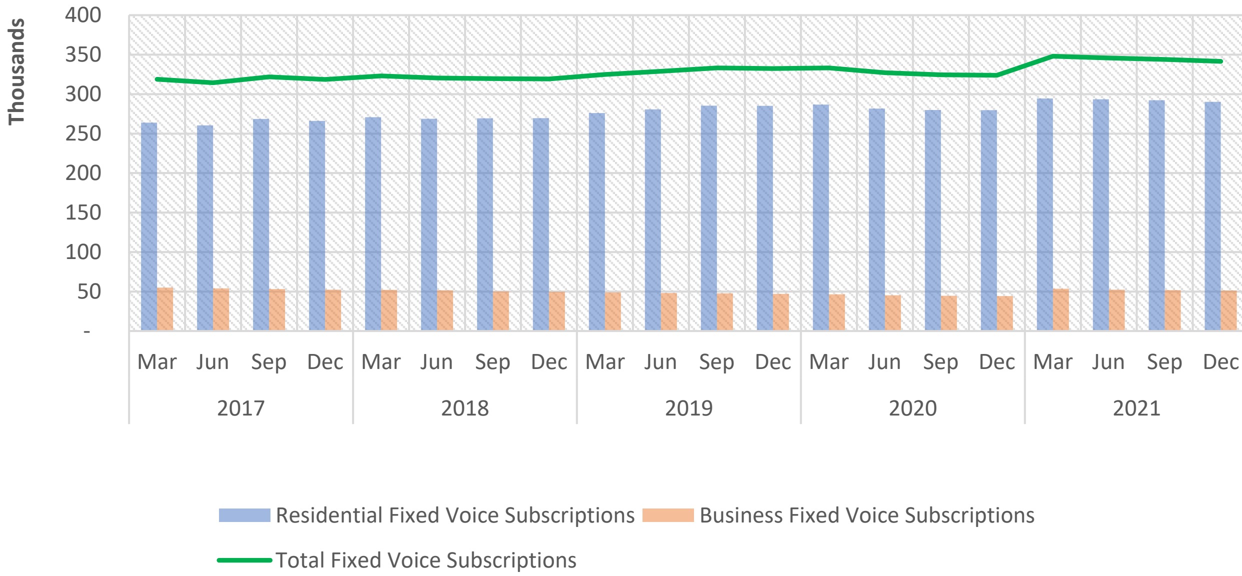


Figure 14 Quarterly fixed voice subscriptions from 2017 to 2021

2.3 Fixed Voice Penetration

Fixed voice penetration[33], the standard metric recognised by the International Telecommunication Union (ITU)[34] for measuring the adoption of fixed voice services, is defined as the number of fixed voice subscriptions per 100 inhabitants of the population.

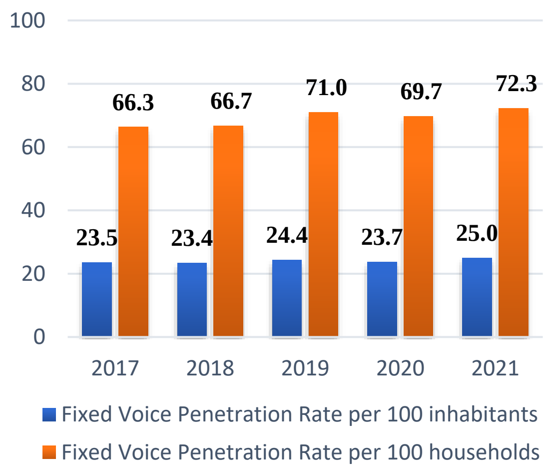


Figure 15 Fixed voice penetration rates from 2017 to 2021

The fixed voice penetration rates from 2017 to 2021 are provided in Figure 15. With 341,400 fixed voice subscriptions and a population of approximately 1.37 million persons, the fixed voice penetration rate was calculated to be 25 as at December 2021. This indicates that there were approximately 25 fixed voice subscriptions to every 100 persons within Trinidad and Tobago.

Fixed household penetration[35] was also calculated, to assess the number of households with fixed voice telephone services. This was determined to be 72.3 and indicates that, out of every 100 households, approximately 72 subscribed to fixed voice services.

Across the period 2017 to 2021, the average penetration rate per 100 inhabitants was 24 while the average penetration rate per 100 households was 69.

[33] Fixed voice penetration is calculated using the number of residential fixed voice subscriptions, divided by the total population, multiplied by 100. The total population figure used is based on the CSO's 2021 mid-year population estimate.

[34] ITU is a specialised agency of the United Nations, responsible for all matters relating to information and communications technology (ICT).

[35] Fixed voice household penetration is calculated similarly to the fixed voice penetration but uses the number of households within the country.

2.4 Domestic Fixed Voice Traffic

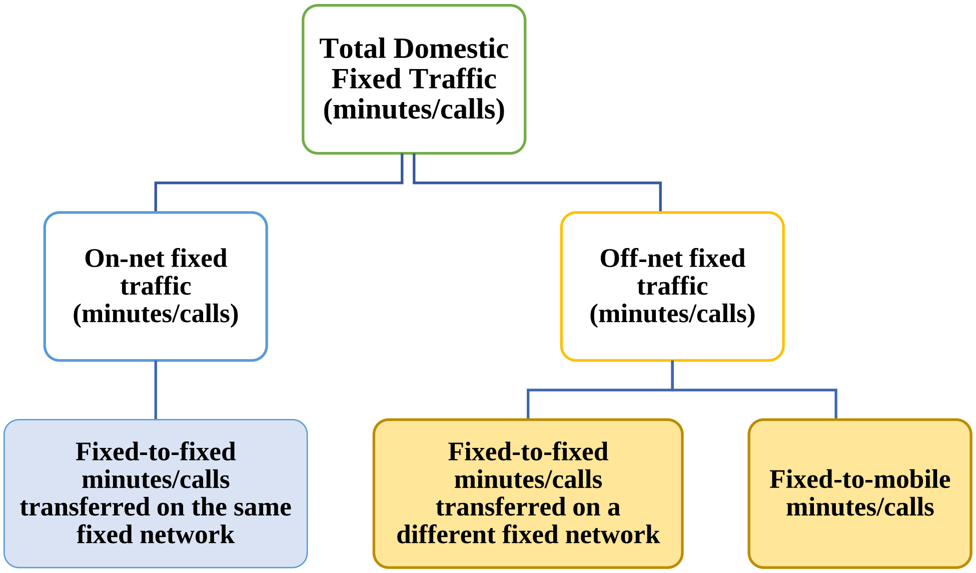


Figure 16 Classification of domestic fixed voice traffic

Domestic fixed voice traffic refers to the number of domestic minutes or calls originating on local fixed networks. This traffic can be classified into several types, as shown in Figure 16.

2.4.1 Annual Domestic Fixed Voice Traffic in Minutes

In 2021, there were approximately 439 million minutes generated in fixed voice traffic – a decrease of 10.9% from 2020. Of that total, 188.9 million minutes were on net[36] while 250.1 million were off net[37], as illustrated in Figure 17. Fixed-to-fixed minutes transferred on a different network (off net) amounted to 25.5 million, while fixed-to-mobile recorded 224.6 million. In 2021, on-net traffic accounted for 43%, decreasing from 50.5% recorded in 2020. Off-net traffic represented 57%, comprising fixed-to-mobile minutes (51.2%) and fixed-to-fixed minutes (5.8%), as shown in Figure 18.

[36] On-net fixed traffic refers to traffic originating on a service provider's fixed network and terminating on the same fixed network.

[37] Off-net fixed traffic refers to traffic originating on a service provider's fixed network and terminating on another network (intra and inter service provider). For example, a call originating on TSTT's fixed network and terminating on bmobile's, Digicel's or Flow's network will be included in these minutes.

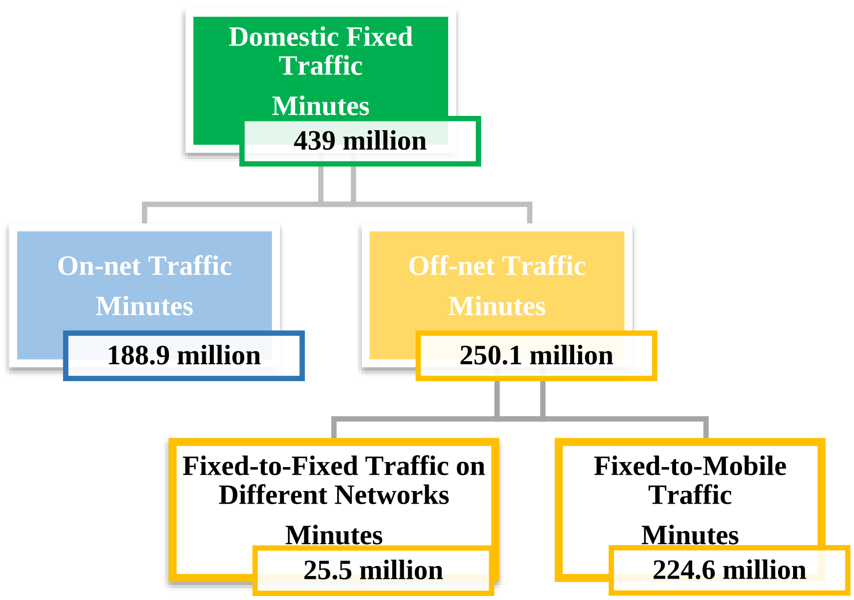


Figure 17 Breakdown of domestic fixed voice traffic in 2021

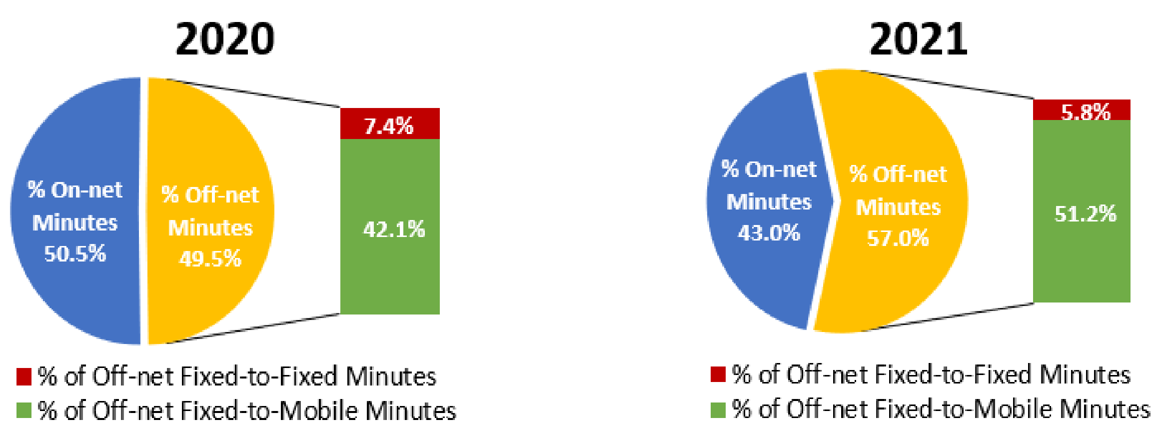


Figure 18 Total domestic fixed voice traffic minutes by type for 2020 and 2021

2.4.2 Quarterly Domestic Fixed Voice Traffic in Minutes

As indicated in Figure 19, the greatest number of on-net fixed voice minutes was recorded in the first quarter, with 51.5 million. This was followed by fluctuations across the remaining quarters to end the year with 43.8 million minutes. Similarly, off-net minutes fluctuated across all quarters of 2021 and culminated with 61.3 million minutes in the final quarter.

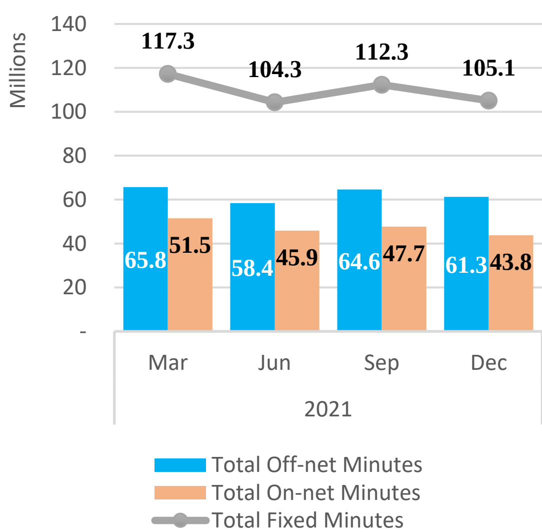


Figure 19 Quarterly fixed voice traffic minutes for 2021

2.4.3 Annual Domestic Fixed Voice Call volumes

A comparison of domestic call volumes by traffic type for the past two years is provided in Figure 20. Domestic voice calls fell to 143.1 million in 2021 – a decrease of 30.7% from the 206.5 million calls made in 2020.

In 2021, total on-net calls accounted for 44 million (30.7%) of total fixed voice calls and total off-net calls accounted for 99.1 million (69.3%).

On-net calls decreased by 36.4% from the previous year, while the number of off-net calls fell by 27.8%.

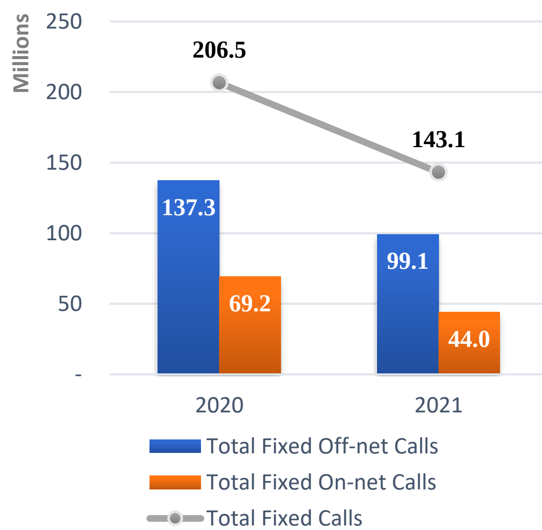


Figure 20 Comparison of domestic call volumes by traffic type for 2020 and 2021

2.5 Fixed Voice Revenues

Figure 21 portrays the steady decline in gross revenues of the fixed voice market over the past five years. The market amassed TT$348.9 million in 2021 – a reduction of TT$79.4 million, or 18.5%, from 2020.

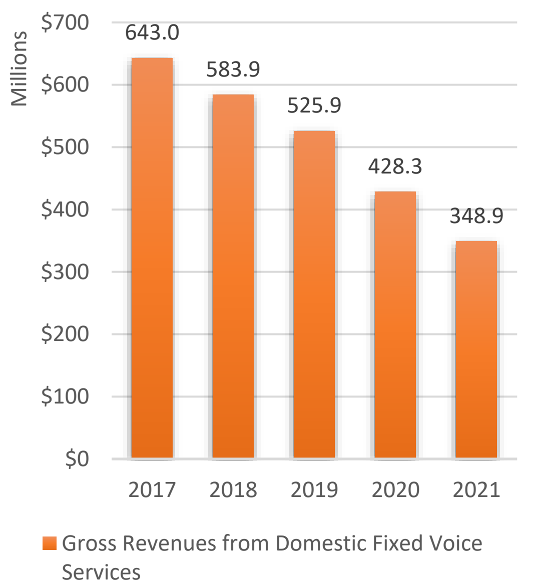


Figure 21 Fixed voice revenues from 2017 to 2021

The quarterly fixed voice revenues of 2021 are shown in Figure 22.

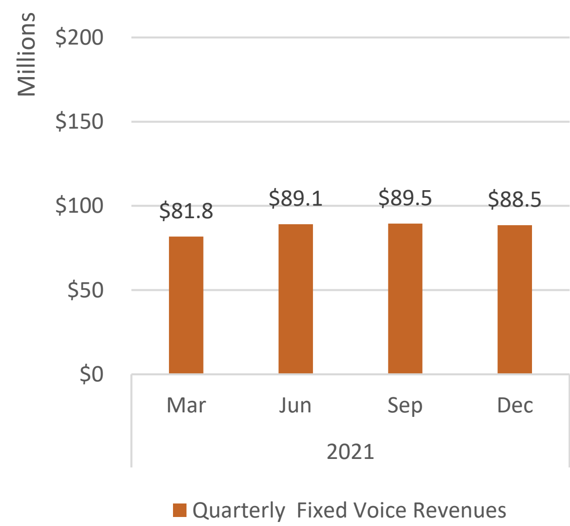


Figure 22 Quarterly fixed voice revenues for 2021

Revenues in the first quarter amounted to TT$81.6 million and rose to TT$89.1 million by the second quarter. The third quarter recorded TT$89.5 million, which fell by 1.1% in the final quarter to TT$88.5 million.

2.6 Fixed Voice Market Concentration

The Herfindahl-Hirschman Index (HHI) is a tool which measures the concentration of firms within a market, and ranges from 0 to 10,000. It is calculated as the sum of the squares of the market share[38] of all firms within the market.

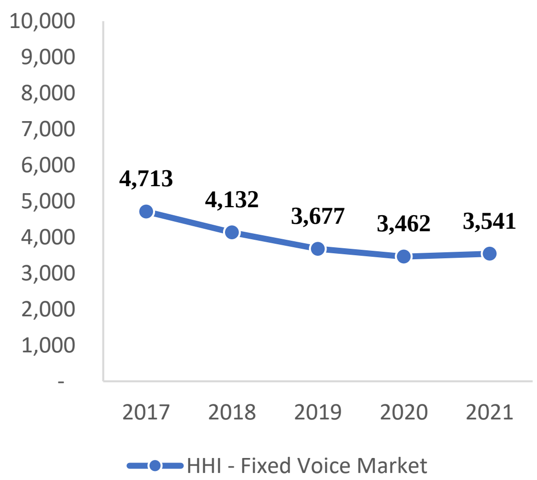


Figure 23 HHI for fixed voice market from 2017 and 2021

As Figure 23 reveals, HHI values for the fixed voice market declined steadily from 2017 to 2020. However, this trend was arrested in 2021 with a value of 3,541.

[38] The market share for the fixed voice market is based on the number of subscriptions.

Figure 24 shows that the first quarter of 2021 recorded an HHI of 3,546, which decreased by the second quarter to 3,523. This level of concentration was maintained across the third quarter before rising to 3,541 by the fourth quarter.

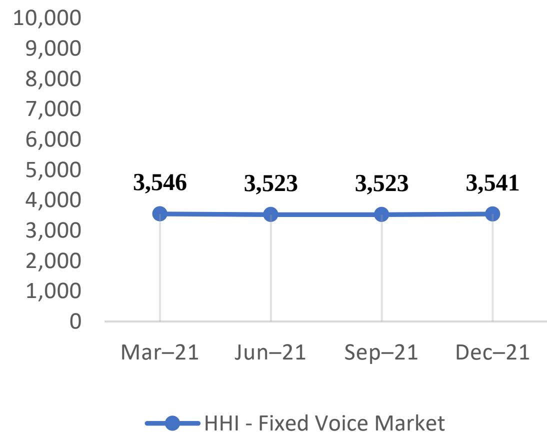


Figure 24 Quarterly HHI for the fixed voice market in 2021

2.7 Fixed Voice Average Revenue per User (ARPU)

ARPU is a measure of the average revenue generated by a subscriber and is calculated as total revenues divided by the total number of fixed voice subscriptions.

On average, each subscription to fixed voice services in 2021 generated TT$1,011. This represents a reduction of TT$292, or 22.4%, from the 2020 ARPU.

Given the gradual decline in fixed voice revenues over the past five years, the ARPU has trended in a similar manner, as shown in Figure 25.

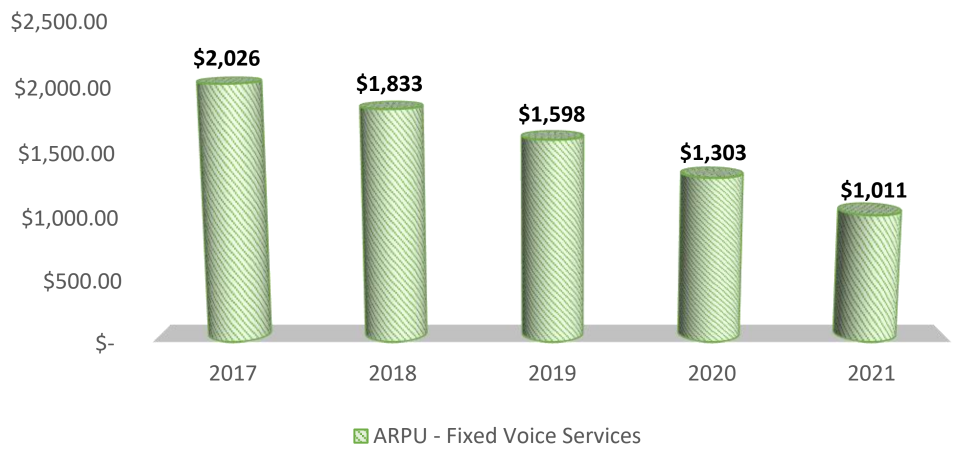


Figure 25 ARPU of the fixed voice market from 2017 to 2021

Key Indicators for the Mobile Voice Market

GROWTH 2020-2021

MOBILE VOICE MARKET

MOBILE VOICE PENETRATION
146 per 100 inhabitants

2 M SUBSCRIPTIONS
Increase of 0.5% from 2020

24.2%
Postpaid Subscriptions

75.8%
Prepaid Subscriptions

9.2%
increase from 2020

$958.2 M
MOBILE VOICE MARKET REVENUES

3 Mobile Voice Market Review

For the period January to December 2021, mobile voice and Short Messaging Service (SMS) telecommunications services were offered by the following two authorised mobile service providers:

1. Telecommunications Services of Trinidad and Tobago Limited (bmobile)
2. Digicel (Trinidad & Tobago) Limited

These operators currently use the following technologies for the provision of mobile voice services in Trinidad and Tobago:

I. **Global System for Mobile communication (GSM)**

   GSM networks continue to be phased out as the primary network for voice services, and its use is focussed on machine-to-machine systems, in conjunction with GSM data enhancements, GPRS and EDGE in rural areas.

II. **Universal Mobile Telecommunications Service (UMTS)**

   UMTS networks are currently deployed for voice services, in conjunction with UMTS data enhancements, HSPA and HSPA+.

This chapter presents an overview of the mobile voice market in Trinidad and Tobago, which was compiled using data submitted by the two mobile operators.

3.1 Mobile Voice Subscriptions

3.1.1 Annual Mobile Voice Subscriptions

Figure 26 illustrates the annual trend in mobile subscriptions for the last five years. The number of mobile voice subscriptions for 2021 stood at 2 million, representing an increase of 0.5% from the previous year.

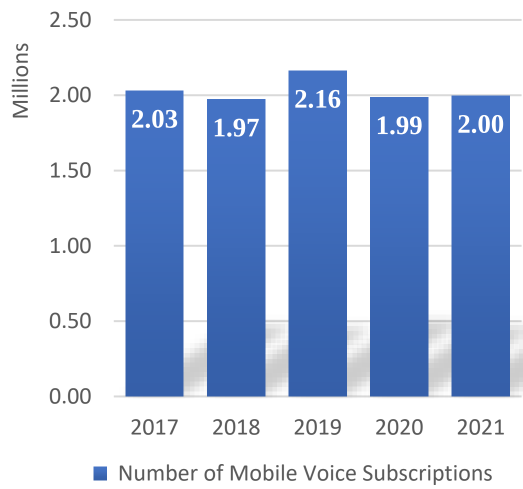


Figure 26 Number of mobile voice subscriptions from 2017 to 2021

Mobile voice subscriptions are classified into two categories: prepaid and postpaid. Prepaid mobile voice customers purchase credit prior to service use, while postpaid customers enter into a contractual billing agreement with their respective service provider.

Mobile voice subscriptions comprised approximately 1.51 million prepaid subscriptions and 0.48 million postpaid subscriptions. The number of prepaid subscriptions decreased by 3,300, or 0.2%, from the previous year. However, postpaid subscriptions rose by 12,100, or 2.6%, in comparison to 2020. Figure 27 illustrates the trend of prepaid and postpaid mobile voice subscriptions for the period 2017 to 2021.

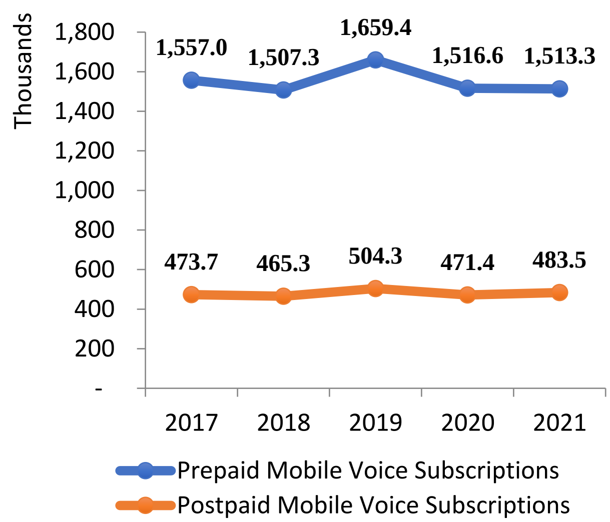


Figure 27 Mobile prepaid and postpaid subscriptions from 2017 to 2021

As shown in Figure 28, prepaid subscriptions in 2021 accounted for 75.8% of total mobile voice subscriptions, decreasing from 76.3% in 2020. Conversely, the percentage of postpaid subscriptions increased from 23.7% in 2020 to 24.2% in 2021.

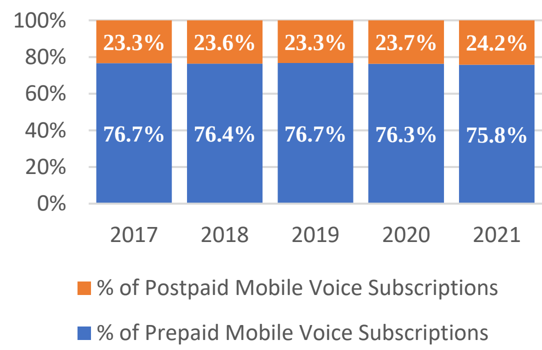


Figure 28 Percentage of prepaid and postpaid subscriptions from 2017 to 2021

The switching patterns between prepaid and postpaid service options spanning 2017 to 2021, are illustrated in Figure 29.

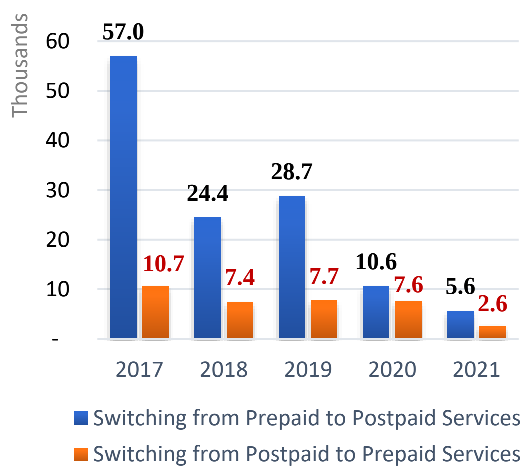


Figure 29 Number of mobile prepaid and postpaid subscriptions switched between 2017 and 2021

For each of the last five years, a greater number of mobile voice subscription plans were switched from prepaid to postpaid than from postpaid to prepaid. In 2021, the number of subscriptions that were switched from prepaid to postpaid dropped by 5,000, or 47.2%, to record 5,600 subscriptions. The number of subscriptions that were switched from postpaid to prepaid fell by 5,000 in 2021, marking a decrease of 65.8%.

Figure 30 depicts the quarterly trend in the switching patterns between prepaid and postpaid services during 2021. The number of subscriptions switched from prepaid to postpaid fell from the first quarter to the second quarter, before gradually rising across the third and fourth quarters. The first quarter recorded the highest figure of the year, with 1,700, while the second quarter had the lowest figure of 1,000 changed subscriptions.

Subscriptions converted from postpaid to prepaid stood at approximately 600 in the first, third and fourth quarters of 2021. The second quarter recorded the largest figure of the year, with 800.

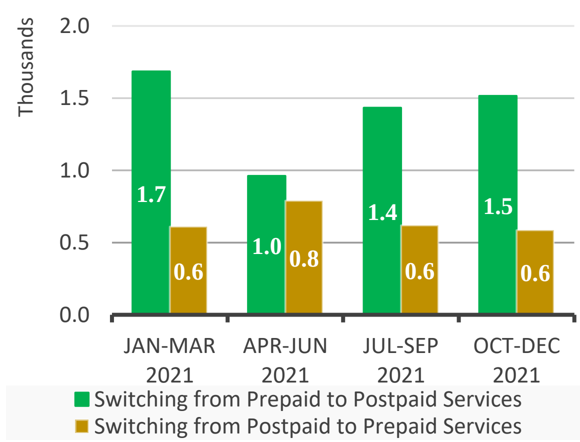


Figure 30 Number of mobile prepaid and postpaid subscriptions switched in 2021

3.1.2 Quarterly Mobile Voice Subscriptions

Figure 31 shows the quarterly trend in mobile voice subscriptions for 2021.

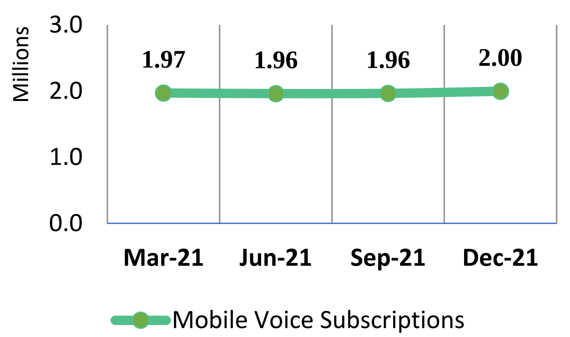


Figure 31 Quarterly mobile voice subscriptions in 2021

The first quarter recorded 1.97 million subscriptions, with 1.96 million observed in the second and third quarters. Subscriptions then peaked in the final quarter with 2 million subscriptions. The quarterly trends comparing the 2020 and 2021 prepaid and postpaid mobile subscriptions, are illustrated in Figure 32 and Figure 33, respectively.

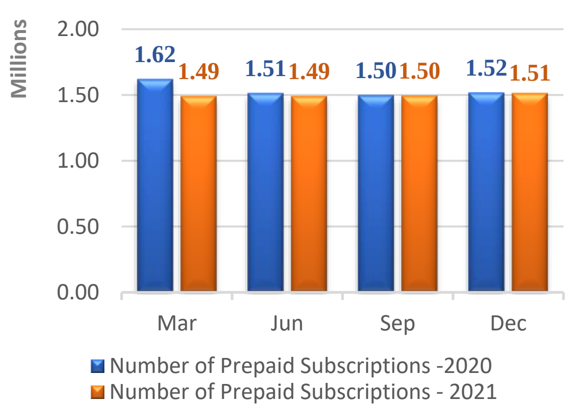


Figure 32 Quarterly mobile prepaid subscriptions for 2020 and 2021

In 2021, prepaid subscriptions totalled 1.49 million across the first and second quarters and rose across the remaining quarters to end the year on 1.51 million. Excluding the third quarter, prepaid subscriptions in 2021 were less than those in each corresponding period of 2020.

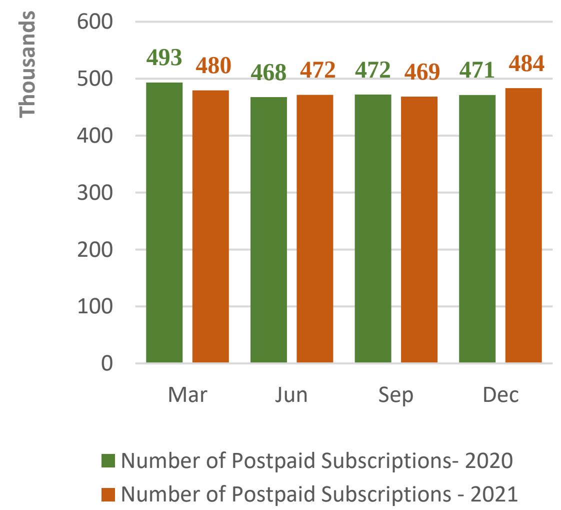


Figure 33 Quarterly mobile postpaid subscriptions for 2020 and 2021

In the first quarter of 2021, 480,000 postpaid subscriptions were recorded. There was a decline across the second and third quarters, followed by an uptick in the final quarter, with 484,000 subscriptions. Only the second and fourth quarters of 2021 had a greater number of postpaid subscriptions compared to the same periods of 2020.

3.2 Mobile Penetration

3.2.1 Domestic Mobile Voice Penetration Rate

Figure 34 presents the mobile voice penetration rates per 100 inhabitants[39], for the period 2017 to 2021.

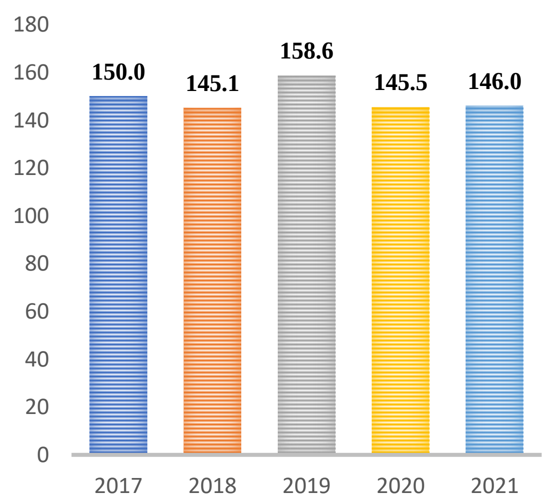


Figure 34 Mobile voice penetration per 100 inhabitants for 2017 to 2021

The mobile penetration rate declined from 150 in 2017 to a five-year low of 145.1 in 2018. Penetration rose to 158.6 in 2019 before declining to 145.5 in 2020, followed by an increase to 146 in 2021.

Figure 35 depicts the quarterly trend in mobile voice penetration for 2021.

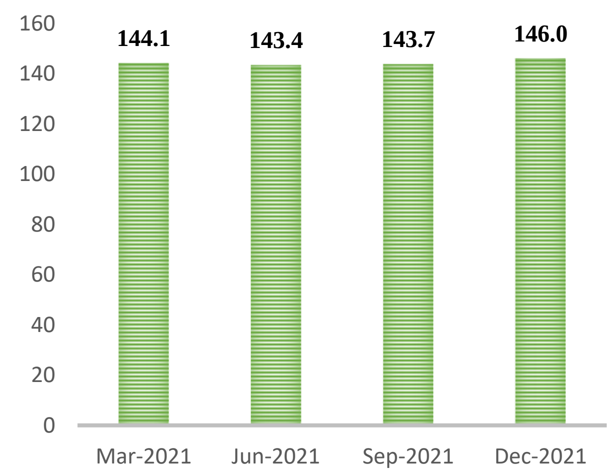


Figure 35 Quarterly mobile voice penetration rate per 100 inhabitants for 2021

The first quarter recorded a mobile voice penetration rate of 144.1, which decreased to 143.4 in the second quarter. There were consecutive increases across the third and final quarters, to end the year on 146.

[39] Mobile voice penetration rate per 100 inhabitants is calculated as the number of mobile subscriptions divided by the total population, multiplied by 100.

3.3 Domestic Voice Traffic

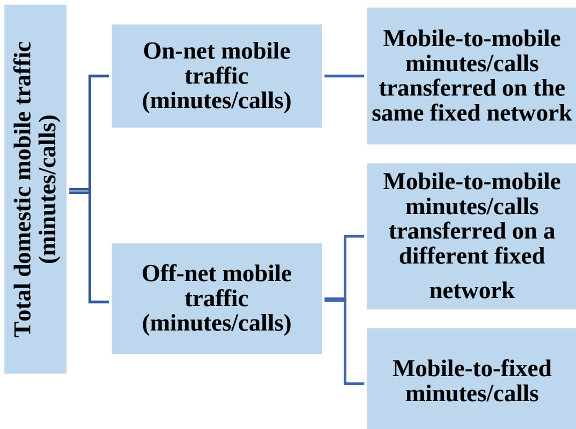


Figure 36 Classification of domestic mobile voice traffic

There are several categories of domestic mobile voice traffic, as shown in Figure 36. They represent the types of calls made by consumers and, hence, the minutes originated and terminated on the domestic mobile networks.

In 2021, the total number of mobile phone calls made by consumers decreased by 5.6% from the previous year, to record approximately 2.19 billion. The number of minutes generated from these calls was approximately 3.52 billion – a decrease of 3.3% in comparison to 2020.

[40] On-net mobile traffic refers to traffic originating on a service provider's mobile network and terminating on the same mobile network.

3.3.1 Annual Domestic Mobile Voice Traffic in Minutes

Figure 37 shows a breakdown of domestic mobile minutes for 2021, while Table 3 provides a comparison of domestic mobile voice minutes for 2020 and 2021.

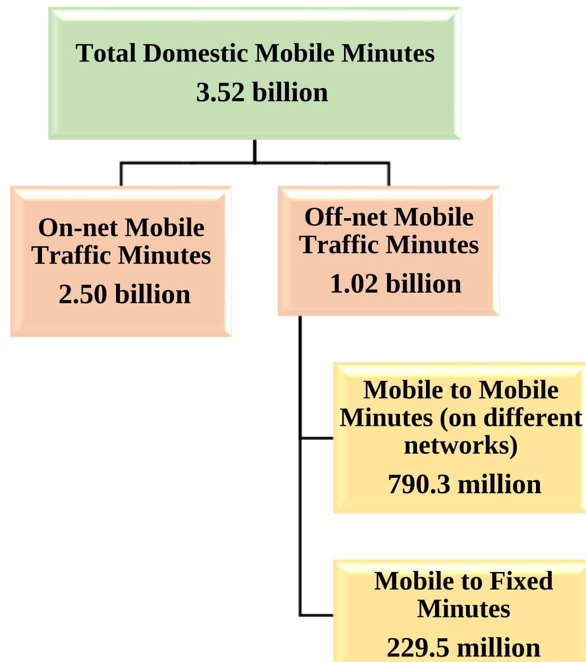


Figure 37. Breakdown of domestic mobile minutes for 2021

The 3.52 billion minutes of domestic traffic for 2021 are the summation of both on-net[40] and off-net[41] minutes, which amounted to 2.50 billion and 1.02 billion, respectively. Compared with 2020, the number of mobile on-net minutes for 2021 decreased by 2.3%, while the number of off-net minutes decreased by 5.6%.

[41] Off-net mobile traffic refers to traffic originating on a service provider's mobile network and terminating on another network. For example, a call originating on Digicel's network and terminating on TSTT's network.

The 1.02 billion off-net minutes comprised 790.3 million mobile-to-mobile minutes transferred on a different mobile network and 229.5 million mobile-to-fixed minutes. From 2020 to 2021, mobile-to-mobile off-net minutes decreased by 45.6 million minutes, or 5.5% while mobile-to-fixed off-net minutes decreased by 10.2 million, or 4.3%.

Figure 38 illustrates the percentage of mobile-to-mobile and mobile-to-fixed minutes for 2021. Mobile-to-mobile minutes represented a share of 93.5 % of all domestic mobile minutes, with 6.5% belonging to mobile-to-fixed minutes.

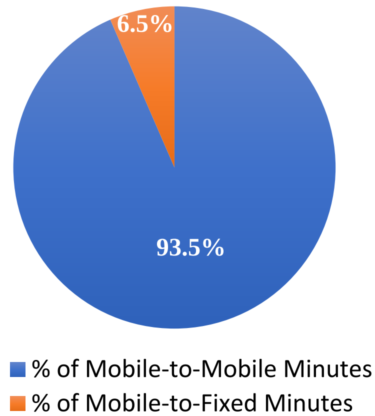


Figure 38 Percentage of mobile-to-mobile and mobile-to-fixed minutes for 2021

Table 3 Breakdown of domestic mobile minutes for 2020 and 2021

	2020	2021	Difference	Percentage Change
On-net mobile traffic minutes (billions)	**2.56**	**2.50**	**-0.06**	**-2.3%**
Off-net mobile traffic minutes (billions)	**1.08**	**1.02**	**-0.06**	**-5.6%**
Mobile-to-mobile traffic minutes on different networks (millions)	835.9	790.3	**-45.60**	**-5.5%**
Mobile-to-fixed traffic minutes (millions)	239.7	229.5	**-10.20**	**-4.3%**
Total domestic mobile traffic minutes (billions)	**3.64**	**3.52**	**-0.12**	**-3.3%**

3.3.2 Annual Domestic Mobile Voice Call Volumes

In 2021, there was a total of 2.19 billion domestic voice calls – a decrease of 5.6% from the previous year. Compared to 2020, the number of on-net calls fell by 5% and the number of off-net calls declined by 6%.

Figure 39 highlights the percentage of on-net and off-net calls for 2021, with Table 4 providing a comparison of domestic mobile voice calls for 2020 and 2021.

From January to December 2021 there were 1.51 billion on-net calls, representing approximately 68.8% of all mobile voice calls. The remaining 31.2%, or 684 million calls, were off-net, which can be sub-divided into mobile-to-mobile and mobile-to-fixed off-net calls.

There were 114.8 million mobile-to-fixed off-net calls made in 2021, representing 5.2% of all domestic mobile calls, and 569.2 million mobile-to-mobile off-net calls – a share of 26%.

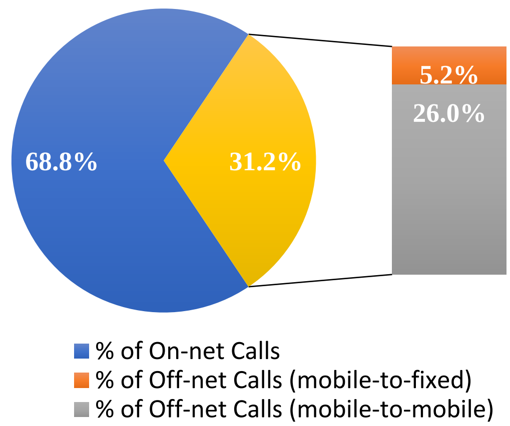


Figure 39 Percentage of domestic mobile voice calls for 2021

Table 4 Breakdown of domestic mobile voice calls for 2020 and 2021

	2020	2021	Difference	Percentage change
On-net mobile traffic calls (billions)	**1.59**	**1.51**	**-0.08**	**-5.0%**
Off-net mobile traffic calls (millions)	**727.65**	**684.00**	**-43.65**	**-6.0%**
Mobile-to-mobile calls (millions)	606.43	569.20	**-37.23**	**-6.1%**
Mobile-to-fixed traffic calls (millions)	121.22	114.80	**-6.42**	**-5.3%**
Total domestic mobile voice calls (billions)	**2.32**	**2.19**	**-0.13**	**-5.6%**

3.3.3 Quarterly Domestic Mobile Voice Minutes

The number of minutes recorded for each quarter of 2021 is presented in Figure 40. The first quarter registered 892.5 million minutes, which fell to 849.5 million by the second quarter. There was a steady rise in minutes across the final two quarters, to end the year with 895.3 million minutes. The second and fourth quarters recorded the lowest and highest number of minutes, respectively.

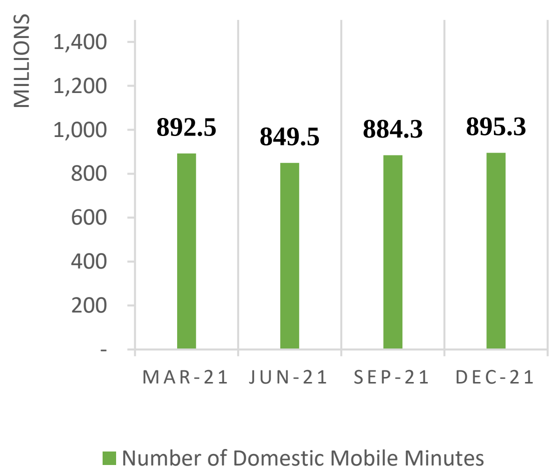


Figure 40 Number of quarterly mobile voice minutes in 2021

Figure 41 portrays the percentage of quarterly mobile voice minutes by type for 2021. Both the first and second quarters recorded the largest share of mobile-to-fixed minutes, with 93.7%. This proportion dipped to 93.2% by the third quarter, before rising to 93.3% by the end of the year.

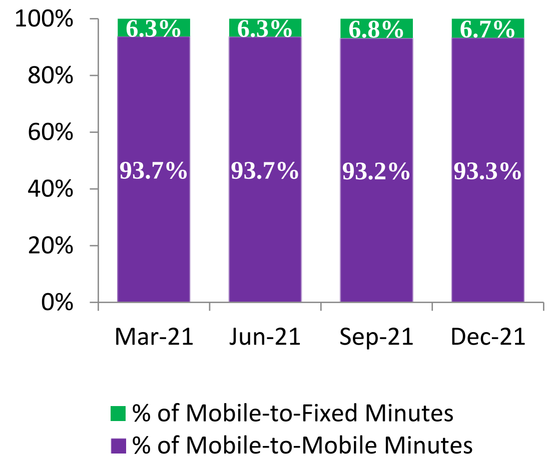


Figure 41 Percentage of quarterly mobile voice minutes by type for 2021

3.3.4 Short Messaging Services (SMS)

Figure 42 shows that from 2020 to 2021 there was a reduction in the total number of SMS sent, from 148 million to 119.2 million, representing a 19.5% decrease. SMS were categorised as either on-net or off-net, with 2021 figures of 87.7 million and 31.5 million, respectively. From 2020 to 2021, on-net SMS dropped by 21.3% and off-net by 13.7%.

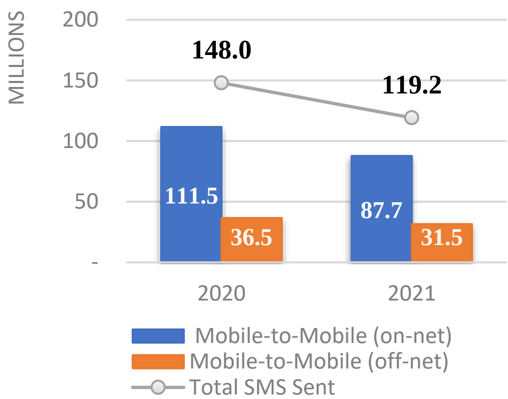


Figure 42 Number of on-net and off-net SMS sent in 2020 and 2021

3.4 Mobile Voice Revenues

3.4.1 Annual Revenues from Mobile Voice Services[42]

Figure 43 outlines the annual trend in mobile voice revenues[43] from 2017 to 2021. Mobile voice services generated revenues of TT$958.2 million – an increase of TT$80.9 million, or 9.2%, from 2020.

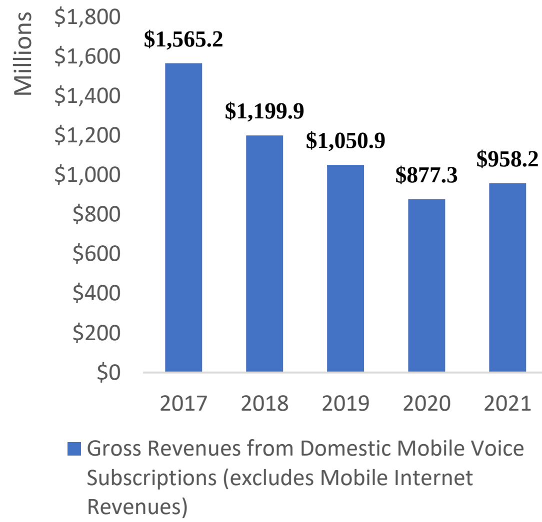


Figure 43 Annual revenues from mobile voice services from 2017 to 2021

Table 5 highlights the percentage changes in mobile revenues from 2017 to 2021. Over this period, the greatest decline was observed from 2017 to 2018, which had a percentage decrease of 23.3%.

Table 5 Percentage changes in mobile revenues from 2017 to 2021

Year	Percentage Change (from previous year)
2017	-17.2%
2018	-23.3%
2019	-12.4%
2020	-16.5%
2021	9.2%

[42] These revenues exclude mobile Internet revenues, which are reported on in section 4: Internet Market Review.

[43] Mobile voice revenues comprise revenues from mobile voice, SMS services and other mobile services such as equipment sales, SIM card sales and administrative charges.

Mobile voice revenues comprise earnings from prepaid, postpaid and other mobile services. Figure 44 compares revenues earned by service type for the past five years.

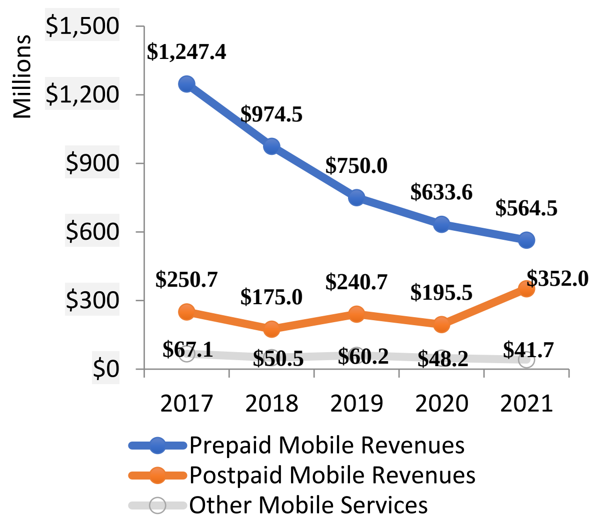


Figure 44 Mobile voice revenues by service type for 2017 to 2021

In 2021, prepaid services produced TT$564.5 million in revenue, while postpaid generated TT$352 million, representing 58.9% and 36.7% of gross revenues, respectively. Revenues from other mobile services amounted to TT$41.7 million, or 4.4% of total revenues.

From 2017 to 2021, prepaid revenues steadily declined each year, while postpaid revenues fluctuated. Other mobile service revenues fell from 2017 to 2018, increased in 2019 with subsequent decreases in 2020 and 2021.

Figure 45 depicts the percentage share of mobile voice revenues by service type for 2021.

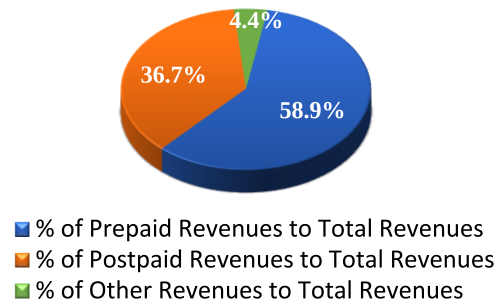


Figure 45 Percentage breakdown of mobile voice revenues by service type for 2021

3.4.2 Quarterly Revenues from Mobile Voice Services

Figure 46 illustrates the quarterly trend in mobile voice revenues for 2021. The first quarter recorded revenues of TT$242.1 million, while the second quarter had the lowest figure of the year, with TT$226.8 million. Revenues rose consecutively across the last two quarters to end 2021 with a figure of TT$245.4 million.

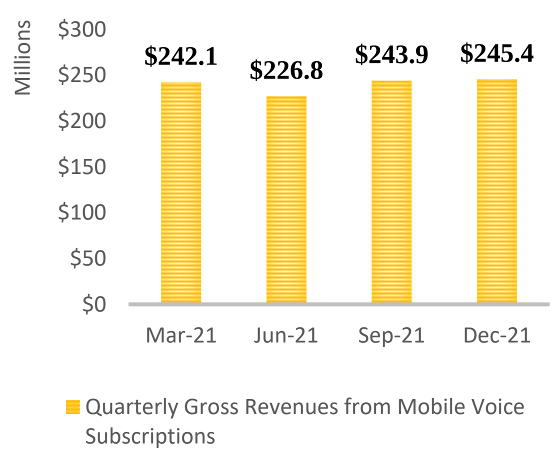


Figure 46 Quarterly revenues from mobile voice services in 2021

Figure 47 provides a breakdown of quarterly revenues by service type for 2021.

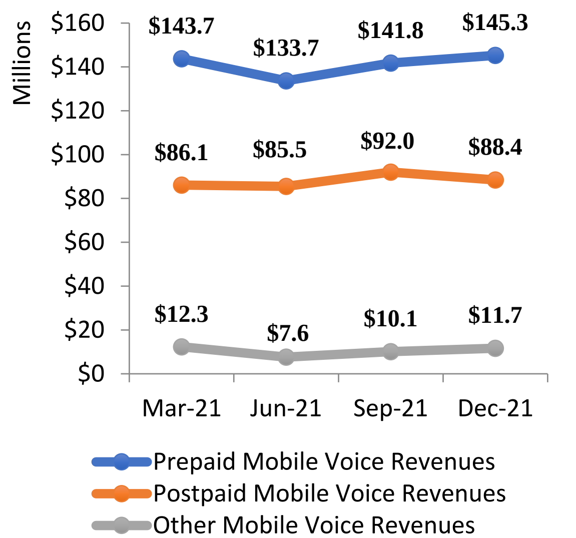


Figure 47 Quarterly mobile voice revenues by service type for 2021

Prepaid revenues fell from TT$143.7 million in the first quarter to TT$133.7 million by the second quarter. Revenues increased across the third and fourth quarters, with the latter recording TT$145.3 million – the highest prepaid amount of the year.

With regard to postpaid revenues, the second quarter recorded the lowest quarterly figure of TT$85.5 million, while the third quarter had the highest, with TT$92 million.

Revenues from other mobile services peaked in the first quarter, with TT$12.3 million – the largest quarterly figure of the year. Revenues dropped in the second quarter to TT$7.6 million but rose consistently across the remaining quarters to end the year on TT$11.7 million.

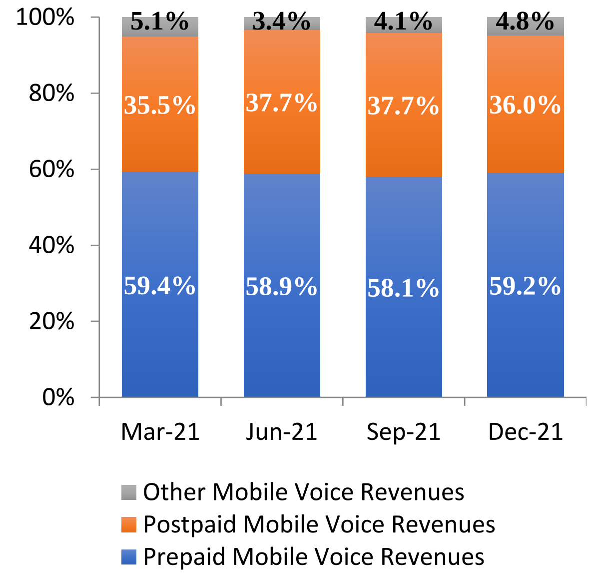


Figure 48 Percentage share of revenues by service type for 2021

Figure 48 compares the percentage share of revenues earned in 2021, by service type. Prepaid revenues accounted for the largest share of mobile voice revenues, with an average of 58.9%. Postpaid revenues averaged 36.7% per quarter, while the other mobile services category held an average share of 4.4%.

3.5 Mobile Voice Market Concentration

Figure 49 depicts the level of concentration in the domestic mobile voice market using the HHI[44] for the period 2017 to 2021.

The HHI in 2017 was 5,066, which fell by 2018 to 5,030. There were consecutive increases in the HHI across 2019 and 2020, followed by a decline to 5,146 in 2021.

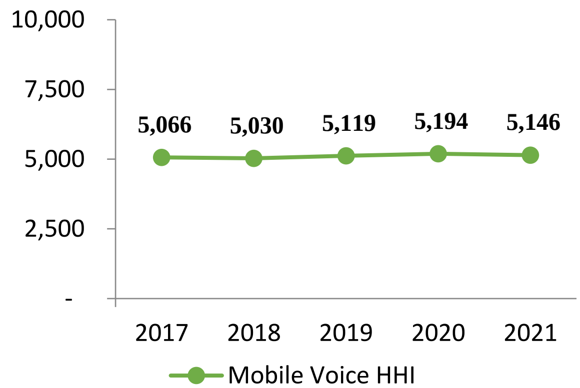


Figure 49 HHI for the mobile voice market from 2017 to 2021

The quarterly trend for the mobile voice market for 2021 is depicted in Figure 50. The first quarter had an HHI of 5,201, which decreased consistently across all quarters, to end the year on 5,146.

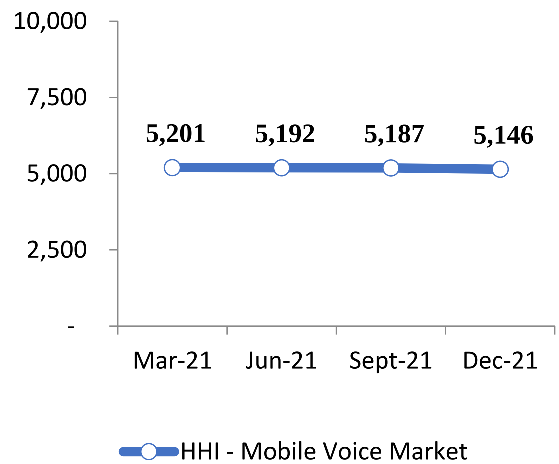


Figure 50 Quarterly HHI for the mobile voice market in 2021

[44] The number of mobile subscriptions was used to determine the market share for the service providers.

3.6 Average Revenue per User (ARPU) for Mobile Voice Services

The ARPU for mobile voice services increased by 8.8% from the previous year, registering TT$480 in 2021. This indicates that the average expenditure per subscriber of mobile voice services increased by TT$39 from 2020. Figure 51 shows the trend in the mobile service ARPU for the past five years.

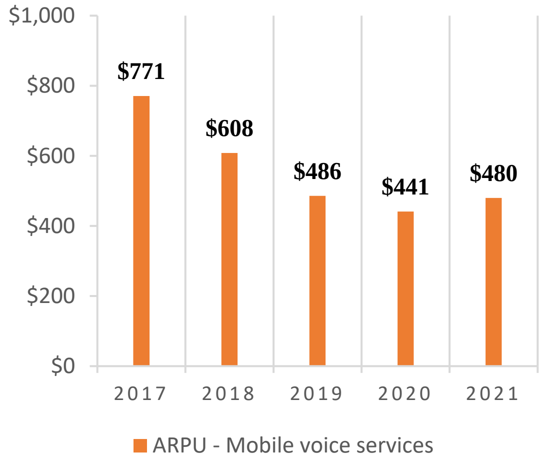


Figure 51 ARPU for mobile voice services from 2017 to 2021

Figure 52 presents a comparison of the ARPU for both prepaid and postpaid mobile services for the period 2017 to 2021.

Over the last five years, there was a steady decline in ARPU for prepaid subscriptions, while the ARPU for postpaid subscriptions continuously fluctuated. In 2021, the prepaid ARPU decreased by TT$45, or 10.8%, while postpaid rose by TT$313, or 75.4%, relative to 2020.

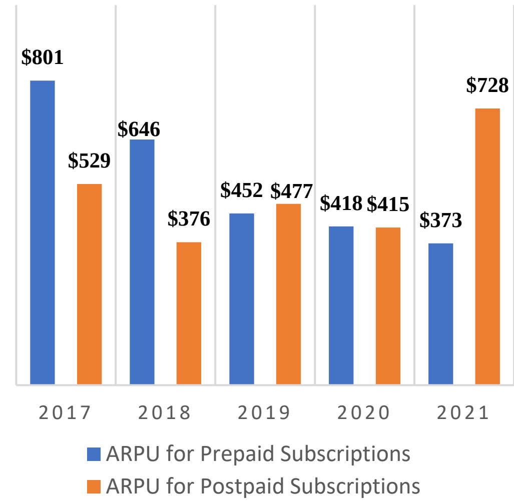


Figure 52 ARPU for prepaid and postpaid mobile voice subscriptions from 2017 to 2021

2021 ANNUAL MARKET REPORT

INTERNET MARKET

Key Indicators for the Internet Market

GROWTH 2020-2021

MOBILE INTERNET MARKET

MOBILE INTERNET REVENUES
$931.5 Million
Decrease of 0.3% from 2020

819,800 SUBSCRIPTIONS
Increase of 6.4% from 2020

INTERNET PENETRATION
60 per 100 inhabitants

FIXED INTERNET MARKET

FIXED INTERNET REVENUES
$1,226.0 Million
Increase of 1.3% from 2020

370,900 SUBSCRIPTIONS
Decrease of 2% from 2020

INTERNET PENETRATION
27 per 100 inhabitants

0.5%
increase from 2020

$2,157.5 M
INTERNET MARKET REVENUES

4 Internet Market Review

This review of Trinidad and Tobago's Internet market for 2021 examines the delivery of Internet services over domestic fixed (wired and wireless) and mobile public telecommunications networks. The country has 17 authorised fixed domestic telecommunications service concessionaires, 11 of which provided fixed Internet services in 2021:

1. Air Link Communications Limited
2. Amplia Communications Limited
3. Columbus Communications Trinidad Limited (CCTL)
4. Digicel (Trinidad & Tobago) Limited
5. Green Dot Limited
6. Lisa Communications Limited
7. PBS Technologies (Trinidad) Limited [formerly Massy Technologies (Infocom) Trinidad Limited]
8. Novo Communications Limited
9. Open Telecom Limited[45]
10. RVR International Limited
11. Telecommunications Services of Trinidad and Tobago Limited (TSTT)

These operators use a mix of technologies to provide fixed wired and wireless broadband Internet services to the public. Fixed wired broadband Internet services employ ADSL2+ over copper cables, DOCSIS 3.0 technology using Hybrid Fibre Coaxial Networks, as well as a mix of Fibre to the Business (FTTB), Metro-Ethernet or Fibre to the Home (FTTH) topologies, using GPON access networks. Fixed wireless broadband Internet operators employ technologies, such as WiMAX and LTE technologies, to support the need for services demanding higher speeds on the access network.

One fixed operator, TSTT, indicated that it is phasing out the use of twisted pair copper cables for the provision of fixed broadband Internet and fixed telephony services. Its fixed wireless network will replace the existing copper access network in the provision of these services.

Two mobile operators were authorised to provide domestic mobile telecommunications services, including the provision of (mobile broadband) Internet services:

1. Telecommunications Services of Trinidad and Tobago Limited (bmobile)
2. Digicel (Trinidad & Tobago) Limited

[45] Open Telecom had not supplied data at the time of publication.

Mobile Internet operators offered customers mobile broadband Internet services utilising Evolved High-Speed Packet Access (HSPA+), Long Term Evolution (LTE) as well as Long Term Evolution Advanced (LTE-A). LTE is the main technology employed for the provision of mobile broadband Internet services, with HSPA+ utilised in areas not covered by LTE. Mobile Internet services via 2.5G technology, i.e., Enhanced Data rates for GSM Evolution (EDGE), were also offered, in rural areas not yet covered by the 3G and 4G technologies during this reporting period.

4.1 Fixed Internet Subscriptions

Figure 53 illustrates the annual trend in subscriptions to fixed Internet services. There was steady growth in subscriptions from 2017 to 2018, before a contraction in 2019 to approximately 339,400. Subscriptions rose to a five-year high in 2020, before falling by 4,900, or 1.6%, to record 370,900 in 2021.

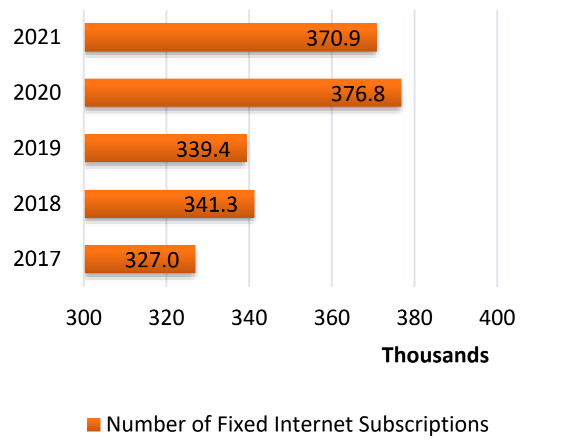


Figure 53 Fixed Internet subscriptions from 2017 to 2021

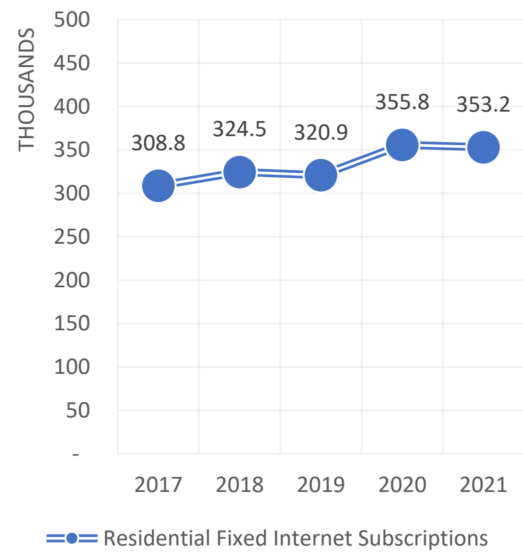


Figure 54 Residential fixed Internet subscriptions from 2017 to 2021

4.1.1 Fixed Internet subscriptions from 2017 to 2021

Fixed Internet subscriptions can be classified as either residential or business, with both categories registering declines in 2021. As Figure 54 reveals, the number of residential subscriptions amounted to 353,200, a reduction of 2,600, or 0.7%, from 2020.

There were 17,700 business Internet subscriptions, as shown in Figure 55, reflecting a decrease of 3,300 subscriptions, or 15.6%, from 2020.

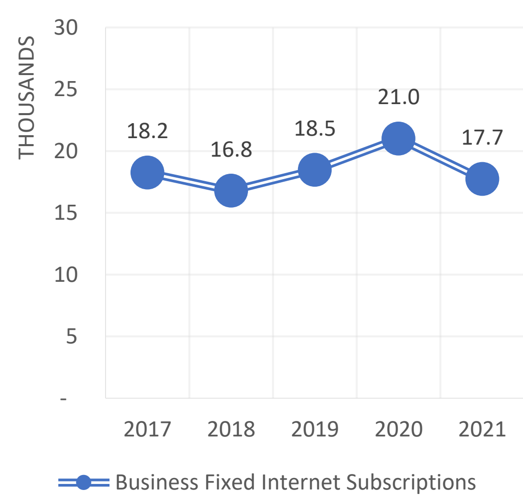


Figure 55 Business fixed Internet subscriptions from 2017 to 2021

4.1.2 Residential Fixed Broadband Internet Subscriptions by Speed Tier

The Internet speeds[46] that residential broadband customers subscribed to in 2021 ranged from 256 kbit/s to 1 Gbit/s. Figure 56 shows these subscriptions by the following speed tiers:

i. 256 kbit/s to less than 2 Mbit/s
ii. 2 Mbit/s to less than 10 Mbit/s
iii. 10 Mbit/s to less than 30 Mbit/s
iv. 30 Mbit/s to less than 100 Mbit/s
v. equal to or above 100 Mbit/s

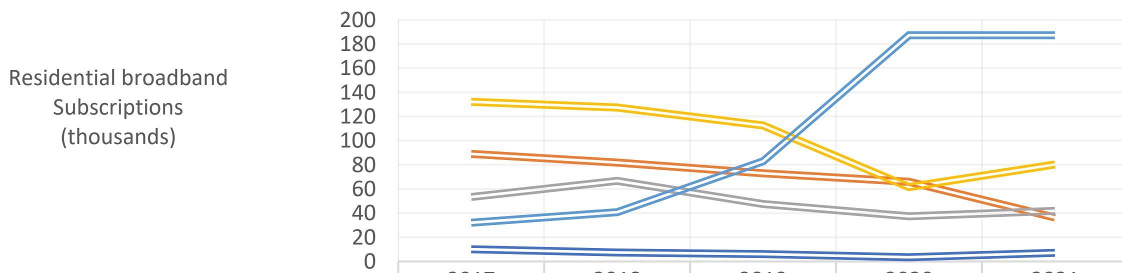
The *equal to or above 100Mbit/s* category was the most popular choice among residential customers, with 187,300 subscriptions in this speed category. This number remained unchanged in 2021 compared to 2020.

The *30 Mbit/s to less than 100 Mbit/s* category was the second most subscribed to speed tier, with 80,400 subscriptions. This represented a 30.4% increase from 2020.

There were 41,900 subscriptions to the *10 Mbit/s to less than 30 Mbit/s* – an increase of 4,500 subscriptions, or 11.9%, from the previous year.

The *2 Mbit/s to less than 10 Mbit/s* speed tier plummeted by 44.8% from 2020 to record 36,400 subscriptions.

Even though the number of subscriptions to the *256 kbit/s to less than 2 Mbit/*s category increased by 3,700, or 104.5%, from 2020, it remained the least subscribed to speed tier in 2021 with 7,200 subscriptions.



	2017	2018	2019	2020	2021
256 kbit/s to less than 2 Mbit/s	10.1	7.5	6.1	3.5	7.2
2 Mbit/s to less than 10 Mbit/s	89.0	81.9	73.0	65.9	36.4
10 Mbit/s to less than 30 Mbit/s	53.4	66.7	47.5	37.4	41.9
30 Mbit/s to less than 100 Mbit/s	132.2	127.5	112.6	61.6	80.4
Equal to or above 100 Mbit/s	32.1	40.8	83.0	187.3	187.3

Figure 56 Number of residential broadband subscriptions by download speed tier from 2017 to 2021

[46] Refers to advertised speeds by service providers

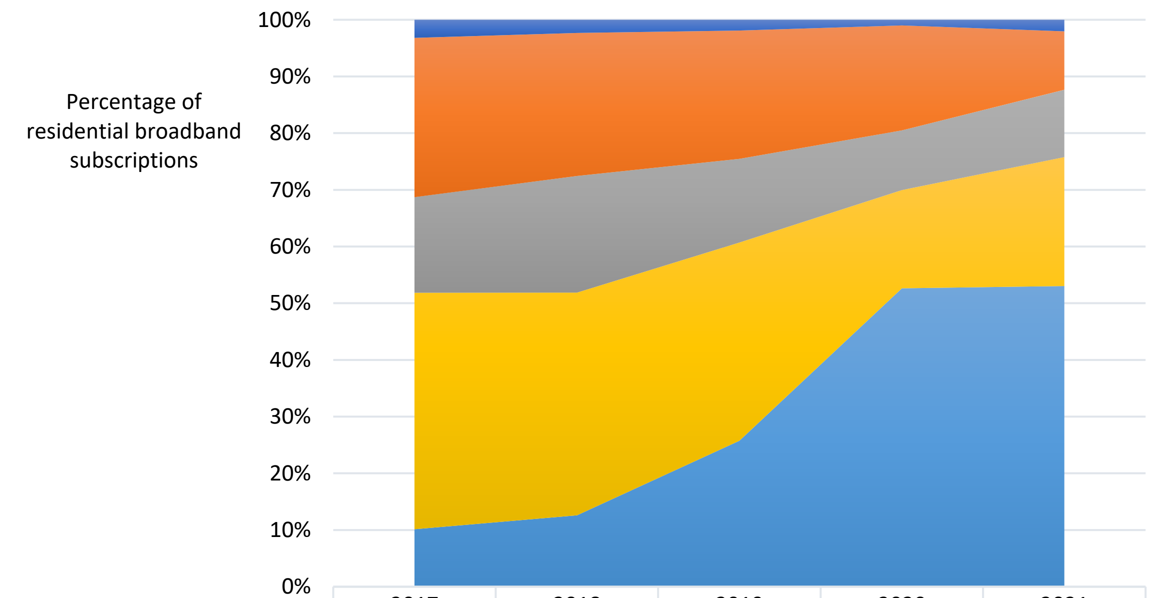
The proportion of residential subscriptions by download speed for the 2017 to 2021 period is shown in Figure 57.

In 2021, the *equal to or above 100Mbit/s* category was the largest, at 53.0%.

The percentage of subscriptions in the *30 Mbit/s to less than 100 Mbit/s* increased from 17.3% in 2020 to 22.8%.

The *2 Mbit/s to less than 10 Mbit/s* and *10 Mbit/s to less than 30 Mbit/s* speed tiers held shares of 11.9% and 10.3%, respectively.

The *256 kbit/s to less than 2 Mbit/s* speed tier retained its position of having the smallest share of the residential broadband Internet market, with 2.0%.



	2017	2018	2019	2020	2021
256 kbit/s to less than 2 Mbit/s	3.2%	2.3%	1.9%	1.0%	2.0%
2 Mbit/s to less than 10 Mbit/s	28.1%	25.2%	22.6%	18.5%	10.3%
10 Mbit/s to less than 30 Mbit/s	16.9%	20.6%	14.8%	10.5%	11.9%
30 Mbit/s to less than 100 Mbit/s	41.7%	39.3%	35.0%	17.3%	22.8%
Equal to or above 100 Mbit/s	10.1%	12.6%	25.8%	52.6%	53.0%

Figure 57 Percentage of residential broadband subscriptions by download speed tier from 2017 to 2021

4.1.3 Business Fixed Broadband Internet Subscriptions by Speed Tier

As reported in section 4.1.1, the total number of business broadband subscriptions decreased by 3,300 subscriptions from 2020.

Figure 58 reveals that the *equal to or above 100Mbit/s* tier was also the most subscribed to speed tier by businesses, as observed for residential subscriptions. The number of business subscriptions for this tier rose to 9,100 – an increase of 1,400, or 17.7%, from 2020.

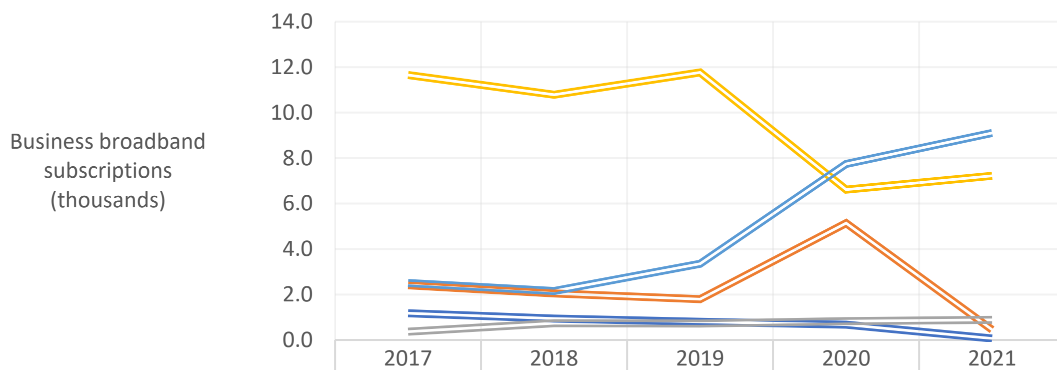
Subscriptions to the *30Mbit/s to less than 100Mbit/s* category increased by 600, or 9.2%, to register a total of 7,200 in 2021.

The downward trend in the *256 kbit/s to less than 2 Mbit/s* speed tier was maintained, with subscriptions declining by 600, or 90.2%, to record 100 in 2021.

With regard to proportions, the *equal to or above 100Mbit/s* tier was the largest, with 51.4%.

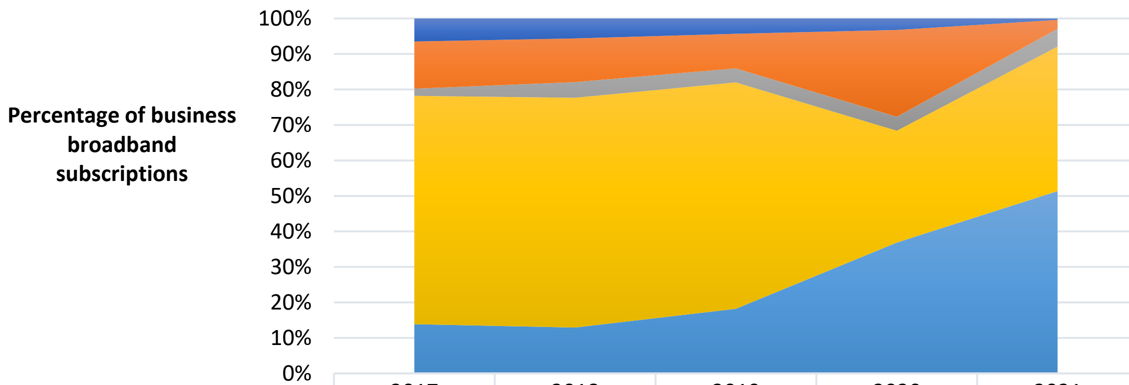
The *2Mbit/s to less than 10Mbit/s* category held a share of 2.6%, while *256 kbit/s to less than 2 Mbit/s* held the smallest proportion, with 0.4%.

These results are displayed in Figure 59 and highlight the evolution of business broadband subscriptions by speed tier across the last five years.



	2017	2018	2019	2020	2021
256 kbit/s to less than 2 Mbit/s	1.2	0.9	0.8	0.7	0.1
2 Mbit/s to less than 10 Mbit/s	2.4	2.0	1.8	5.1	0.5
10 Mbit/s to less than 30 Mbit/s	0.4	0.7	0.7	0.8	0.9
30 Mbit/s to less than 100 Mbit/s	11.7	10.8	11.8	6.6	7.2
Equal to or above 100 Mbit/s	2.5	2.2	3.4	7.7	9.1

Figure 58 Number of business broadband subscriptions by download speed from 2017 to 2021



	2017	2018	2019	2020	2021
256 kbit/s to less than 2 Mbit/s	6.5%	5.6%	4.3%	3.2%	0.4%
2 Mbit/s to less than 10 Mbit/s	13.3%	12.3%	9.7%	24.5%	2.6%
10 Mbit/s to less than 30 Mbit/s	2.0%	4.4%	3.9%	3.9%	5.0%
30 Mbit/s to less than 100 Mbit/s	64.4%	64.7%	63.8%	31.5%	40.7%
Equal to or above 100 Mbit/s	13.9%	12.9%	18.2%	36.9%	51.4%

Figure 59 Percentage of business broadband subscriptions by download speed from 2017 to 2021

4.2 Active Mobile Internet Subscriptions

In 2021, there were 2 million mobile voice subscriptions, with approximately 1.64 million enabled to access mobile Internet services. Of these 1.64 million, there were 819,800 active mobile Internet subscriptions[47] as at December 2021 – an increase of 6.4% from 2020. In keeping with the trend in mobile voice subscriptions, in which prepaid held a greater share of the market, the number of prepaid mobile Internet users also exceeded postpaid users.

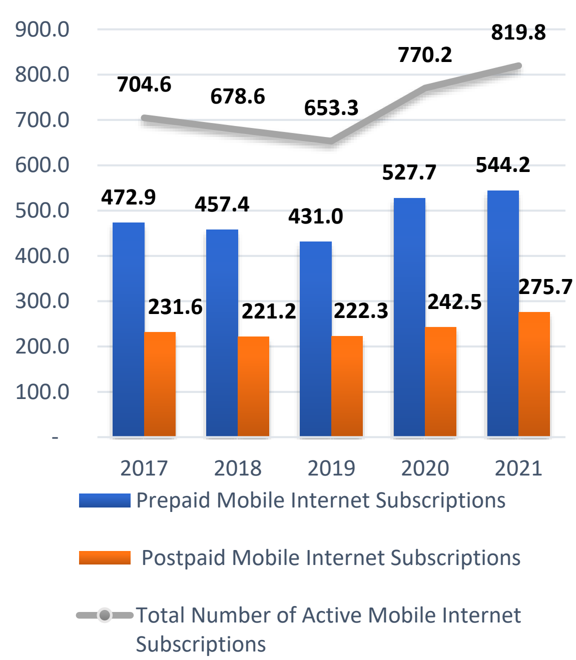


Figure 60 Prepaid and postpaid Internet subscriptions from 2017 to 2021

[47] "Active mobile Internet subscriptions" refers to subscribers who have used mobile Internet service within the last three months.

Figure 61 compares prepaid and postpaid subscriptions by type of service, classified as either "mobile voice only" users or "both mobile voice and mobile Internet" users. As reported in section 3.1.1, there were 1.51 million prepaid and 483,500 postpaid mobile voice subscriptions recorded in 2021.

Of the 1.51 million prepaid subscribers, 36% used both mobile voice and Internet services, while the remaining 64% used only mobile voice.

Of the 483,500 postpaid mobile subscribers, 57% used both mobile voice and Internet, while 43% only had access to mobile voice.

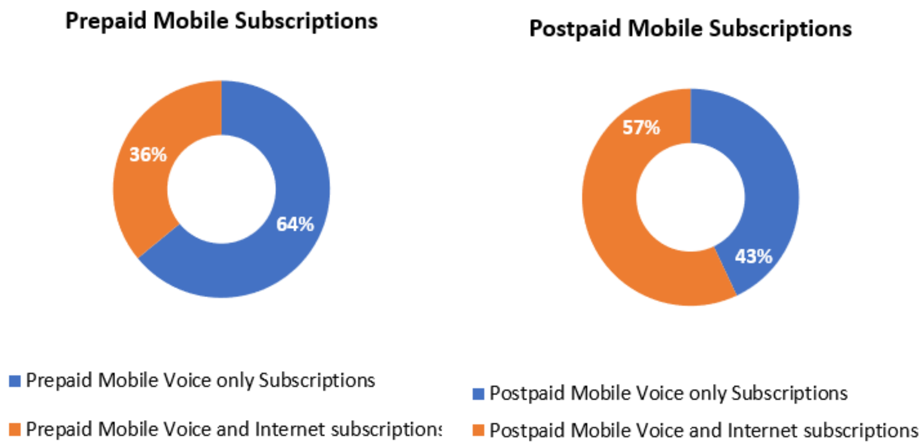


Figure 61 Comparison of prepaid and postpaid mobile Internet subscriptions for 2021

In 2021, there were approximately 615,600 mobile broadband Internet subscriptions and 204,300 mobile narrowband Internet subscriptions, as highlighted in Figure 62.

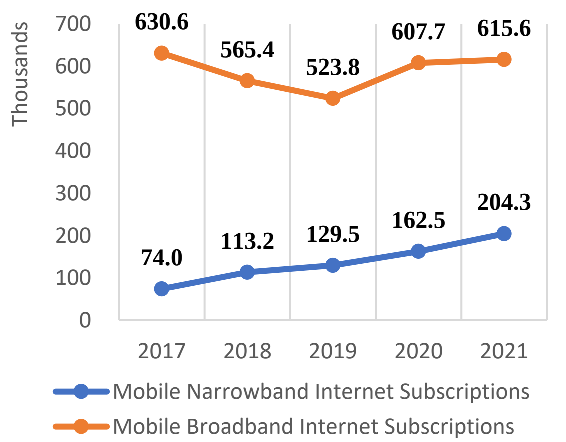


Figure 62 Mobile narrowband and broadband Internet subscriptions from 2017 to 2021

Compared to 2020, mobile broadband figures rose by 7,900 subscriptions, or 1.3%, while narrowband subscriptions registered 41,800 additional subscriptions – a 25.7% increase.

As Figure 63 shows, the proportion of mobile broadband Internet subscriptions fell from 78.9% in 2020 to 75.1% in 2021. Conversely, the percentage of mobile narrowband Internet subscriptions rose from the previous year's 21.1% to a record 24.9%.

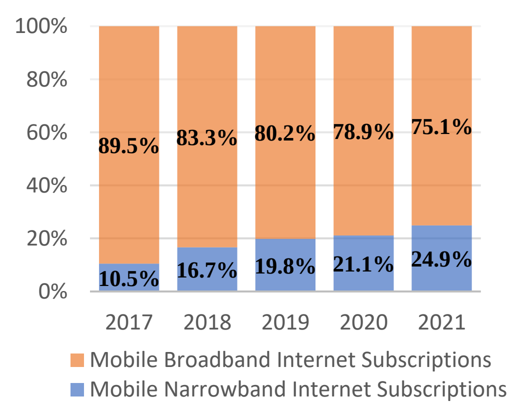


Figure 63 Proportion of mobile narrowband and broadband Internet subscriptions from 2017 to 2021

4.3 Internet Penetration Rates: Fixed and Mobile

Figure 64 shows the fixed Internet and mobile Internet penetration rates for the period 2017 to 2021.

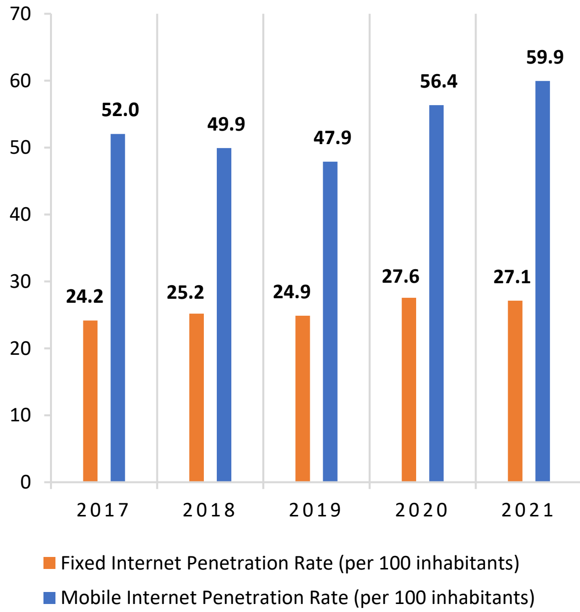


Figure 64 Fixed and mobile Internet penetration rates from 2017 to 2021

The fixed Internet penetration rate per 100 inhabitants for 2021 stood at 27.1, indicating that 27 out of every 100 individuals had a fixed Internet subscription. The mobile Internet penetration rate rose from 56.4 in 2020 to 59.9, suggesting that approximately 60 of every 100 persons utilised mobile Internet services.

Internet household penetration[48] is used as a key indicator to estimate the percentage of households with a fixed Internet subscription.

Figure 65 shows that 88 out of every 100 households subscribed to a fixed Internet service in 2021 – the second highest rate within the last five years.

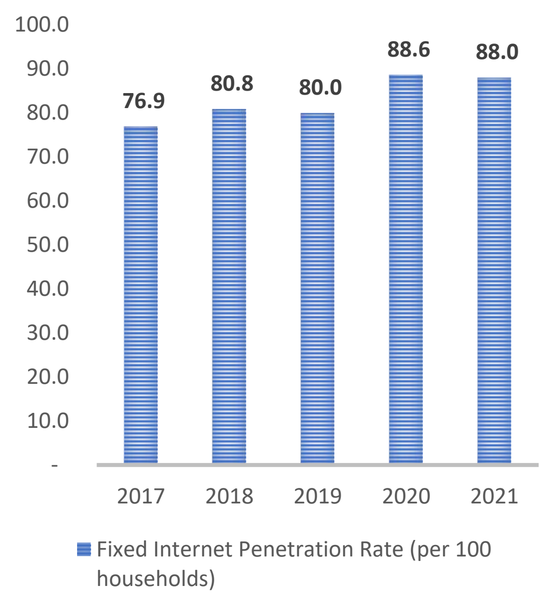


Figure 65 Fixed Internet household penetration from 2017 to 2021

[48] Internet household penetration is calculated as the number of residential fixed Internet subscriptions divided by the total number of households, multiplied by 100.

4.4 Fixed and Mobile Internet Revenues

4.4.1 Total Internet Revenues

As illustrated in Figure 66, the combined revenues of fixed and mobile Internet in 2021 totaled TT$2,157.5 million. This represents an increase of TT$13.7 million, or 0.6%, from 2020.

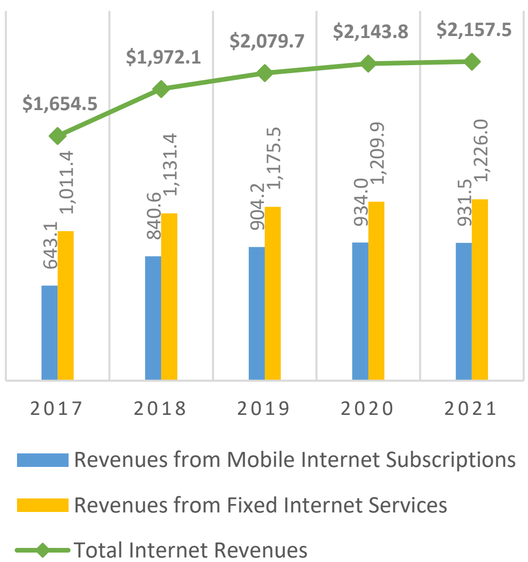


Figure 66 Internet revenues from 2017 to 2021

Figure 67 reveals that, in 2021, the proportion of fixed and mobile Internet revenues were 56.8% and 43.2%, respectively.

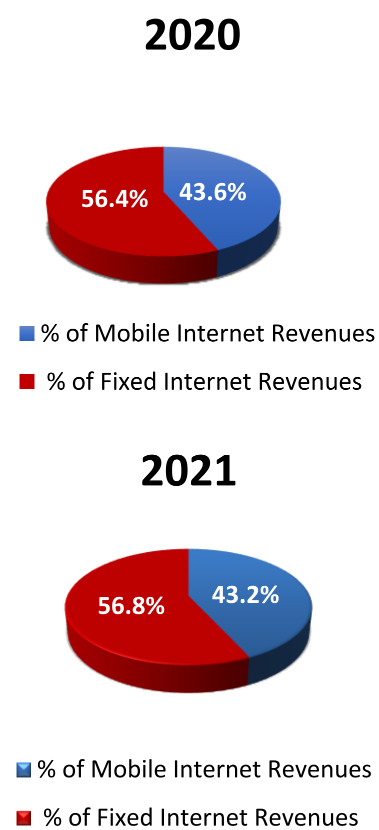


Figure 67 Percentage of fixed and mobile Internet revenues in 2020 and 2021

4.4.2 Fixed Internet Revenues

Fixed Internet revenues earned in 2021 amounted to TT$1,226.0 million, reflecting an increase of TT$16.1 million, or 1.3%. Figure 68 illustrates the upward trend of revenues derived from fixed Internet over the last five years.

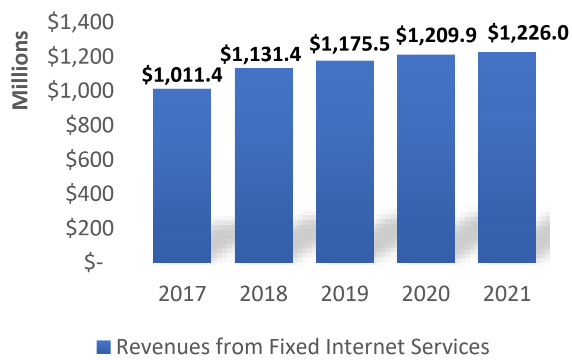


Figure 68 Fixed Internet revenues from 2017 to 2021

As depicted in Figure 69, all fixed Internet revenues were earned from broadband Internet.

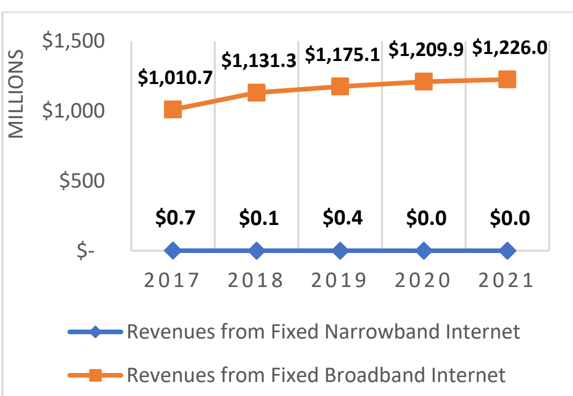


Figure 69 Fixed narrowband and broadband Internet revenues from 2017 to 2021

Fixed broadband Internet revenues can also be categorised into residential and business revenues, as highlighted in Figure 70.

Residential fixed broadband Internet revenues grew by TT$20.4 million, or 2.3%, to record TT$898.1 million. Revenues from business fixed broadband, however, dipped by TT$4.3 million, or 1.3% from the previous year.

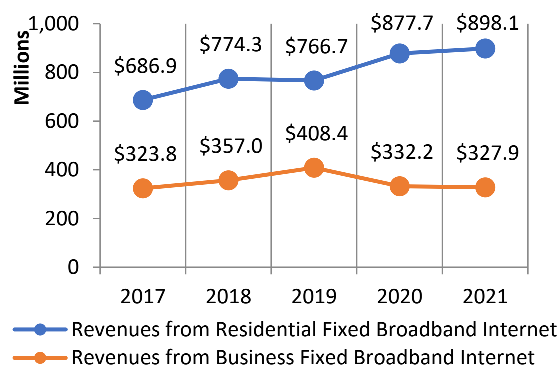


Figure 70 Broadband Internet revenues by type from 2017 to 2021

Residential broadband subscriptions contributed 73.3% of total fixed broadband revenues, with business broadband holding the remaining share of 26.7%.

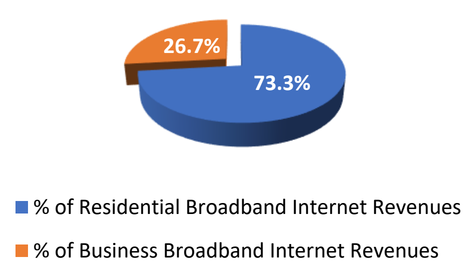


Figure 71 Percentage of residential and business fixed broadband Internet revenues in 2021

4.4.3 Mobile Internet Revenues

Mobile Internet subscriptions remained a significant source of revenue in the Internet market. Figure 72 depicts the trajectory of mobile Internet revenues over the past five years, which saw 2021 record TT$931.5 million. This marked a decline of TT$2.5 million, or 0.3%, from 2020.

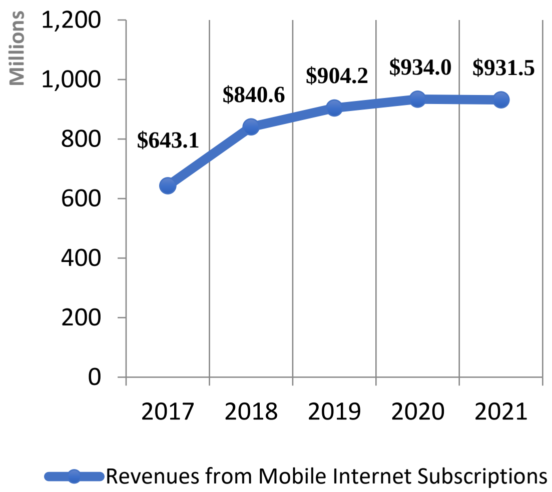


Figure 72 Mobile Internet revenues from 2017 to 2021

Figure 73 presents the revenues generated from prepaid and postpaid mobile Internet subscriptions for the previous five years. In 2021, prepaid and postpaid mobile Internet amassed revenues of TT$490.7 million and TT$440.8 million, respectively.

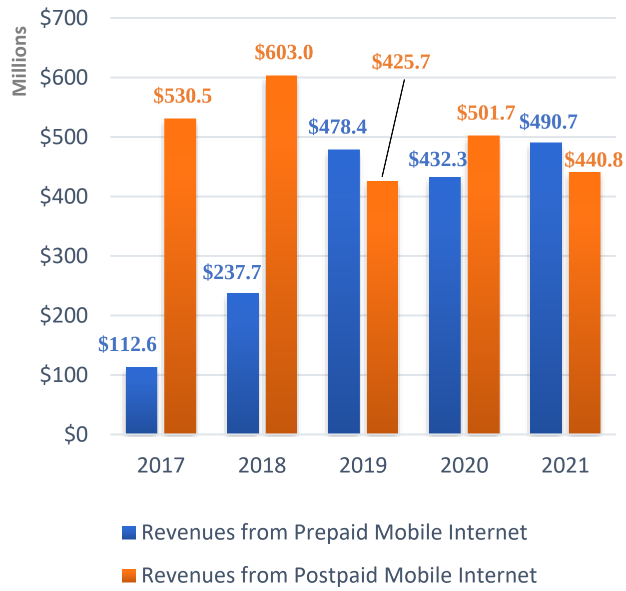


Figure 73 Mobile Internet revenues by type for 2017 to 2021

As illustrated in Figure 74, prepaid services accounted for 52.7% of mobile Internet revenues, while postpaid services contributed 47.3%.

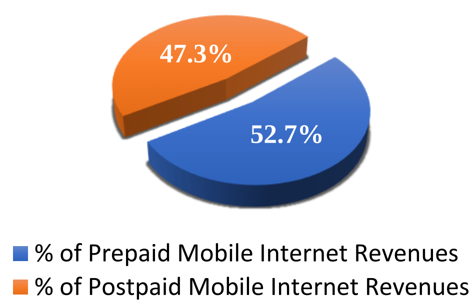


Figure 74 Percentage of prepaid and postpaid mobile Internet revenues in 2021

4.5 Fixed Internet Market Concentration

The Authority used the HHI to gauge the level of concentration in the fixed Internet market[49] for 2021.

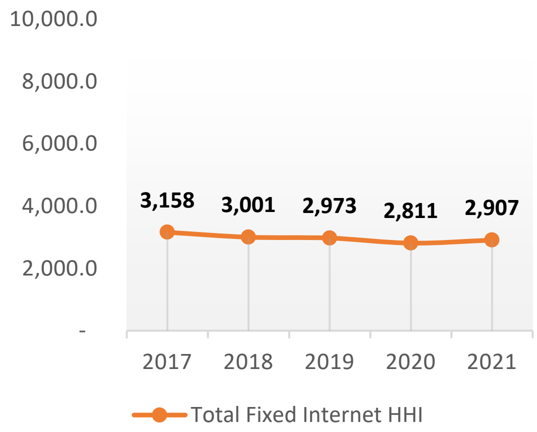


Figure 75 Fixed Internet HHI for 2021

As depicted in Figure 75, the HHI declined consistently from 2017 to 2020. By the end of 2021, concentration levels increased to 2,907 – a rise of 3.4% from the previous year.

There was continuous fluctuation in the HHI across each quarter of 2021, as illustrated in Figure 76. The first quarter registered an HHI of 2,955, with the final quarter recording 2,907.

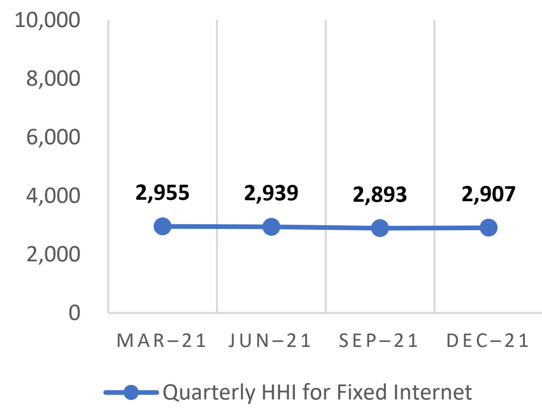


Figure 76 Quarterly HHI for the fixed Internet market in 2021

[49] Market share based on the number subscriptions was used in the calculation of the HHI.

4.6 Average Revenue Per User (ARPU) for Internet Services

In 2021, the fixed Internet ARPU[50] increased by TT$95, or 2.9%, compared to the previous year, with each subscription generating an average of TT$3,305.

The ARPU for mobile Internet[51] fell from TT$1,213 in 2020 to TT$1,136 – a decline of TT$77, or 6.3%.

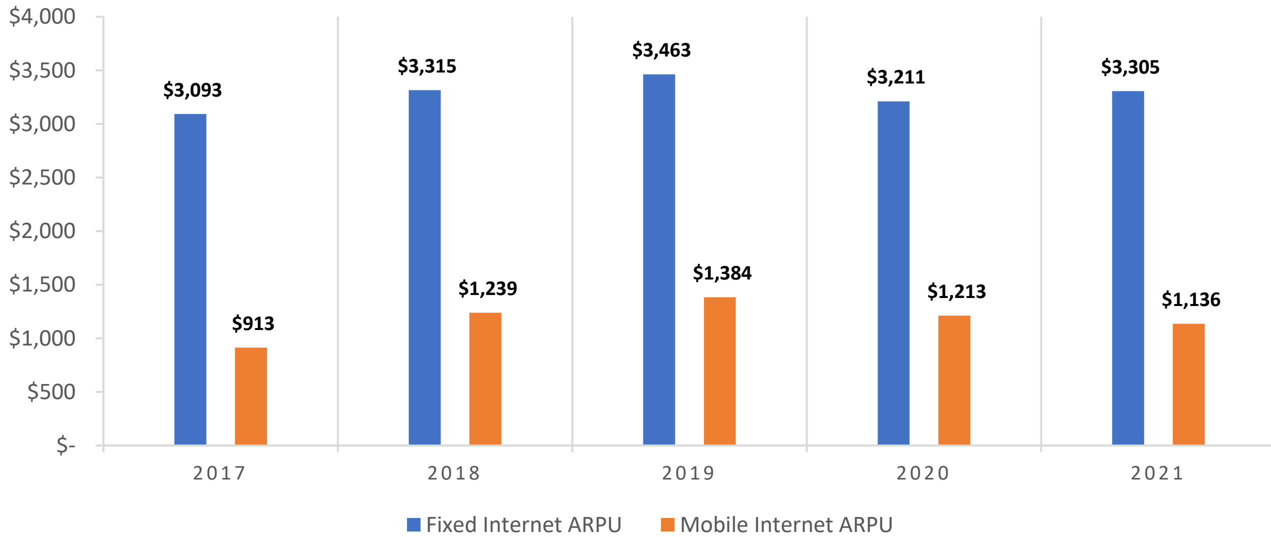


Figure 77 ARPUs for fixed and mobile Internet services from 2017 to 2021

[50] The ARPU for fixed Internet services is measured by the average revenue generated by one fixed Internet subscription. It is calculated as the total annual revenues from fixed Internet subscriptions divided by the total number of fixed Internet subscriptions.

[51] The ARPU for mobile Internet services is calculated as the total annual revenues from active prepaid and postpaid mobile subscriptions divided by the total number of mobile prepaid and postpaid subscriptions.

2021 ANNUAL MARKET REPORT

INTERNATIONAL VOICE MARKET

Key Indicators for the International Voice Market

GROWTH 2020-2021

INCOMING INTERNATIONAL VOICE MARKET

INCOMING INTERNATIONAL REVENUES
$93.8 Million
Decrease of 45.6% from 2020

74.6 Million
Minutes

OUTGOING INTERNATIONAL VOICE MARKET

OUTGOING INTERNATIONAL REVENUES
$41.1 Million
Decrease of 7.8% from 2020

50 Million
Minutes

$134.9 M

INTERNATIONAL VOICE MARKET REVENUE

37.8%
decrease from
2020

5 International Voice Market Review

In 2021, there were nine international telecommunications concessionaires. Eight were authorised to provide international telecommunications services, inclusive of international voice services, with one operator authorised to operate a public international telecommunications network. These operators were:

1. Amplia Communications Limited
2. Columbus Networks International (Trinidad) Limited
3. Digicel (Trinidad & Tobago) Limited
4. Green Dot Limited
5. Lisa Communications Limited
6. NOVO Communications Limited
7. Open Telecom Limited[52]
8. Southern Caribbean Fibre (network only)
9. Telecommunications Services of Trinidad and Tobago Limited

5.1 International Voice Traffic (Incoming and Outgoing Minutes)

For 2021, the number of minutes generated from international calls was 74.6 million. This represented a decrease of 20.9 million minutes, or 21.9%, from 2020. International outgoing traffic minutes fell to 50 million – a contraction of 8.5 million minutes, or 14.5%, from the previous year.

Figure 78 and Figure 79 show the number of international voice minutes from incoming and outgoing calls, respectively.

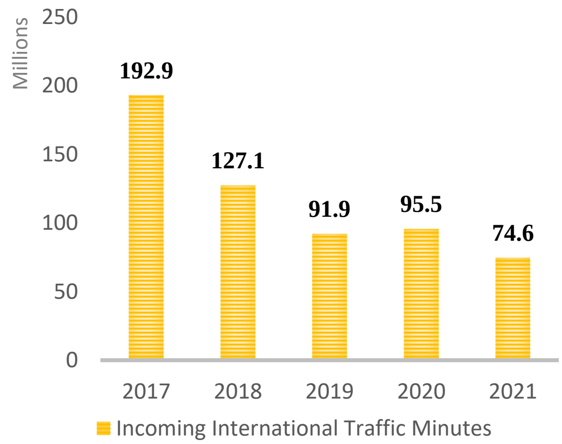


Figure 78 Incoming international voice traffic minutes from 2017 to 2021

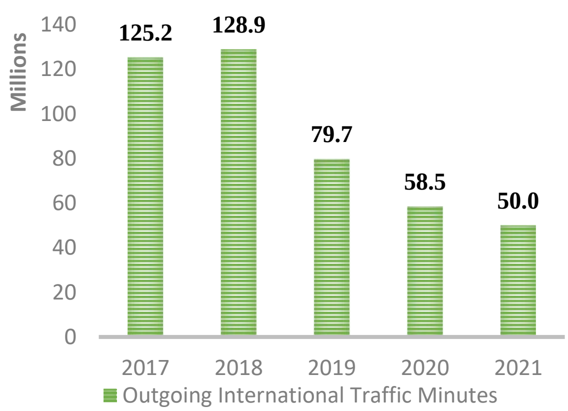


Figure 79 Outgoing international voice traffic minutes from 2017 to 2021

The proportion of incoming and outgoing traffic over the past five years is depicted in Figure 80.

[52] Open Telecom Ltd. had not supplied data at the time of publication.

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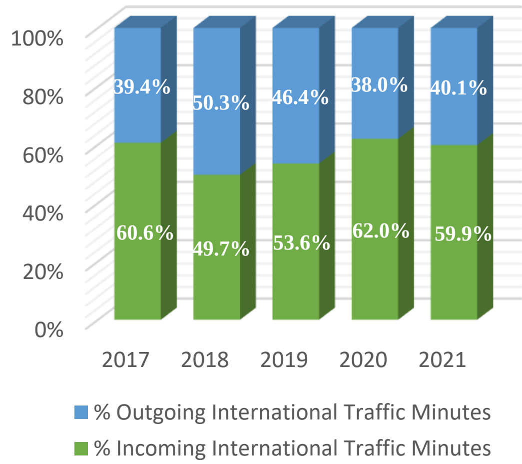

Figure 80 Percentage of incoming and outgoing international voice traffic (minutes) from 2017 to 2021

In 2021, minutes generated by incoming calls accounted for 59.9% of all international minutes, decreasing from 62% recorded in 2020. The share of outgoing international traffic minutes rose from 38% in 2020 to 40.1% in 2021.

5.2 International Voice Revenues

The trend in gross revenues generated by the international voice market between 2017 and 2021 is presented in Figure 81. The downward spiral of revenues within this market continued, with 2021 recording TT$134.9 million. This marked a decrease of TT$82 million, or 37.8%, from 2020.

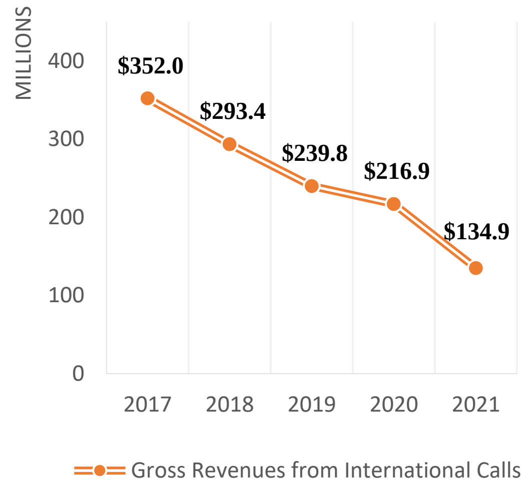

Figure 81 Gross revenues from international calls

As Figure 82 illustrates, incoming international traffic revenues peaked in 2017 with TT$242.4, before steadily declining over the following two years, to end 2019 with TT$153.3 million. Revenues rose in 2020 then plummeted in 2021 to record TT$93.8 million – a decrease of TT$78.5 million, or 45.6%, from the preceding year.

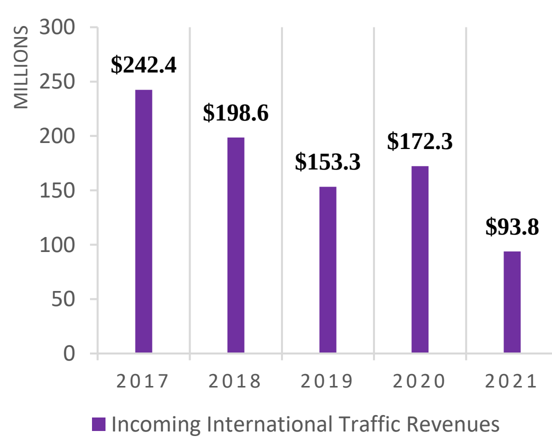

Figure 82 Incoming International Traffic Revenues

Figure 83 depicts the outgoing international traffic revenues for the past five years. During this period, revenues were highest in 2017, with TT$92.1 million, before falling to TT$78.2 million in 2018. This was followed by an uptick in 2019, then drops in 2020 and 2021 of TT$44.6 million and TT$41.1 million, respectively. The latter figure represented a contraction of TT$3.5 million, or 7.8%, from 2020.

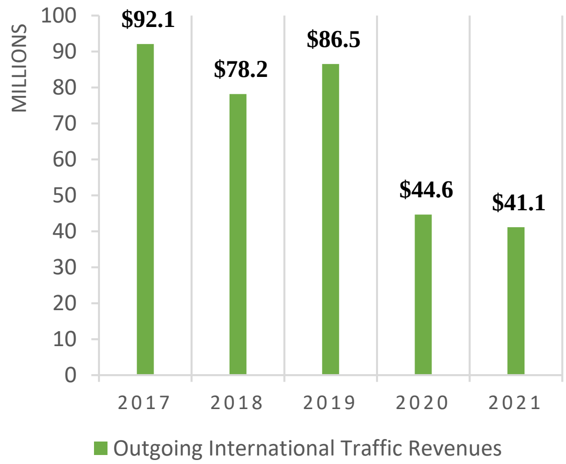

Figure 83 Gross revenues from outgoing international voice traffic from 2017 to 2021

5.3 International Voice Market Concentration

Market concentration for the international voice market is calculated using the number of international incoming and outgoing minutes.

Figure 84 reveals that, in 2021, the HHI for incoming minutes declined across the first three quarters, before rising in the final quarter to 4,216.

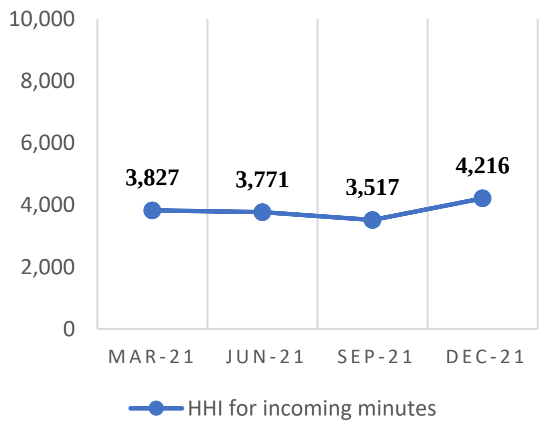

Figure 84 HHI for international incoming minutes in 2021

Similar to the incoming minutes market, the outgoing minutes market also declined across the first three quarters of 2021, before rising to 4,505 in the final quarter.

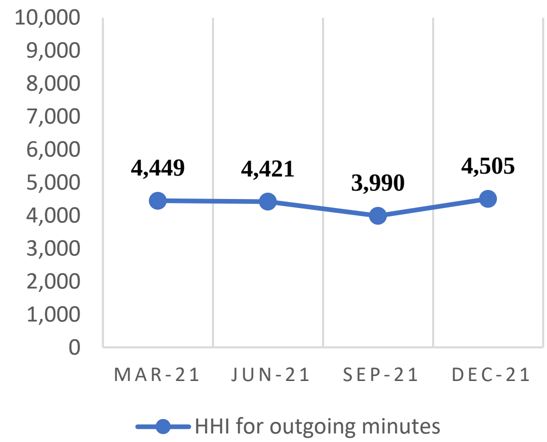

Figure 85 HHI for international outgoing minutes

2021 ANNUAL MARKET REPORT

BROADCASTING MARKET

GROWTH 2020-2021

PAY TV

PAY TV SUBSCRIPTIONS
237,800
Decrease of 1.9% from 2020

PAY TV PENETRATION
17 per 100 inhabitants
59 per 100 households

BROADCASTING MARKET REVENUES

FREE TO AIR TV REVENUES
$63 Million
Increase 1.9% from 2020

FREE TO AIR RADIO REVENUES
$99.6 Million
Decrease7.6% from 2020

PAY TV REVENUES
$643.1 Million
Decrease 6.9% from 2020

6 Broadcasting Market Review

The broadcasting market is classified based on the following categories:

1. Free-to-air (FTA) television (TV)
2. TV broadcasting via cable
3. Subscription or pay TV
4. Free-to-air (FTA) radio

Operators are granted a concession to provide broadcasting services to any one of the following geographic regions:

I. National – Trinidad and Tobago
II. Major territorial – Trinidad only
III. Minor territorial – Tobago only
IV. Niche – specific geographic area

Table 6 lists the number of concessions granted in the last five years for the provision of public broadcasting services.

Table 6 Number of concessions in the broadcasting market from 2017 to 2021

Type of Concession	Number of Concessions				
	2017	**2018**	**2019**	**2020**	**2021**
Free-to-Air (FTA) Television	**6**	**5**	**5**	**5**	**5**
National	5	4	4	4	4
Major Territorial	1	1	1	1	1
Subscription Television	**14**	**13**	**13**	**13**	**13**
National	8	7	7	8	8
Major Territorial	1	1	1	1	1
Niche	4	4	4	3	3
Minor Territorial	1	1	1	1	1
TV Broadcasting via Cable	**9**	**8**	**14**	**14**	**15**
National	8	8	14	14	15
Major Territorial	1	0	0	0	0
Free-to-Air (FTA) Radio	**37**	**36**	**36**	**37**	**36**
National	29	28	29	30	28
Major Territorial	6	6	5	5	5
Minor/Niche Territorial	2	2	2	2	3
Total	66	62	68	69	69

6.1 Free-to-Air (FTA) Television (TV) Broadcasting Market

In 2021, the market for FTA TV broadcasting services was served by the following operational concessionaires:

1. Advance Community Television Network Limited (ACTS 25)
2. CCN Television Limited (CCN TV6)
3. Guardian Media Limited (CNC3)
4. Parliament of the Republic of Trinidad and Tobago
5. TTT Limited

In addition to the above, the following 15 concessionaires were authorised to provide TV broadcasting services via cable:

1. Central Broadcasting Services Ltd. (Jaagriti TV)
2. Darut Tarbiyah (TIN)
3. Environmental Management Authority (EMA)
4. Gayelle Limited
5. Guardian Media Limited
6. IBN Communications Company Limited (IBN)
7. Ice Media Group Limited
8. Liming Monkey (WESN – The Content Capital)
9. Living Water Community (Trinity TV)
10. Q Network Limited
11. Sankyha Television Limited
12. SWAHA Media Limited (IETV)
13. Synergy Entertainment Network
14. Twenty-Four Seven News and Sports Limited
15. WI Sports (TTEN)

However, for the period under review, the EMA, Ice Media Group, Guardian Media Limited and Q Network had not launched TV broadcasting services via cable to the public.

The following section provides information on the performance of both FTA and local TV broadcasting services via cable. It should be noted that all references to FTA TV include both FTA TV broadcasting and TV broadcasting services via cable.

6.1.1 FTA TV Revenues

The TT$63 million generated in 2021 marked the second consecutive year of growth since a five-year low of TT$60.2 million was recorded in 2019. The 2021 total represents an increase of TT$1.2 million, or 1.9%, from 2020.

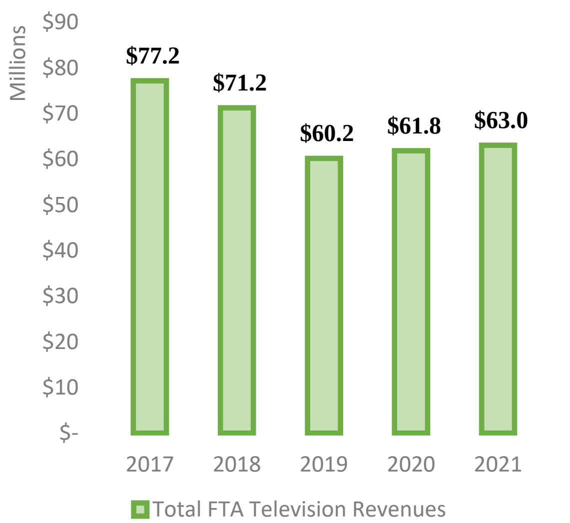

Figure 86 Gross revenues for the FTA TV market from 2017 to 2021

Figure 87 compares the quarterly gross revenues generated in the FTA television market between 2020 and 2021. Revenues fluctuated across all quarters of 2021, with the lowest sum of TT$11.9 million, and the highest figure of TT$21.1 million, recorded in the second and third quarters, respectively.

Only the second and fourth quarters of 2021 registered larger revenues compared to the corresponding periods in 2020. The first quarter had the smallest variation, with a reduction of TT$0.4 million, or 3.2%, from 2020 revenues. The largest difference was seen in the fourth quarter, in which 2021 revenues rose by TT$3.2 million, or 21.5%, from the corresponding period in 2020.

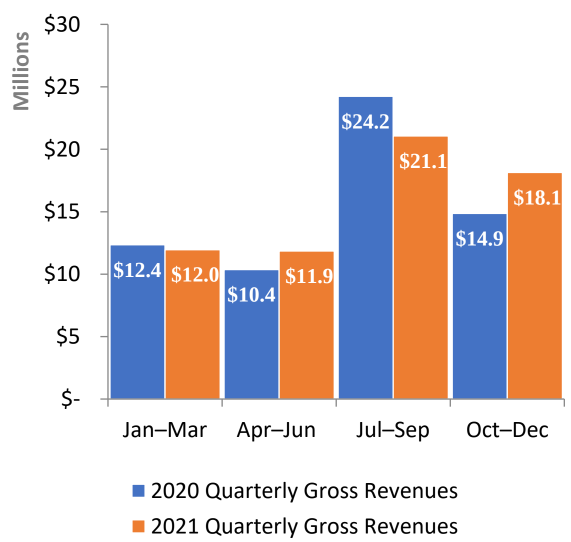

Figure 87 Quarterly gross revenues for FTA TV in 2020 and 2021

6.1.2 FTA TV Market Concentration

The level of concentration in the FTA TV broadcasting market was calculated using the HHI, based on the revenues earned within the market.

As shown in Figure 88, the HHI fluctuated across all four quarters of 2021. The first quarter registered a value of 3,660, which fell to 3,097 by the second quarter. The HHI peaked in the third quarter, with 4,174, before dropping to 3,382.

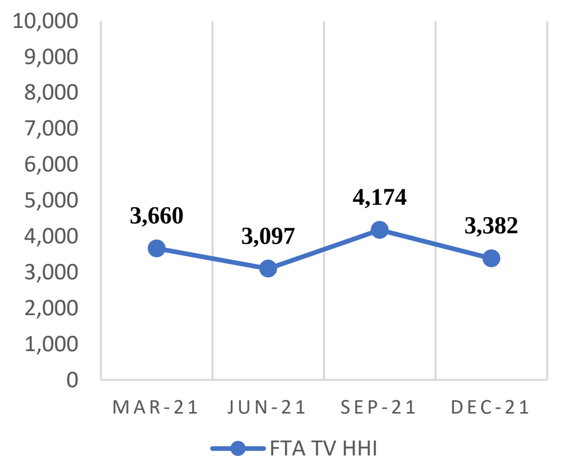

Figure 88 Quarterly HHI for the FTA TV broadcasting market in 2021

Figure 89 depicts the annual trend in HHI for the period 2017 to 2021. Relative stability was observed across 2017, with greater fluctuations and more pronounced peaks and troughs recorded from 2018 onwards.

For 2021, the monthly average HHI was 3,541, while the 2020 average was 3,462.

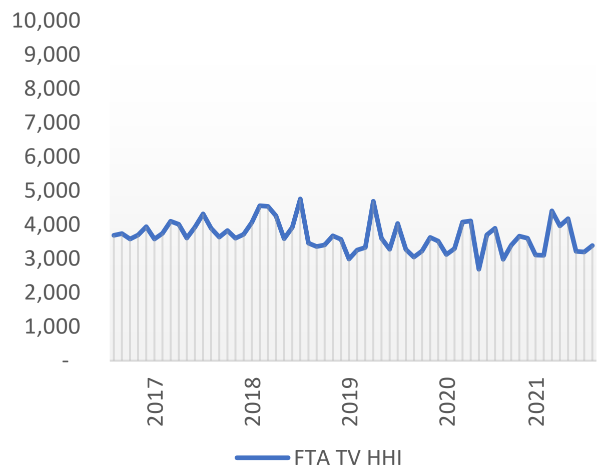

Figure 89 HHI for the FTA TV broadcasting market from 2017 to 2021

6.2 Free-to-Air (FTA) Radio Broadcasting Market

In 2021, the FTA radio broadcasting market comprised 36 radio stations[53] (see Appendix II for a detailed listing). It should be noted that some concessionaires (owners) hold more than one concession and, as a result, operate more than one radio station.

6.2.1 FTA Radio Revenues

Figure 90 illustrates the pattern of falling gross revenues within this market. In 2021, the FTA radio broadcasting market earned TT$99.6 million. This represents a reduction of TT$8.2 million, or 7.6%, from 2020.

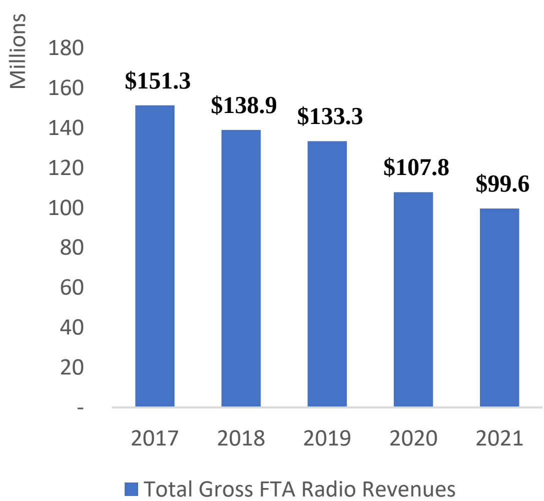

Figure 90 Gross revenues for the FTA radio broadcasting market from 2017 to 2021

Figure 91 highlights the quarterly gross revenues earned in the FTA radio broadcasting market in 2020 and 2021.

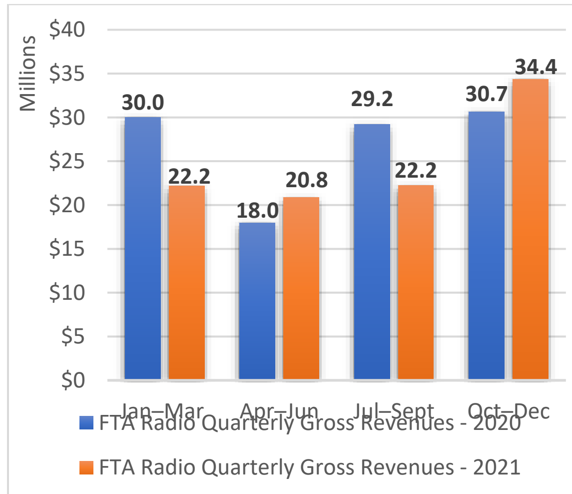

Figure 91 Quarterly revenues for FTA Radio in 2020 and 2021

The first quarter of 2021 produced TT$22.2 million in revenues, which dropped to TT$20.8 million by the end of June. Revenues rose again to TT$22.2 million by the third quarter, then climbed further, to record TT$34.4 million in the final quarter. In comparing both years, the greatest variation in revenues was observed in the first quarter, with a decrease of TT$7.8 million, or 26%, from 2020. The smallest variation was seen in the second quarter, in which 2021 revenues rose by only TT$2.8 million, or 15.6%, from 2020.

[53] The following concessionaires did not provide data for the January to December 2021 review period: Trico Industries Ltd, British Broadcasting Corporation and Parliament of the Republic of Trinidad and Tobago.

6.2.2 FTA Radio Market Concentration

Using revenue data, the HHI for the FTA radio market was calculated based on both the number of concessions (radio stations) and the number of concessionaires (owners) in the market.

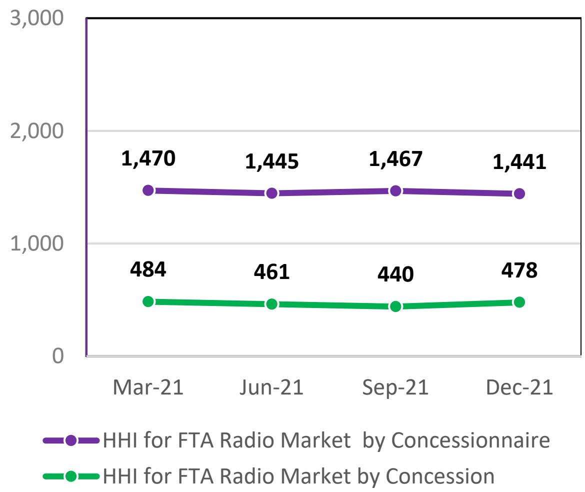

Figure 92 HHI for the FTA radio broadcasting market for 2021

Figure 92 gives an illustration of the quarterly trends in HHI for both concessionaires and concessions. With respect to HHI by concessionaire, index values fluctuated across all quarters of 2021. The first quarter registered 1,470 – the highest value of the year, before the HHI dipped to 1,445 in the second quarter. The third quarter recorded a value of 1,467, while the final quarter, with 1,441, had the lowest figure of the year.

In 2021, the average monthly HHI by concessionaire of 1,430 was lower than the previous year's value of 1,448. Similarly, the average monthly HHI by concession was 467, which was less than the 2020 value of 471.

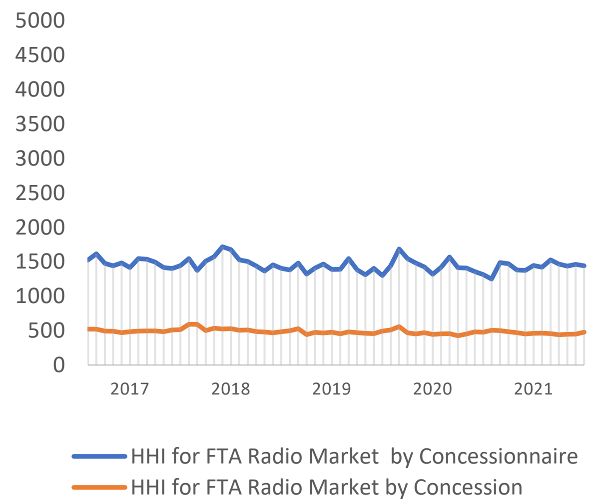

Figure 93 HHI for the FTA radio broadcasting market from 2017 to 2021

As Figure 93 shows, the HHI based on concessions was relatively stable from 2017 to 2021, while the HHI based on concessionaires had more pronounced variations over the same period.

6.3 Pay Television (TV) Broadcasting Market

The Trinidad and Tobago pay TV[54] market comprised 13 authorised service providers as at December 2021, 12 of which were operational in the review period. Business entities operating in the market provided services to subscribers within their respective authorised coverage areas. Table 7 lists each service provider, the type of service used to deliver pay TV services, and their authorised coverage areas.

Table 7 List of operational pay TV providers in 2021

Name of Provider	Type of Service	Authorised Coverage Area
Amplia Communications Limited	Digital pay TV (wired)	National
Columbus Communications Trinidad Limited	Digital pay TV (wired)	National
Digicel (Trinidad & Tobago) Limited	Digital pay TV (wired)	National
DirecTV Trinidad Limited	Digital pay TV (satellite)	National
Green Dot Limited	Digital pay TV (wireless terrestrial)	National
RVR International Limited	Analogue pay TV (wired)	National
Telecommunications Services of Trinidad and Tobago Limited (TSTT)	Digital pay TV (wired)	National
Independent Cable Network of Trinidad &Tobago (ICNTT)	Analogue pay TV (wired)	Major territorial
Network Technologies Limited	Analogue pay TV (wired)	Niche – Mayaro and Guayaguayare
Air Link Communications Limited	Analogue and digital pay TV (wired)	Niche – Princes Town and environs
Wired Technologies Limited (previously Santa Flora Cable Network Ltd)	Analogue pay TV (wired)	Niche – Santa Flora and environs
Trico Industries Limited	Analogue and digital pay TV (wired)	Minor territorial

[54] Also referred to as subscription TV

6.3.1 Pay TV Subscriptions

6.3.1.1 Basic Package Subscriptions

Service providers in the pay TV market offer different types of basic packages to their customers. Customers subscribed to a basic package of their choice have the option of purchasing additional or premium packages.

As shown in Figure 94, the number of basic package subscriptions decreased by 4,600, or 1.9%, from 2020, to record a tally of 237,800.

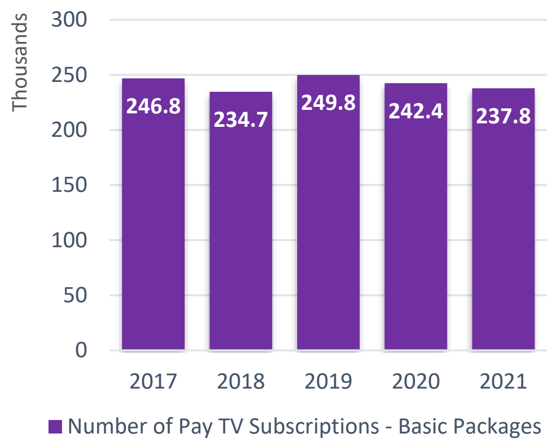

Figure 94 Number of basic pay TV subscriptions from 2017 to 2021

A comparison of pay TV subscriptions by type of service for the period 2017 to 2021 is given in Figure 95. In 2021, the number of subscriptions using digital technologies contracted by 1.8%, to record 232,400. The number of analogue subscriptions also dipped, from 5,700 in 2020, to 5,400 – representing a decline of 5.3%.

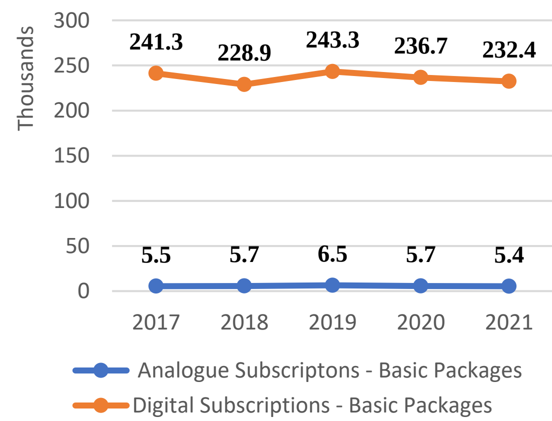

Figure 95 Pay TV subscriptions by type of service, from 2017 to 2021

The proportion of subscriptions by type of service is depicted in Figure 96. In 2021, 97.7% of all pay TV subscriptions were digital while the remaining 2.3% were analogue.

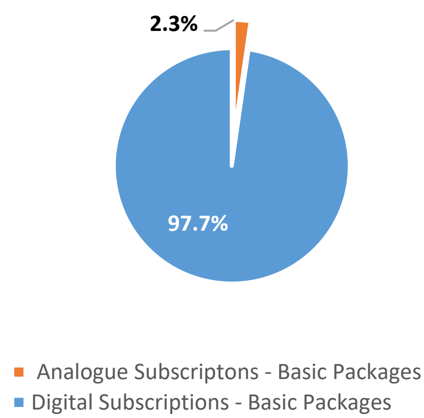

Figure 96 Proportion of pay TV subscriptions by type of service in 2021

6.3.1.2 Premium Package Subscriptions

Premium channels are additional channels, or a group of channels, offered by pay TV service providers that consumers may subscribe to, alongside their basic package. It should be noted that consumers can subscribe to more than one premium package.

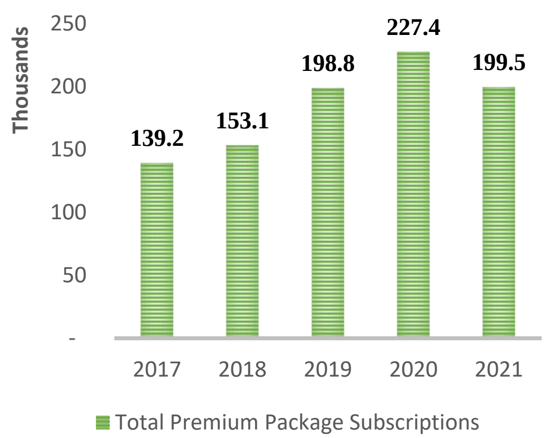

Figure 97 Number of premium package subscriptions from 2017 to 2021

At the end of 2021, the total number of premium package subscriptions stood at 199,500. This represents a decrease of 27,900 subscriptions, or 12.3%, from the preceding year. As depicted in Figure 97, this contraction interrupted the upward trend in subscriptions observed from 2017 to 2020.

Table 8 portrays the annual percentage changes in premium subscriptions from 2016 to 2021.

Table 8 Growth rates in premium subscriptions from 2017 to 2021

Year-on-Year	Change in Premium Subscriptions	Year-on-Year Rate of Growth (%)
2016-2017	20,300	17.0%
2017-2018	13,900	10.0%
2018-2019	45,700	29.8%
2019-2020	28,600	14.4%
2020-2021	27,900	-12.3%

6.3.2 Pay TV Penetration

The penetration rate for pay TV services is calculated by dividing the number of pay TV subscriptions by the population size and multiplying by 100. In 2021, the penetration rate per 100 inhabitants was 17.4, which means that an estimated 17 out of every 100 persons had a pay TV subscription.

The pay TV household penetration rate, defined as the number of subscriptions per 100 households, was determined to be 59.2 in 2021. The interpretation is that, for every 100 households within Trinidad and Tobago, 59 had a pay TV subscription.

Figure 98 highlights the penetration rates for the past five years. Comparison with 2020 reveals that both the penetration rate per 100 inhabitants and the penetration rate per 100 households for 2021 were lower.

The average penetration rate per 100 inhabitants for the five-year period was 17.8, whereas the average penetration rate per 100 households was 60.4.

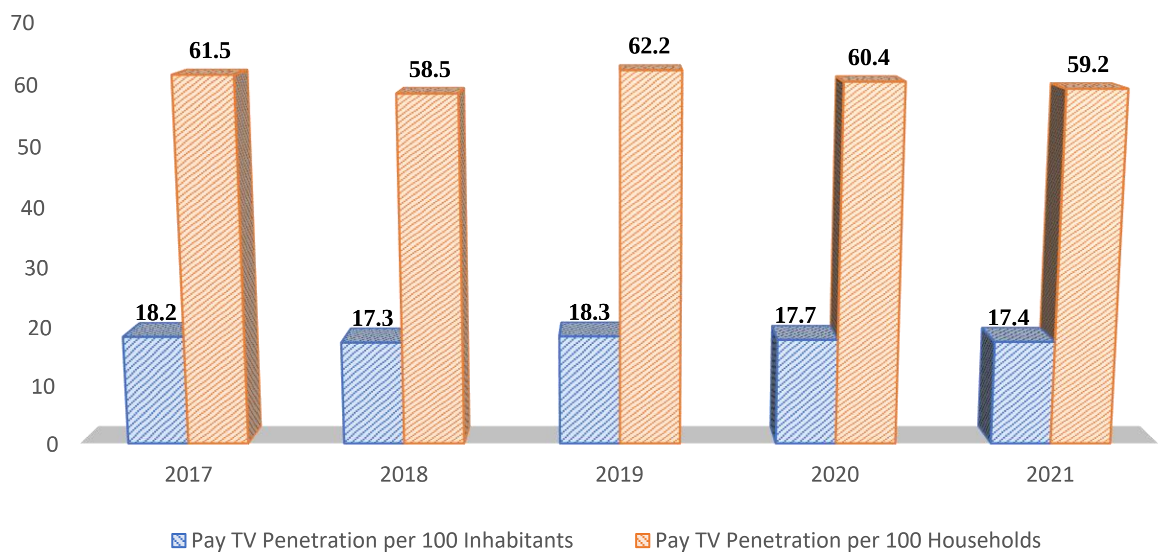

Figure 98 Pay TV penetration rate from 2017 to 2021

6.3.3 Pay TV Revenues

Gross revenues[55] generated in the pay TV market include service providers' earnings from the provision of both analogue and digital technologies.

Figure 99 shows that, in 2021, the pay TV market earned TT$643.1 million. This represents a decrease of TT$47.3 million, or 6.9%, from the previous year.

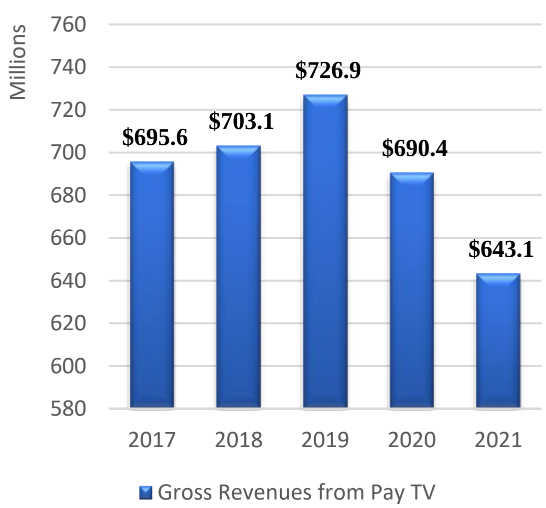

Figure 99 Pay TV gross revenues from 2017 to 2021

Most of the revenues generated in the pay TV market were derived from digital technologies, as depicted in Figure 100. Digital pay TV revenues accounted for TT$629.6 million, or 97.9%, of total revenues. The remaining 2.1% of revenues were acquired through analogue pay TV services and amounted to TT$13.5 million.

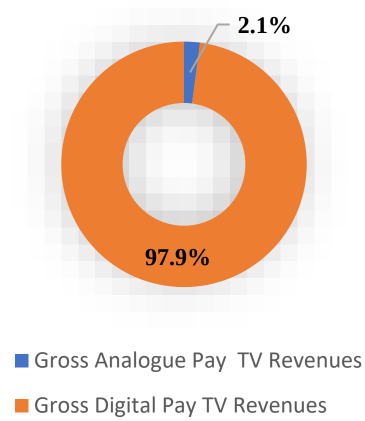

Figure 100 Pay TV revenues by type for 2021

[55] Revenues include income generated from connection, re-connection, installation and usage.

6.3.4 Pay TV Market Concentration

The HHI, which estimates the level of concentration within the market, is calculated as the sum of the squares of the market share[56] of all service providers in the market.

The first quarter of 2021 registered an index score of 3,273 – the lowest for the year. The level of concentration climbed in the second quarter to 3,319, dipped to 3,317 by the third quarter, and fell further to 3,301 in the final quarter.

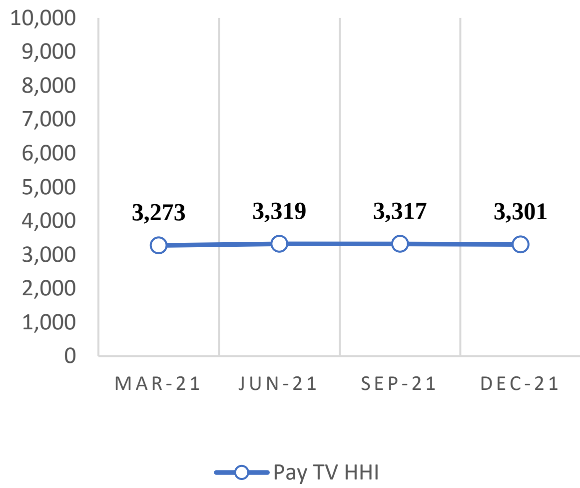

Figure 101 Quarterly HHI for the pay TV market in 2021

As highlighted in Figure 102, the HHI for the pay TV market has risen steadily over the past five years. The HHI for 2021 was 3,301, which represented an increase of 100 points, or 3.1%, from 2020.

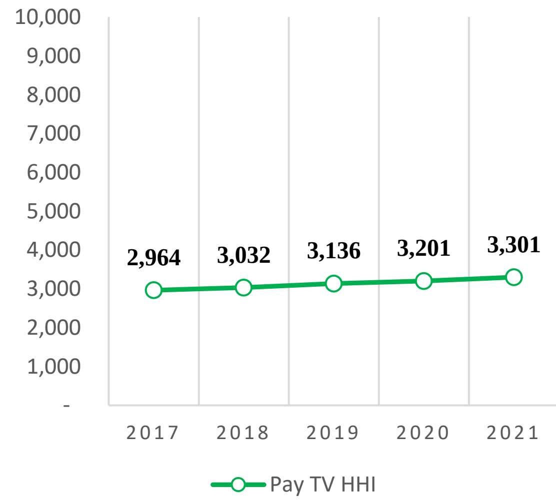

Figure 102 Annual HHI for the pay TV market from 2017 to 2021

[56] The number of basic package subscriptions was used to determine the market share of the service providers.

6.3.5 Pay TV Average Revenue per User (ARPU)

The ARPU is calculated by dividing gross revenues by the number of monthly subscriptions. In 2021, the pay TV ARPU was TT$2,698 – a decrease of TT$142 per user from the previous year. This marked a 5% decline in the average revenues generated by each pay TV subscription.

Figure 103 shows that the pay TV ARPU rose consistently over 2017 and 2018, before peaking in 2019 with TT$2,952. Since then, the ARPU has recorded consecutive years of decline, with 2021 registering the lowest figure across the last five years.

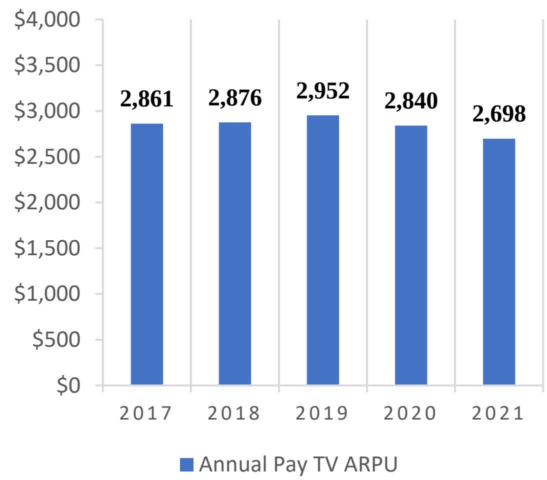

Figure 103 Pay TV ARPU from 2017 to 2021

Appendix I: Domestic Telecommunications and Selected Broadcasting Statistics

Table 9 Domestic telecommunications and selected broadcasting statistics

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
General	Population (millions)	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4	**1.4**
	Telecommunications and Broadcasting revenues (US$ million)	775.3	685.2	713.1	737.0	834	864.4	881.5	876.7	836.0	771.8[57]	832.1	740.7	697.1	**741.7**
	Total telephone subscriptions ('000s)	2,120.9	2,149.6	2,187.6	2,117.7	2,169.8	2,235.2	2,270.4	2,393.2	2,471.6	2,349.3	2,290.3	2,496.0	2,311.9	**2,338.3**
	Total telephone penetration	163.2.1	164.3	167.2	160.7	163.8	168.7	171.4	180.7	186.6	177.3	172.9	183.0	169.2	**171.0**
Fixed Voice	Fixed voice subscriptions ('000s)	314.8	303.2	293.3	291.5	286.1	291.3	289.8	269.8	305.7	318.7	317.7	332.3	323.9	**341.4**
	Fixed voice penetration	24.1	23.2	22.3	22.0	21.6	21.7	21.7	20.0	22.6	23.5	23.4	24.4	23.7	**25.0**
	Fixed voice household penetration	73.3	70.1	67.5	67.1	55.3	56.2	56.6	52.5	62.1	66.3	66.7	71.0	69.7	**72.3**
	Average revenue per user (ARPU) US$	486.5	403.5	411.5	417.3	430.5	413.1	410.7	424.2	402.4	359.0	272.4	235.6	214.1	**149.1**
	Fixed voice subscription growth (%)	2.4	-3.7	-3.3	-0.6	-1.9	1.6	-0.7	-6.3	13.3	4.2	-0.3	4.6	-2.5	**5.4**

57 Telecommunications revenues for 2017 were revised from the US$758.1 million previously reported to US$771.8.

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Mobile	Mobile subscriptions ('000s)	1,806.1	1,846.3	1,894.2	1,826.2	1,883.7	1,943.9	1980.6	2,123.4	2,165.8	2,031	1,972.6	2,163.7	1,988.0	**1,996.8**
	Mobile penetration	138.0	141.1	143.8	138.6	142.2	146.4	149.1	157.3	160.0	150.0	145.1	158.6	145.5	**146.0**
	Average revenue per user (ARPU) US$	197.0	170.0	164.0	173.0	188.0	189.0	174.5	147.1	136.8	113.0	89.0	70.7	65.1	**70.7**
	Mobile subscription growth (%)	19.6	2.2	2.6	-3.6	3.1	3.2	1.9	7.2	2.0	-6.2	-2.9	9.7	-7.9	**0.5**
Internet	Total Internet subscriptions[58] ('000s)	129.6	238.3	309.9	325.2	646.7	682.3	820.1	925.2	1001.7	1031.6	1,017.9	992.7	1,147.0	**1,190.7**
	Fixed Internet subscriptions [59] ('000s)	114.1	145.0	171.1	192.0	224.2	231.7	249.6	279.8	294.4	327.0	341.3	339.4	376.8	**370.9**
	Mobile Internet subscriptions [60] ('000s)	15.6	93.3	138.8	133.2	422.5[61]	450.6	570.5	645.4	707.3	704.6	678.6	653.3	770.2	**819.8**
	Fixed broadband subscriptions [62] ('000s)	85.4	130.1	162.9	187.9	221.3	229.6	248.1	278.5	294.3	326.8	341.1	339.3	376.8	**370.9**
	Fixed Internet users[63] ('000s)	456.0	579.8	639.3	724.5	685.6	704.3	757.8	851.1	900.7	1001.4	1,051.4	1,059.1	1,174.2	**1,165**
	Fixed Internet penetration	8.7	11.1	13.0	14.6	16.9	17.4	18.7	21.1	21.7	24.2	25.1	24.9	27.6	**27.1**

[58] Total Internet subscriptions are the sum of fixed Internet subscriptions and mobile postpaid Internet subscriptions.

[59] Fixed Internet subscriptions are the total number of subscriptions with fixed wired or fixed wireless Internet access.

[60] Mobile Internet subscriptions from 2003 to 2011 include postpaid mobile customers who subscribe to monthly Internet airtime and who are billed accordingly.

[61] Mobile Internet subscriptions from 2012 onwards include prepaid and postpaid mobile Internet users.

[62] Fixed broadband subscriptions are the number of Internet subscriptions with access to download speeds of 256 kbit/s or higher.

[63] Fixed Internet users are the number of persons who regularly use fixed Internet services.

	Mobile Internet penetration	1.2	7.1	10.5	10.1	31.9	33.9	43.0	47.8	52.2	52.0	49.9	47.9	56.3	**59.9**
	Fixed Internet users penetration	34.9	44.3	48.5	55.0	51.8	53.0	57.1	63.1	57.2	74.0	77.4	77.6	85.9	**85.2**
	Fixed Internet household penetration	21.4	40.1	49.6	52.8	52.1	54.2	58.3	65.4	69.3	76.9	80.8	79.9	88.6	**88.0**
	Average revenue per user (ARPU) US$ for fixed Internet	491.8	433.2	409.9	431.9	422.8	442.5	448.6	430.3	470.5	417.5	492.7	510.8	475.0	**487.5**
	Fixed Internet subscription growth (%)	38.9	27.1	18.0	12.2	16.7	3.3	7.8	12.1	5.2	11.1	4.4	-0.5	11.0	**-2.0**

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
International Traffic	International: outgoing minutes (millions)	304.3	259.2	282.9	274.5	263.5	277.9	268.3	247.2	170.9	125.2	125.9	79.7	58.5	**50.0**
	International: incoming minutes (millions)	375.4	399.4	358.5	256.2	245.7	234.8	234.1	199.2	202.7	192.9	127.1	91.9	95.5	**74.6**
	Inbound/outbound int'l traffic ratio	1.2	1.5	1.3	0.93	0.93	0.84	0.87	0.81	1.2	1.5	0.99	1.2	1.6	**1.6**
Pay TV	Pay TV subscriptions ('000s)	163.0	179.6	178.9	187.8	198.7	209.3	228.8	232.8	248.4	246.7	234.7	249.8	242.4	**237.8**
	Pay TV penetration	14.2	13.7	13.6	14.1	14.8	15.8	17.2	17.2	18.3	18.2	17.3	18.3	17.7	**17.4**
	Subscription TV household penetration	47.5	52.3	52.1	54.0	48.2	52.1	57.0	58.0	61.9	61.5	58.5	62.2	60.4	**59.2**
	Average revenue per user (ARPU) US$	337.0	404.9	431.2	468.6	505.5	520.8	493.2	497.7	486.8	425.2	427.5	435.4	418.9	**397.3**
	Pay TV subscription growth	12.5	10.2	-0.4	5.0	5.8	5.3	9.3	1.7	6.7	-0.6	-4.9	6.4	-3.0	**-1.9**

Appendix II: List of Concessionaires and Type of Concessions as at December 2021

CONCESSIONAIRE	NETWORK AND/ OR SERVICE	TERRITORY	TYPE	TERM	DATE OF GRANT	EXPIRY DATE	FREQUENCY/ SPECTRUM
FIXED TELECOMMUNICATIONS							
Air Link Communications	Public Domestic Fixed Telecommunications Services via a Public Domestic Fixed Telecommunications Network (Wired)	Niche - Princes Town and Environs	Type 2	10 Years	1 May 2020	30 April 2030	N/A
Amplia Communications Limited	Public Domestic Fixed Telecommunications Services via a Public Domestic Fixed Telecommunications Network (Wired)	National	Type 2	10 Years	1 December 2019	30 November 2029	N/A
Columbus Communications Trinidad Limited	Public Domestic Fixed Telecommunications Services via a Public Domestic Fixed Telecommunications Network (Wired)	National	Type 2	10 Years	5 January 2016	4 January 2026	N/A
Digicel (Trinidad and Tobago) Limited	Public Domestic Fixed Telecommunications Services via a Public Domestic Fixed Telecommunications Network (Wired)	National	Type 2	10 Years	3 October 2014	2 October 2024	N/A
Green Dot Limited	Public Domestic Fixed Telecommunications Services via a Public Domestic Fixed Telecommunications Network (Wireless)	National	Type 2	10 Years	1 October 2017	30 September 2027	N/A
Independent Cable Network of Trinidad & Tobago Limited	Public Domestic Fixed Telecommunications Services via a Public Domestic Fixed Telecommunications Network (Wired)	Major Territorial	Type 2	10 Years	1 November 2016	31 October 2026	N/A
Lisa Communications Limited	Public Domestic Fixed Telecommunications Services via a Public Domestic Fixed Telecommunications Network (Wireless)	National	Type 2	10 Years	1 May 2020	30 April 2030	N/A
Mora's Weather Network	Public Domestic Telecommunications Services via a Public Domestic Fixed (Wireless) Telecommunications Network	Niche - Lopinot	Type 2	10 Years	10 April 2019	9 April 2029	N/A
Network Technologies Limited	Public Domestic Fixed Telecommunications Services via a Public Domestic Fixed Telecommunications Network	Niche - Mayaro and Guayaguayare	Type 2	10 Years	5 January 2016	4 January 2026	N/A
NOVO Communications Limited	Public Domestic Fixed Telecommunications Services via a Public Domestic Fixed Telecommunications Network (Wired)	National	Type 2	10 Years	4 February 2020	3 February 2030	N/A
Open Telecom Limited	Public Domestic Fixed Telecommunications Services via a Public Domestic Fixed Telecommunications Network (Wireless)	National	Type 2	10 Years	1 May 2020	30 April 2030	N/A
PBS Technologies (Trinidad) Limited *(formerly Massy Technologies Infocom [Trinidad] Limited)*	Public Domestic Fixed Telecommunications Services via a Public Domestic Fixed Telecommunications Network (Wireless)	National	Type 2	10 Years	1 May 2020	30 April 2030	N/A
Prism Services (Trinidad) Limited	Public Domestic Fixed Telecommunications Services	National	Type 4	10 years	29 July 2013	28 July 2023	N/A

FIXED TELECOMMUNICATIONS (Cont'd)							
RVR International Limited	Public Domestic Fixed Telecommunications Services via a Public Domestic Fixed Telecommunications Network (Wired)	National	Type 2	10 Years	20 May 2014	19 May 2024	N/A
Telecommunications Services of Trinidad and Tobago Limited	Public Domestic Fixed Telecommunications Services via a Public Domestic Fixed Telecommunications Network (Wired and Wireless)	National	Type 2	10 Years	31 December 2015	30 December 2025	N/A
TRICO Industries Limited	Public Domestic Fixed Telecommunications Services via a Public Domestic Fixed Telecommunications Network	Minor Territorial	Type 2	10 Years	1 September 2016	31 August 2026	N/A
Wired Technologies Limited	Public Domestic Fixed Telecommunications Services via a Public Domestic Fixed Telecommunications Network (Wired)	Niche - Santa Flora and Environs	Type 2	10 years	15 May 2014	14 May 2024	N/A
MOBILE TELECOMMUNICATIONS							
Digicel Trinidad and Tobago Limited	Public Domestic Mobile Telecommunications Services over a Public Domestic Mobile Telecommunications Network	National	Type 2	10 Years	31 December 2015	30 December 2025	N/A
Telecommunications Services of Trinidad and Tobago Limited	Public Domestic Mobile Telecommunications Services over a Public Domestic Mobile Telecommunications Network	National	Type 2	10 Years	31 December 2015	30 December 2025	N/A
INTERNATIONAL TELECOMMUNICATIONS							
Amplia Communications Limited	Public International Telecommunications Services via a Public International Telecommunications Network	N/A	Type 2	10 Years	4 April 2016	3 April 2026	N/A
Columbus Networks International (Trinidad) Limited	Public International Telecommunications Services via a Public International Telecommunications Network	N/A	Type 2	10 Years	16 February 2017	15 February 2027	N/A
Digicel Trinidad and Tobago Limited	Public International Telecommunications Services via a Public International Telecommunications Network	N/A	Type 2	10 Years	31 December 2015	30 December 2025	N/A
Green Dot Limited	Public International Telecommunications Services via a Public International Telecommunications Network	N/A	Type 2	10 Years	1 October 2017	30 September 2027	N/A
Lisa Communications Limited	Public International Telecommunications Services via a Public International Telecommunications Network	N/A	Type 2	10 Years	1 September 2016	31 August 2026	N/A
NOVO Communications Limited	Public International Telecommunications Services	N/A	Type 4	10 Years	4 February 2020	3 February 2030	N/A
Open Telecom Limited	Public International Telecommunications Services via a Public International Telecommunications Network	N/A	Type 2	10 Years	5 January 2016	4 January 2026	N/A
Southern Caribbean Fibre Limited	Public International Telecommunications Network	N/A	Type 1	10 Years	17 August 2016	16 August 2026	N/A
Telecommunications Services of Trinidad and Tobago Limited	Public International Telecommunications Services via a Public International Telecommunications Network	N/A	Type 2	10 Years	31 December 2015	30 December 2025	N/A

SUBSCRIPTION TELEVISION BROADCASTING							
Air Link Communications	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	Niche - Princes Town and Environs	Type 5	10 Years	1 May 2020	30 April 2030	N/A
Amplia Communications Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	24 August 2014	23 August 2024	N/A
Columbus Communications Trinidad Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	5 January 2016	4 January 2026	N/A
Digicel Trinidad and Tobago Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	18 March 2015	17 March 2025	N/A
DirecTV Trinidad Limited	Subscription Broadcasting Service (direct from Satellite only)	National	Type 5	10 Years	28 February 2016	27 February 2026	N/A
Green Dot Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	11 July 2018	10 July 2028	N/A
Independent Cable Network of Trinidad & Tobago Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	Major Territorial	Type 5	10 Years	1 November 2016	31 October 2026	N/A
Network Technologies Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	Niche - Mayaro and Guayaguayare	Type 5	10 Years	5 January 2016	4 January 2026	N/A
Open Telecom Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	30 October 2013	29 October 2023	N/A
RVR International Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	20 May 2014	19 May 2024	N/A
Telecommunications Services of Trinidad and Tobago Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	31 December 2015	30 December 2025	N/A
TRICO Industries Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	Minor Territorial	Type 5	10 Years	1 September 2016	31 August 2026	N/A
Wired Technologies Limited	Subscription Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	Niche - Santa Flora and Environs	Type 5	10 years	15 May 2014	14 May 2024	N/A
FREE-TO-AIR TELEVISION BROADCASTING							
Advance Community Television Network Limited	Broadcasting Services (Free to Air Television)	Major Territorial	Type 5	10 Years	1 March 2016	28 February 2026	UHF 25
C.C.N. Television Limited	Broadcasting Services (Free to Air Television)	National	Type 5	10 Years	1 March 2016	28 February 2026	VHF 6, UHF 18, 19
Guardian Media Limited	Broadcasting Services (Free to Air Television)	National	Type 5	10 Years	14 April 2018	13 April 2028	VHF 12, UHF 14, 22
Parliament of the Republic of Trinidad and Tobago	Broadcasting Services (Free to Air Television)	National	Type 5	10 Years	23 October 2018	22 October 2028	VHF 11, UHF 26, 29
*****TTT Limited	Broadcasting Services (Free to Air Television)	National	Type 5	10 Years	23 February 2016	22 February 2026	VHF 9, UHF 13, 20

FREE-TO-AIR RADIO BROADCASTING							
British Broadcasting Corporation	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	15 June 2017	14 June 2027	98.7FM
Central Broadcasting Services Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	21 September 2016	20 September 2026	102.7 FM
Central Radio FM90 Limited	Broadcasting Services (Free to Air FM)	Major Territorial	Type 5	10 Years	23 February 2016	22 February 2026	90.5 FM
Family Focus Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2016	22 February 2026	98.1 FM
Gem Radio Five Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2016	22 February 2026	93.5 FM
Gem Radio Five Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2016	22 February 2026	95.5 FM
Gem Radio Five Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2016	22 February 2026	107.1 FM
Gem Radio Five Limited	Broadcasting Services (Free to Air FM)	Major Territorial	Type 5	10 Years	23 February 2016	22 February 2026	92.3 FM
Gem Radio Five Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2016	22 February 2026	96.7 FM
Guardian Media Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2016	22 February 2026	95.1 FM
Guardian Media Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2016	22 February 2026	105.1 FM
Guardian Media Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2016	22 February 2026	106.1 FM
Guardian Media Limited	Broadcasting Services (Free to Air FM)	Major Territorial	Type 5	10 Years	23 February 2016	22 February 2026	106.5 FM
Guardian Media Limited	Broadcasting Services (Free to Air FM)	Major Territorial	Type 5	10 Years	23 February 2016	22 February 2026	100.5 FM
Guardian Media Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2016	22 February 2026	99.5 FM
Heritage Communications Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2016	22 February 2026	101.7 FM

FREE-TO-AIR RADIO BROADCASTING (Cont'd)							
Kaisoca Productions Limited	Broadcasting Services (Free to Air FM)	Minor Territorial	Type 5	10 Years	23 February 2016	22 February 2026	92.7 FM
KMP Music Group Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2019	22 February 2029	90.1 FM
Parliament of the Republic of Trinidad and Tobago	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	1 March 2017	28 February 2027	105.5 FM
PBCT Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2016	22 February 2026	104.7 FM
Radio News Network	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2016	22 February 2026	104.1 FM
Radio Vision Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2016	22 February 2026	102.1 FM
Superior Infinite Productions Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2016	22 February 2026	94.1 FM
Telemedia Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2016	22 February 2026	97.1 FM
Toco Multicultural Foundation for Integrated Development	Broadcasting Services (Free to Air FM)	Minor Territorial/ Niche - Toco and environs	Type 5	10 Years	1 March 2016	28 February 2026	106.7 FM
Trico Industries Limited	Broadcasting Services (Free to Air FM)	Minor Territorial	Type 5	10 Years	10 October 2012	9 October 2022	89.5 FM
Trinibashment Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2016	22 February 2026	91.9 FM
Trinidad and Tobago Radio Network Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2016	22 February 2026	96.1 FM
Trinidad and Tobago Radio Network Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2016	22 February 2026	107.7 FM
Trinidad and Tobago Radio Network Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2016	22 February 2026	94.7 FM
TTT Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2016	22 February 2026	91.1 FM
TTT Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2016	22 February 2026	99.1 FM

FREE-TO-AIR RADIO BROADCASTING (Cont'd)							
TTT Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2016	22 February 2026	100.1 FM
United Cinemas Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2016	22 February 2026	103.5 FM
Upward Trend Entertainment Limited	Broadcasting Services (Free to Air FM)	National	Type 5	10 Years	23 February 2016	22 February 2026	97.5 FM
Winfield Aleong Broadcasting Company Limited	Broadcasting Services (Free to Air FM)	Major Territorial	Type 5	10 Years	23 February 2016	22 February 2026	103.1 FM
TELEVISION BROADCASTING SERVICE VIA CABLE							
Central Broadcasting Services Limited	Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	18 March 2013	17 March 2023	N/A
Darut Tarbiyah	Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	7 May 2013	6th May 2023	N/A
Environmental Management Authority	Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	3 September 2015	2 September 2025	N/A
Gayelle Limited	Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	21 February 2019	20 February 2029	N/A
Guardian Media Limited	Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	21 February 2019	20 February 2029	N/A
IBN Communications Company Limited	Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	11 October 2012	10 October 2022	N/A
Ice Media Group Limited	Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	12 August 2015	11 August 2025	N/A
Liming Monkey	Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	21 February 2019	20 February 2029	N/A
Living Water Community	Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	7 May 2013	6 May 2023	N/A
Q Network Limited	Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	19 March 2021	18 March 2031	N/A
Sankhya Television Limited	Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	7 May 2013	6 May 2023	N/A

TELEVISION BROADCASTING SERVICE VIA CABLE (Cont'd)							
Synergy Entertainment Network Limited	Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	21 February 2019	20 February 2029	N/A
SWAHA Media Limited *(formerly Video Associates Limited)*	Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	23 February 2016	22 February 2026	N/A
Twenty Four Seven News and Sports Limited	Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	21 February 2019	20 February 2029	N/A
WI Sports	Broadcasting Service (over a Public Domestic Fixed Telecom. Network only)	National	Type 5	10 Years	21 February 2019	20 February 2029	N/A

***Channels 4 & 16 (UHF 4, VHF 16) assigned to TTT Limited for the Ministry of Education's approved television-based learning programme per Cabinet Minute 21(2nd Session) dated 27th August 2020**

Appendix III: Tariffs

Information on service providers' tariffs can be found at the following websites:

- Airlink Communications: http://airlinktt.net/
- Amplia Communications Limited: https://amplia.co.tt/
- Bmobile: https://bmobile.co.tt/
- Columbus Communications Trinidad Limited: https://discoverflow.co/trinidad/
- Digicel (Trinidad & Tobago) Limited: https://www.digicelgroup.com/tt/en.html
- DirecTV Trinidad Limited: http://www.directvcaribbean.com/tt/
- Green Dot Limited: http://www.gd.tt/
- Independent Cable Network of Trinidad & Tobago Limited: http://www.icntt.com/
- Lisa Communications Limited: https://www.lisacommunications.com/
- Network Technologies Limited: http://www.mayarocabletv.com/
- Novo Communications Limited: https://novocommunications.net/
- PBS Technologies (Trinidad): https://www.pbstechgroup.com/

Appendix IV: Glossary of Terms

The following definitions are included to assist readers of this Report:

Terms	Definitions
Average revenue per user	A measure of the average revenue generated by one subscriber
Broadband	Internet speeds ≥ 256 kbits/s
Concession	A legal instrument granted by the Minister responsible for telecommunications and broadcasting to authorise the operation of a public telecommunications network and/or the provision of any public telecommunications service or broadcasting service
Free-to-air (FTA)	Relates to television and radio services, broadcast in clear (unencrypted) form on standard public or commercial networks, for which viewers do not have to subscribe or pay
Gross domestic product (GDP)	A measure of the total value of all goods and services produced in a given country in a given time period, usually a year, excluding net property income from abroad
Herfindahl-Hirschman Index	A tool that measures the concentration of firms within a particular market. It is computed as the sum of the squares of the market share of all firms in the market.
Interconnection	The linking of public telecommunications networks and public telecommunications services, to allow the users of one provider of a public telecommunications service to communicate with the users of another provider of a public telecommunications service, and to access the services provided by such other provider

International settlement rate	The share of the accounting rate paid by the public telecommunications operator in another country to cover the costs of carrying the originating public telecommunications operator's traffic on its network
Licence	A legal instrument granted by the Authority to authorise the operation or use of any radiocommunications service or any radio-transmitting equipment, including that on board any ship, aircraft or other vessel in the territorial waters or airspace of Trinidad and Tobago
Mobile voice subscription	Refers to an activated (prepaid or postpaid) SIM card that enables the user to make and/or receive a call
Narrowband	Internet speeds < 256 kbits/s
Off-net traffic	Refers to traffic originating on a service provider's network and terminating on another network
On-net traffic	Refers to traffic originating on a service provider's network and terminating on the same network
Pay TV	Refers to terrestrial multichannel TV services, such as cable TV, Internet protocol television (IPTV), digital terrestrial TV (DTT) and direct-to-home (DTH) satellite antenna multichannel TV, receiving broadcasting directly from satellites. Pay TV is also known as subscription TV.
Penetration rate	Defined as the number of persons per 100 inhabitants who subscribe to telecommunications and/or broadcasting services

Telecommunications Authority of Trinidad and Tobago

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