Appendix II: Decisions on Recommendations from the Targeted Stakeholder Consultation on the *Determination: Retail Domestic Mobile Telephony Market Definition*

The following summarizes the comments and recommendations received from the targeted stakeholder consultation, held on 23rd July 2020, on the *Determination: Retail Domestic Mobile Telephony Market Definition*, and the decisions made by the Telecommunications Authority of Trinidad and Tobago (the Authority).

The Authority wishes to express its appreciation to the following stakeholders for responding to the consultation:

1. TSTT

2. Digicel

Item	Section	Section Title	Stake-holder	Comments	Recommendations	TATT's Decision
1	1 1.1 1.2	Introduction Rationale Background	TSTT	In these sections of the document TATT discusses the rationale and gives the background for pursuing the definition of the boundaries of the market. In so doing, TATT refers to S(29) of the Act of 2001 (amended 2004). TATT also references its draft Price Regulation Framework, last consulted upon bilaterally, in 2009 and, provided at: https://tatt.org.tt/Portals/0/documents/Price%20Regulation%20Framework%20for%20Telecommunications%20Services%20FINAL1.pdf. While in its preamble the Act speaks to the establishment of "*a comprehensive and modern legal*	TSTT recommends that this consultation be immediately halted, and the inadequacy of the cited regulatory instruments are addressed. It is recommended that existing legislation be amended to reflect	Whilst appreciative of TSTT's feedback, the Authority does not agree with its position that the definition of the relevant boundaries of the domestic retail mobile market should be halted. The Authority provides further clarity and context below regarding the difference of its opinion from TSTT's.

				framework", the existing framework has not kept a pace of technological developments. According to the Act, the foundation upon which the stated draft framework document is built: ***29.*** *(1) Prices for telecommunications services, except those regulated by the Authority in accordance with this section, shall be determined by providers in accordance with the principles of supply and demand in the market.* *(2) The Authority may establish price regulation regimes, which may include setting, reviewing and approving prices, in any case where—* *(a) there is only one concessionaire operating a public telecommunications network or providing a public telecommunications service, or where one concessionaire has a dominant position in the relevant market;* *(b) a concessionaire operating a public telecommunications network or providing a public telecommunications service cross subsidises another telecommunications service provided by such concessionaire; or* *(c) the Authority detects anti-competitive pricing or acts of unfair competition.* As can be seen, the Act (and by extension the framework document when finalised), gives TATT the power to, inter alia, establish price regulation regimes under specific circumstances and for the purposes of this consultation, "*where one concessionaire has a dominant position in the relevant market*".	the realities of the current digital age and future developments. Further, a clear distinction must be made between the identification of dominance or a dominant position and an abuse of dominance. To present both items as though they are one and the same is to unfairly pronounce against an operator who may be identified as being dominant for a specific time based on structural considerations and not having abused its position of dominance.	The Authority advises that it is acting within its mandate to review markets and assess for dominance, in accordance with section 29 of the Telecommunications Act, Chap. 47:31 (the Act). The Authority further clarifies that section 29 (8) of the Act can be upheld, irrespective of the passage of the revised pricing regulation and authorisation frameworks, which is dependent on the promulgation (pending) of the Act amendments. It should be noted that, upon promulgation of the Act amendments, the pricing regulation framework will be updated to reflect current market realities, inclusive of technological advancements, and shared with stakeholders, in conformance with the

				In this consultative document, TATT states that "***the Authority must first identify a market failure in the relevant market, by demonstrating that one or more concessionaires hold(s) a dominant position in a relevant market***". Based on this statement, it appears that TATT has equated the existence of a dominant position in a market with a market failure. This is an unfortunate assumption, guilty of non sequitur with potentially damaging commercial consequences, if not rectified immediately. A proper distinction between and understanding of dominance, abuses of dominance and market failures are critical for authorities (usually competition authorities), as erroneous intervention would be deleterious to the operator, consumers and the market and economy. Further, and notwithstanding TATT's reference to the requirement of TATT to identify a "market failure" prior to imposing ex-ante price regulation, the deafening silence of both of TATT's referenced documents as it relates to even a basic discussion of the term "market failure" cannot go unnoticed. It is clear that our regulatory instruments have not adequately prepared TATT to address this matter, and a potentially harmful regulatory lacuna exists. Notwithstanding the obvious and apparent inadequacy of the cited regulatory instrument(s), (it is to be noted that the Framework document is incomplete), TATT ought to be aware that many established jurisdictions have enshrined in their regulatory and legal systems		*Procedures for Consultation in the Telecommunications and Broadcasting Sectors of Trinidad and Tobago* (Consultation Procedures), subsection 2.1. (i) - (vii). Market definition is a necessary and intermediate first step in framing the discussion of competition and regulation concerns[1]. It plays a significant role in establishing whether a firm has dominance or significant market power, providing a framework for ex-post competition analysis and assessing whether ex-ante regulatory intervention is needed[2]. Assessments of market power and analyses of competitive effects are

[1] Peitz and Franck, 2019. Market Definition and Market Power in the Platform Economy Report. Centre on Regulation in Europe (CERRE)

[2] Maher et al, 2016. Resetting Competition Policy Framework for the Digital Economy. GSMA. October 2016

				rules and regulations which regulate or prohibit the abuse of dominance. There is no well-established jurisdiction however which seeks to make a position of dominance synonymous with a market failure as alluded to by TATT in this document and no other which seeks to unfairly impose ex-ante regulation where dominance has been identified, as the Act seeks to do. A designation of dominance is not an indication that the associated entity has also abused its position of dominance hence resulting in a market failure. A designation of dominance when discovered merely implies that the relevant operator has the power to behave to an appreciable extent independently of its competitors, customers and consumers, in the short to medium term and in the market identified...it does not mean that they have in fact so behaved. Generally, competition law provisions developed by a competent competition authority, clearly set the provisions regarding, among other things, the specific practices which determine an abuse of market power which may negatively affect competition in the market and the effects arising therefrom and distinguishes this from legitimate competitive action. These do not exist in our jurisdiction. Focused on a legacy environment for the development of telecommunications, the very nature of the document did not contemplate the modern digital era.		undertaken with reference to the boundaries set by the relevant market definition. Defining the boundaries of the relevant markets (market definition) is the first phase of a mobile dominance assessment in the domestic retail mobile market of Trinidad and Tobago, and it is in conformance with section 29 (8) of the Act, which states: “For the purposes of this Part and wherever the issue of dominance otherwise arises in the Act, the Authority may determine that an operator or provider is dominant where, individually or jointly with others, it enjoys a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers and, for such determination, the

[redacted]				
	2009	2019	Change in minutes	% change
[redacted]				
Total domestic mobile traffic minutes	5,076	3,750	-1326.30	-26%
[redacted]				
	2009	2019	Change in minutes	% change
[redacted]				
Total International traffic minutes	658.6	171.6	-487.00	-74%
[redacted]				
	2009	2019	Change in minutes	% change
[redacted]				
Total domestic mobile traffic minutes	1493.10	703.30	-789.80	-53%
[redacted]				
	2009	2019	[redacted]	
[redacted]				

Source: TATT's Annual Market Data Reports 2009 and 2019

Authority shall take into account the following factors:

(a) the relevant market;

(b) technology and market trends;

(c) the market share of the provider;

(d) the power of the provider to set prices;

(e) the degree of differentiation among services in the market;

(f) any other matters that the Authority deems relevant."

The Authority notes TSTT's comment and agrees that a clearer and more precise statement is required. This statement will capture succinctly that, for anti-competitive practices to be accorded the proper treatments in the

						relevant market, there has to have been a definition of the relevant boundaries of the market, followed by a dominance assessment. Whilst this goes beyond the scope of this market definition exercise, the Authority is of the view that finding an operator to be holding a position of dominance does not necessarily equate to it having behaved anti-competitively. However, the operator's dominant position enables it to act independently of other operators in that market and may likely facilitate anti-competitive behaviour (i.e., to abuse its dominant position). Accordingly, the Authority's process for market intervention involves the detection of a dominant position and underlying market failures before prescribing market remedies. The Authority

						wishes to reiterate that the ability and incentive of dominant operators to engage in anti-competitive behaviour is sufficient to warrant ex-ante regulation. That is, as part of its competition assessment, the Authority does not need to demonstrate that anti-competitive conduct has actually occurred in order to impose ex-ante remedies. However, where signs of market failure/anti-competitive behaviour/abuse of dominance are identified by the Authority, appropriate intervention in the market will be made, in accordance with the Authority's legislative frameworks. The Authority will amend the text to include finding abuse of dominance to be a prerequisite for market

						intervention, as is its practice. By virtue of the provenance of the quantitative (September 2014–June 2018) and qualitative (2014/2015–2017/2018) data requests sent to TSTT, and the responses provided to the Authority by same, the Authority is confident that it has duly accounted for the advancements of the modern digital era in its assessment of the relevant boundaries of the domestic retail mobile market in Trinidad and Tobago. The Authority would also like to bring to TSTT's attention that, prior to conducting the dominance assessment in the domestic retail mobile market, the Authority will review its market definition and confirm that it remains

						valid and reflective of the current market environment, in accordance with its periodic review process. As such, this review will take into consideration advancements in technology. Approvals for the next phase are being processed and reviewed internally by management.
2	1	Introduction	TSTT	Notwithstanding the comments above, TATT is reminded that five (5) years ago, in 2015, TATT invited comments on another round of Public Consultation on the Draft Revised Price Regulation Framework, based on a request made by operators in 2013. TSTT on October 2, 2015, after dedicating a significant amount of time and resources, submitted comprehensive responses to this consultation. However, to date, TATT has been silent on that round of consultation. No DoRs have been published. No responses have been shared. No discussion has been had. TATT does not even refer to that round of consultation in this document. Where have our efforts gone? It is to be noted that had TATT completed the 2015 consultation on the draft regulations, this would require updating today as, based on TATT's own statistics, among other things, the document would now be outdated. A sample of the market changes based on TATT's reports is provided below.	TSTT requires that before TATT proceeds any further, TATT should provide an update on what has happened to that exercise. Further, it is to be noted that the reference to the 2009 version of the draft pricing regulation framework document here makes this consultation a non-starter.	The Authority appreciates TSTT's comments and provides clarification below. The Authority advises that it is acting within its mandate to review markets and assess for dominance, in accordance with section 29 of the Act. The Authority further clarifies that section 29 (8) of the Act can be upheld, irrespective of the passage of the revised pricing regulation and

				[redacted] 2015 2019 Change in minutes % chang [redacted] Total domestic mobile traffic minutes 3,914 3750.0 -164.00 -4 [redacted] 2015 2019 Change in minutes % chang [redacted] Total International traffic minutes 446.4 171.6 -274.80 -62 [redacted] 2015 2019 Change in minutes % chang [redacted] Total domestic mobile traffic minutes 1,248 703.30 -544.90 -44 [redacted] 2015 2019 [redacted]	This consultation should be withdrawn, and the relevant foundation documents be updated as a matter of urgency. TATT to halt this consultation and revise and update the draft pricing regulations framework with new consultations.	authorisation frameworks, which is dependent on the promulgation (pending) of the Act amendments. It should be noted that, upon promulgation of the Act amendments, the pricing regulation framework will be updated to reflect current market realities, inclusive of technological advancements, and this will be shared with stakeholders, in conformance with the Consultation Procedures, subsection 2.1. (i) - (vii).
3	1.1	Rationale	TSTT	TATT justifies the issuance of this consultation based on: 1) the need to impose ex-ante price regulation and 2) creating a “reference point” for monitoring competitive dynamics in retail markets. However, no evidence is provided as to why it believes there might be market failure that may need to be addressed by ex-ante regulation. Furthermore, TATT is perfectly capable of monitoring competitive dynamics	TATT should justify why this proceeding is necessary.	The statements cited by TSTT pertaining to the Authority’s justification for conducting an assessment of the relevant boundaries of the domestic retail mobile market have been taken out of context

				without this proceeding. See Comments on section 1.3 Purpose as well.		somewhat, in view of the following: 1) As explained above, in the context of item 1, a market definition exercise is a first step in the overall market review process, which allows the Authority to assess the competitive dynamics in those markets. Only if competition problems and dominance were to be identified within that market would the Authority consider the need for ex-ante regulation to address these market failures. At this point, the Authority has not made any reference to an already-identified market failure and thus need not impose any ex-ante regulation in the domestic retail mobile market. 2) It is well within any regulatory authority's remit

						to monitor competitive dynamics more generally in the sector it oversees, in order to understand the nature of competition. As set out in section 1.1 of the Determination, this approach allows for early identification of any potential issues related to the functioning of the market and therefore facilitates a timely resolution, subject to confirmation of the relevant market definition. This approach is in line with best practices adopted elsewhere, as regulatory authorities must understand the relevant markets and the competitive dynamics within them, to be able to assess whether there may be a need for any ex-ante intervention.

						As such, no specific potential market failures have been identified by the Authority within the retail domestic mobile market. Instead, such observations may only arise once the Authority has conducted the remaining steps of its market review, beginning with a competition assessment of the market defined in this determination
4	1.2	Background	TSTT	While for some analysis data from 2018 may be adequate, for others it is not. The manner in which consumers are using mobile technology is evolving quickly. Two years ago, in Trinidad & Tobago only 30% of mobile connections were broadband, now it is more than 60%. The use of OTT applications has expanded greatly. For example, WhatsApp users have increased from 1.5 billion to 2 billion worldwide. OTT usage in Trinidad and Tobago in the last two years is very likely to have grown significantly as well.	TATT should update its analysis that is dependent on internet-based voice and messaging and mobile broadband usage.	The Authority acknowledges that there is an inevitable lag between data collection and the publication of the Determination. As such, it is impossible for all the data presented in the Determination to be fully up to date at the time of publication. The Authority notes TSTT's observation that take-up of mobile technology in Trinidad and

						Tobago has risen in recent years. In relation to OTT services, TSTT also pointed to the growing take-up of WhatsApp services around the world and presented its understanding that OTT usage may have also increased in Trinidad and Tobago since the end of the period covered by the data collection exercise (without, however, presenting any evidence to support that latter statement). The Authority notes two important points here: 1) As this exercise pertains to the domestic mobile market in Trinidad and Tobago, it is important to focus on evidence of specific local take-up of OTT services. Global trends are not necessarily representative of the

						outcomes in Trinidad and Tobago. 2) TSTT has not provided any evidence to support its statement that there has been significant growth in OTT usage in Trinidad and Tobago within the last two years. The Authority advises that the conclusions set out in the Determination still hold, as the evidence presented by TSTT in relation to demand-side developments here does not change the findings set out in the Determination. Regardless of overall trends in take-up and usage of mobile broadband and OTT services, the behaviours reflected in survey responses suggest end users in Trinidad and Tobago do not consider OTT services to be

						substitutes for traditional mobile services. Increases in overall take-up of OTT services and greater consumption of mobile data are unlikely to change the wider market definition. This is due to end users who may consider switching between OTT services and domestic mobile services on a per-call basis. However, as OTT services require a (mobile) data connection, OTT services cannot substitute retail mobile services. Thus, OTT and retail mobile services are also not supply-side substitutes.
5	1.2	Background	TSTT	TATT makes all of its determinations on the basis of what has happened in the past. Best regulatory practice requires that market definition take into consideration the future development of the market.	TATT should review its assessments with a view to likely market developments in the future.	To some extent, the Authority must rely on historical data, including the most recent data available at the time of collection, as this is the only information available.

						Forecasts are subject to uncertainty and, although it is necessary to consider likely market developments more generally over the coming years, the forward-looking nature of the assessment does not extend to extrapolating trends in specific data points, such as call volumes. The Authority has taken future market developments into account, where possible, for example, barriers to entry now and in the near future; and customers' likely willingness to change their consumption habits significantly, given expectations of increased coverage. These considerations were assessed from both historical and forward-looking perspectives (with

						factual evidence only being available historically). Lastly, the Authority finds TSTT's request for the Authority to also assess future market developments to be at odds with the position taken by TSTT in its response to the qualitative information part of the Authority's data request. In particular, in response to the Authority's request to provide a market outlook over the coming three years, TSTT's reply was: "TSTT views this information as confidential and proprietary. Any projections are not factual. Are subject to change and will not be shared at this time" [p.4].
6	1.2	Background	TSTT	The consumer survey results are unlikely to give an accurate view of the mobile market. In addition to the fact mentioned above, i.e. that the manner in which consumers use mobile technology has changed significantly over the past two years, it appears that the sample itself is not representative of the population. For	TATT should either adjust the results of the survey to reflect the fact that its sample is skewed or, better yet,	The Authority notes that, regarding the social classification of the population, not all institutions will define

				example, TATT states (at footnote 7, page 14) that the sample mirrors the demographics in respect of gender, location, age and social class." However, the unskilled manual workers and other less well-educated workers/employee (Social grade category D) are 61% of the survey. Trinidad & Tobago official statistics indicate that the population with elementary occupations is only around 20% of the total.[3] This distortion can lead to serious error in conclusions about the degree of substitutability among products.	undertake the survey again, using a representative sample.	social class in the same way. Caribbean Market Research (CMR), the company which conducted the survey on behalf of the Authority, is a specialised market research company with a proven track record of conducting consumer surveys in Trinidad and Tobago and in the telecommunications sector. It is a member of ESOMAR, an organisation for market, social, and opinion researchers and, as such, follows its standards and code of ethics. These have been drafted jointly between ESOMAR and the International Chamber of Commerce and endorsed by major professional bodies globally. The ESOMAR standard is used by most, if not all, international market research agencies[4].

3 See 2nd Quarter 2018 Labour Force Bulletin for the results on labour force by employment status, occupational group and sex (Schedule OCC B) of the latest Continuous Sample Survey of Population of Central Statistical Office of Trinidad and Tobago at https://cso.gov.tt/subjects/continuous-sample-survey-of-population/

4 This also includes other market research companies such as A C Nielson, Gaither International, CID Gallup, IPSOS, Mercaplan, Kantar and TNS.

						It is pertinent to note that CMR's social class classification used to determine its survey sample is based on the occupation of a household's main wage earner, whereas the classification used by the Central Statistical Office (CSO), cited by TSTT, refers to survey participants themselves. The social class categorisation applied by CMR may therefore differ from that used by the CSO. To CMR's knowledge, the CSO stated the labour force information of the individuals that were interviewed. Secondly, the Authority notes that the occupations which correspond to a particular social class vary between the definitions according to CMR and the

						CSO. This may result in differences across the social class distributions reported by the CSO and CMR. The Authority also reviewed customers' propensity to switch based on the price and size of the hypothetical price change (p31–34 TATT–CMR Survey). TSTT is asked to note that subscribers to higher-priced plans (which may be inferred as higher-income subscribers) were less inclined to switch between mobile calls and OTT calls. Therefore, the survey having a potentially smaller proportion of high-priced subscribers (i.e., high-income subscribers) indicates that the results are not biased towards price-insensitive subscribers' results but includes a higher proportion of price-sensitive subscribers. Thus,

						the Authority's findings on switching between OTT calls and mobile calls may be considered optimistic and differs from the results which may be derived from TSTT's suggested income demographic. Consequently, amending the survey population such that a greater proportion of highly skilled/higher income subscribers were included (in line with TSTT's suggested demographic) would only reinforce or support the determination made by the Authority.
7	1.3	Purpose	TSTT	TATT lists five suppositions about the mobile sector (on page 16), which apparently underlie its rationale for conducting this proceeding. TATT does not provide explanation for these suppositions. For example, it provides no evidence of "notable" price rises, nor the relevance of standard price trends in an industry when promotions and increases in usage allowances are more prominent features of competition. It does not explain why it is concerned about the "sustainability of the telecommunications sector". It does not specify which	TATT should explain its suppositions about the market and why they lead to the necessity of conducting this market review.	As reflected in items 1 and 3 above, it is typical for a regulatory authority to conduct periodic reviews of markets to ensure it is up to date with developments in those markets and that any ex-ante regulation remains up to date and

				"global developments in technology" may affect mobile markets or why this may be informed by a market definition exercise. It appears to imply a dissatisfaction with the duopoly nature of the market structure but does so without clarification. It does not identify the "changes in consumer usage patterns" that it is concerned about.		targeted at prevailing bottlenecks. The Authority acknowledges TSTT's enquiries regarding the potential and observed technological and behavioural changes in the market. Below, the Authority expands on each of the points (i–v) from page 16 of the Determination, to address TSTT's queries. The Authority will also provide clarification in the Final Determination. **i. Notable price increases** Regarding the uncertainty associated with the price justification, TSTT is asked to recall the Authority's mandate to review tariffs (price and terms and conditions), in accordance with section 29 of the Act.

						This task is performed on an ongoing basis and involves prior notification of price increases by operators from 2015 to 2020. Averaged percentage price increases across retail mobile services for the aforementioned period are as follows: 2015: 30% 2016: 23% 2017: 86% 2018: 39% 2019: 12% 2020: n.d. Thus, both operators and the Authority are required to record, and hold communications of price

						increases in telecommunications services. Furthermore, the Authority publishes rates and terms and conditions of telecommunications services quarterly. **ii. Importance of the mobile market to the sustainability of the overall telecommunications sector** Reviewing the sustainability of the telecommunications sector in Trinidad and Tobago is in accordance with the Authority's mandate for the protection of consumers, the accessibility and affordability of telecommunications services, pursuant to section 3 (a), (b), (c), and (d). Additionally, mobile services reportedly

						engender environmental protection[5], disaster risk management best practices[6] and sustainability, globally[7]. As such, the Authority simply highlighted that the mobile sector is important to the telecommunications sector as a whole and that it is particularly important to ensure the market functions well.

5 https://www.itu.int/en/action/environment-and-climate-change/Pages/ITU-in-the-UN-Environmental-Agenda.aspx#:~:text=ITU%20addresses%20Goal%207%3A%20Affordable,and%20mitigation%2C%20improving%20energy%20efficiency%2C Accessed on 21st October 2020

6 https://blog.huawei.com/2020/08/05/how-itu-standardization-supports-climate-action/ Accessed on 21st October 2020

7 https://news.itu.int/icts-united-nations-sustainable-development-goals/ Accessed on 21st October 2020

						iii. Global developments in technology which may affect domestic mobile markets The Authority considers global developments in technology to be indicative of technological trends and advancements which may be adopted locally e.g., the proliferation of OTTs, 4G and 5G LTE technologies, and Wi-Fi offloading. It would have been imprudent for the Authority not to consider the impact of this variable in its determination of the relevant boundaries of the domestic retail mobile market of Trinidad and Tobago. The Authority has therefore assessed how developments like these might impact the relevant

						market definitions in Trinidad and Tobago. **iv. Changes in market share indicators** The Authority acknowledges that market shares will inevitably change to some degree over time. As such, it is important to consider any implications this might have for the relevant market definitions in Trinidad and Tobago. **v. Changes in consumer usage patterns** The Authority posits that measuring changes in consumer usage patterns (i.e., due to price and non-price factors) is a significant driver of the determination of relevant

						boundaries in the mobile market. Usage patterns, habits and preferences may change over time. Where consumer patterns are unchanged, relevant boundaries will remain static or fixed. Whether or not these have changed significantly can only be determined through analysis. Since such changes may impact substitution patterns or the ways in which consumers view various communications services, it is important to assess whether any such changes have impacted the relevant market definitions in Trinidad and Tobago. Lastly, the Authority in response to TSTT's comment goes on record to categorically refute TSTT's allegation. TSTT is also reminded that the Authority is in conformance with section

						18 (5) of the Act which states: "At all times the Authority shall, in the performance of its function and exercise of its powers, act in an objective, transparent and non-discriminatory manner."
8	1.5	Definition of Terms	TSTT	"Bolt-on/add-on" is referred to as a form of supplementary mobile "top-up" service. The term "Top-up" in the mobile industry has a very specific usage: replenishing a prepaid mobile account, usually without extending the validity period. Bolt-on or add-on service of the type TATT is defining, is additional service or functionality for a mobile service subscription.	TATT should modify the definition of "Bolt-on/add-on" to something like "a form of supplementary mobile service or functionality added to a mobile service subscription, offering some combination of mobile call minutes, messages and/or data for a specified price."	The Authority acknowledges TSTT's clarification of specific terms used in the Determination and will adjust the definition of "bolt-on/add-on" in the final version of the document accordingly, to avoid any confusion. The Authority, however, maintains that this does not change its market definition.
‘; [9	1.5	Definition of Terms	TSTT	The definition of the term "Off-net" is inconsistent with the definition of "On-net".	In order to be consistent with the definition of on-net and how the term is actually used in the	The Authority acknowledges TSTT's observation that the definitions of "off-net" and

					consultation, TATT should modify the definition to "a term used to describe a voice, data or video service, i.e., communication, between customers on different networks"	"on-net" are not fully consistent with one another in the Determination, although we are of the view that this would not affect stakeholders' understanding or interpretation of the document. The Authority will adjust the definition of the term "off-net" in the final version of the document accordingly.
10	1.5	Definition of Terms: Mobile access	TSTT	The Concession as well as the draft Pricing Regulations Framework guides to or extracts from the Authorization Framework, the list of telecommunications services relevant to the domestic industry. As per the established procedures, the Authorization Framework and draft Pricing Regulations Framework documents should be revised to include the term mobile access. Notwithstanding the foregoing, TSTT seeks clarity on the definition of mobile access, which is used in multiple instances. Is this service required to establish user's connectivity to the mobile network? Additionally, is mobile access a complement to mobile voice calls (on net and offnet), SMS, data/internet?	In keeping with S18(5) of the Act, TATT is required to ensure that all substantive documents be amended by the established procedure of consultation to include the term and definition of mobile access. TSTT requests clarity from TATT	The Authority notes TSTT's comment in relation to the frameworks and offers the following response: The Authority advises TSTT's that it is acting within its mandate to review markets and assess for dominance, in accordance with section 29 of the Act. The Authority further clarifies that section

				The service elements only consist of smartphone and SIM card. Should dongles be included as well? TSTT also enquires if this service has its equivalent with fixed access, which is the connection from the customer to the switching center allowing the provision of the fixed voice and data/internet service?	on these issues regarding mobile access.	29 (8) of the Act can be upheld, irrespective of the passage of the revised pricing regulation and authorisation frameworks, which is dependent on the promulgation (pending) of the Act amendments. The Authority can categorically state that there has not been any action on its part to bypass service providers regarding any revision of the draft pricing regulation and authorisation frameworks. Once Act amendments are promulgated, service providers will be notified and subsequent revisions to substantive documents will be consulted upon, in accordance with section 18 3(b) and 18 (5) of the Act. The following definition of mobile access was developed and used solely

						for the purposes of the determination document: "Mobile access services are strictly termination services, such as the capacity to receive incoming calls and SMS on portable telecommunications devices. Hence, mobile access services exclude origination services such as outgoing calls and SMS etc. Mobile access is indeed the service component required to establish a user's connectivity to the mobile network (by means of a sim card and a mobile device such as a mobile phone), as suggested by TSTT. The Authority concluded in the Determination, that mobile access may be seen as complementary to mobile calls, SMS and data, since the services are bought together, and calls, SMS

						and data cannot be used without access. To avoid confusion, the Authority is of the view that mobile access belongs in the same market as calls, SMS, and data. This is a reflection of how these services are offered and purchased. Concerning dongles, these also provide a means of mobile access (instead of, for example, mobile phones), commonly to use mobile data services. The Authority also concluded in the Determination that mobile data services form part of the same market. Finally, the Authority can clarify that mobile access may be seen as analogous to fixed access, which provides a connection over which calls may be made, messages sent, and/or access to the Internet

						established. However, as set out in the Determination, the Authority confirms that fixed services do not belong in the same market as domestic retail mobile services.
11	2.1	Relevant Product Scope	TSTT	TATT has described a standard approach to the analysis of market definition. We are in agreement with the standard approach. However, TATT is incomplete in its application. In particular, it does not consider the full set of possible markets and the possibility of asymmetric substitution. In the absence of this fuller analysis, it misses evidence that supports what most consumers know to be true: 1) OTT voice and messaging is a substitute for traditional voice and messaging; 2) mobile broadband and fixed broadband are substitutes; and 3) mobile voice asymmetrically substitutes for fixed voice. We provide more specific instances of a more complete analysis elsewhere in this submission.	TATT should add significantly more analysis, to its market review. Examples are provided elsewhere in this submission.	The Authority notes TSTT's general agreement with the overall approach we have taken. However, the Authority disagrees with TSTT's conclusions. As a general point, the Authority would like to emphasise that a consumer's use of multiple services to perform similar tasks (for example, messaging) does not mean that the services are economic substitutes. Demand-side and supply-side substitutability should be assessed from an economic perspective, and both have a very specific meaning. As such, points

						(1) to (3) set out by TSTT here simply do not hold.
						
						For (1) and (2), the Authority's assessment of whether these services belong in the same product market is set out in the Determination. The Authority's overall position shall remain unchanged in the final version of the document.
						
						For (3), as part of this market definition exercise, the Authority is only concerned with the degree of any substitution away from mobile services. As such, the possibility of asymmetric substitution is not relevant here and does not impact the Authority's market definition findings. The Authority's overall position shall remain unchanged in the final document.

						More details to explain why the Authority does not accept TSTT's disagreement with the Authority's market definition findings as set out in the Determination are presented below, in response to each of the specific points raised by TSTT within this document (items 12–39).
12	2.1	Relevant Product Scope	TSTT	With respect to asymmetric substitution in particular, as highlighted in BEREC report on Impact of Fixed-Mobile Substitution in Market Definition (2011), there are two (2) ways to treat asymmetric substitution from the point of view of regulatory practice.[8] It is important for TATT to acknowledge this and, in the interest of regulatory transparency and predictability, state whether or under what circumstances it will adopt one approach or the other.	TATT should set out its position on the treatment of asymmetric substitution.	The 2011 BEREC report to which TSTT refers describes two approaches to considering asymmetric substitution within a market definition exercise, namely, Practice A and Practice B. Practice A: The effects of asymmetric substitution on the focal product are considered at the stage of defining the relevant

8 BEREC frames this discussion in terms of Practice A or B, pages 13-15.

						market(s). The alternative product may be included in the same market as the focal product, depending on the direction of any asymmetric substitution. Practice B: The alternative product and the focal product are not included in the same market, regardless of any asymmetric substitution, and the competitive constraint imposed by the alternative product is taken into consideration during the "three criteria test" (i.e., when assessing whether a defined market is susceptible to ex-ante regulation). The Authority advises that the choice of Practice A or B would only be relevant if the asymmetric substitution concerned demand-side substitution away from

						mobile (or supply-side substitution to providing mobile services). The Authority further explains its position while giving consideration to the following: a) As TSTT itself notes in item 21, any potential asymmetric substitution with regard to fixed and mobile services is most relevant in the opposite direction to that described above (i.e., whilst fixed services are unlikely to be a demand-side substitute for mobile services, mobile services may be a demand-side substitute for fixed services). Therefore, under Practice A, in the case where mobile services are the focal product – which they are in an assessment of the market definition of domestic retail mobile services – the concept of

						asymmetric substitution of fixed and mobile services is not relevant and has no bearing on the Authority's market definition. b) Under Practice B, services subject to asymmetric substitution would not be found in the same market, regardless of the direction of substitution. Any competitive constraints would instead be considered during the three criteria test or competition assessment (which is beyond the scope of this market definition exercise), although the direction of any potential asymmetric substitution suggests that fixed services would not impose a competitive constraint on mobile services and therefore not impact the Authority's assessment at this later stage either.

						The Authority informs TSTT that it does not wish to make any statements, at this point in time, on the potential demand-side or supply-side substitution in the other direction, i.e., away from fixed to mobile services, as this is beyond the scope of this determination and would require further analysis.
13	2.1.2	Demand-side Substitution	TSTT	We understand the challenges to assessing price elasticity in markets and the consequent reliance on non-price factors to determine demand-side substitution. However, TATT seems to willfully ignore the existence of relevant studies on price elasticity outside Trinidad and Tobago that could provide insights into the analysis. We will provide specific examples elsewhere in this submission.	TATT should undertake an elasticity study for Trinidad and Tobago or, at the very least, thoroughly consider the results of relevant studies on price elasticity outside Trinidad and Tobago that could provide insights for its analysis.	The Authority acknowledges TSTT's understanding of the challenges it faces in calculating price elasticities empirically but notes that TSTT then contradicts itself in its recommendation, where it suggests that the Authority should conduct a Trinidad and Tobago-specific elasticity study. Regarding TSTT's referral to (standalone) price

						elasticity studies from other jurisdictions, the Authority cautions that elasticities are likely to vary significantly across countries due to a range of factors. Indeed, it was largely for this reason that the Authority has relied on country-specific evidence, for example the CMR survey. The survey included questions related to elasticities, such as respondents' willingness to switch in response to price changes, with the survey results then being used to inform the Authority's findings. Where TSTT presents references to specific elasticity studies in this document (specifically, in item 24), the Authority has also responded to these.

						Lastly, based on its evaluation of recent market reviews[9] and merger analyses[10] in the context of retail mobile services elsewhere, the Authority is not aware of these assessments having used bespoke price elasticity studies to inform the underlying market definitions.
14	3.1	Are Mobile Access and Domestic Call and Messaging in the Same Product Market?	TSTT	We agree with TATT that access and domestic calling and messaging are part of the same market. In a more belts-and-braces approach, TATT would have first established that calling and messaging are part of the same market. It also would take up the access explicitly as a focal product and ask what would happen if the access product experienced a SSNIP. The answer is clearly that consumers would move to the bundle.	TATT should complete its analysis of the access, domestic calling and messaging to strengthen its conclusion.	The Authority notes TSTT's agreement with its finding that mobile access and domestic mobile calls belong in the same product market. The Authority advises that it is not necessary to first show that domestic mobile calls and messaging services are in the same market which TSTT suggests could have been

9 This includes, amongst others, recent market reviews in Bermuda, a range of GCC countries, Kenya, Malaysia and South Africa.

10 This includes, amongst others, recent European Commission mobile merger cases in Ireland, Italy, Germany, the Netherlands and the UK.

						assessed in a "more belt-and-braces approach". It is sufficient to show that both call and messaging services, separately, belong in the same market as mobile access services, from which it follows that calls and messaging also belong in the same market[11]. The Authority notes that domestic mobile calls and messages are often bundled (i.e., sold together), which suggests demand-side substitutability, and are jointly provided using the same infrastructure, pointing to supply-side substitutability. The Authority also wishes to address TSTT's comments regarding supposed "clear" answers to the SSNIP question. The

[11] To avoid confusion, the Authority would also consider domestic mobile calls and messaging services, individually, as belonging in the same market as mobile access services, if assessed separately.

						SSNIP test is concerned with the profitability of a price rise and so the anticipated switching response alone does not offer a clear answer to the outcome of the test. Rather, the test result would depend on the proportion of customers who might make any switching decision and the implications for the revenue loss and cost saving for the hypothetical monopolist. In any case, the Authority's conclusions remain unchanged, i.e., that we consider mobile access, domestic mobile calls, and messaging services to belong in the same market.
15	3.2	Are Mobile Data Services in the Same Product Market as Mobile	TSTT	TATT's analysis refers to "mobile data services" product but appears to mean the "mobile access and data product services" product, unless it is suggesting mobile data product services are offered differently from how calling and messaging are offered.	TATT should clarify its product set.	The Authority acknowledges TSTT's clarification in relation to specific terms used in the Determination. The Authority will clarify the wording in the final version of the document, to ensure this is clear, whilst

		Access, Call and Messaging Services?				maintaining that this should not affect stakeholders' understanding or interpretation of the Determination. The Authority reiterates that this does not change its findings.
16	3.2	Are Mobile Data Services in the Same Product Market as Mobile Access, Call and Messaging Services?	TSTT	TATT's analysis of the Mobile Data Mobile and Mobile Access, Call and Messaging Services is incomplete. TATT examines the relationship between the access/calling/SMS/data product (or, as TATT refers to it, "mobile data usage of smartphones") and the access/data product (or, as TATT refers to it, "dedicated mobile broadband services"), and in so doing only examines from the perspective of access/data product (as the focal product). The importance of a more comprehensive approach is set out in the BEREC report on impact of bundled offers in retail and wholesale market definition (2010).	TATT should complete its analysis by examining the relationships among three (3) products: 1) the access/ calling/ SMS product; 2) the access/ data product; and 3) the access/ calling/ SMS/ data product. Because of possible asymmetric relationships, TATT should treat the components of each pair, in turn, as	The Authority notes TSTT's view on the need to examine individual product relationships separately, but respectfully disagrees . As stated in section 3.1 of the Determination, the Authority used mobile access as the focal product, then assessed whether domestic mobile call and messaging services form part of the same product market, and concluded that they do". In section 3.2 of the Determination, the

					the focal product, i.e., examine 3 x 2 = 6 relationships.	Authority then assessed whether mobile data services (i.e., separately for mobile data as part of mobile bundles and mobile-data-only services) also form part of that product market (i.e., mobile bundles, including mobile access, calls and SMS, representing the revised focal product). As such, the Authority has examined the demand-side and supply-side substitution between the three products referred to by TSTT. In the context of defining the market for domestic retail mobile services, the Authority does not consider it necessary to then also examine the level of demand-side and supply-side substitution of different focal products (such as mobile data-only or domestic mobile calls).

						This is due to retail mobile services being predominantly offered and purchased in bundles (rather than as individual service components) and hence demand-side substitution needs to be assessed at that level. The Authority notes that this approach is in line with those adopted in the market definition exercises undertaken in the market reviews and mobile merger analyses conducted by other regulatory or competition authorities elsewhere (see item 13 above and item 20 below).
17	3.2.1	Demand-side considerations	TSTT	We agree with TATT that the bundled access/calling/SMS/data product is a substitute for the unbundled access/data product. TATT states that the pricing of the bundled product is nearly the same as the unbundled data product, which implies that consumers view these products indifferently, and if the data-only product experienced a SSNIP, they could switch to a smartphone option. On this basis, TATT concludes that data services are used jointly with calls and SMS.	Among the 6 product relationships mentioned above, TATT examined only one and should expand its analysis, particularly on a), b) and c).	The Authority notes TSTT's agreement with its findings that bundled and unbundled products belong in the same market. However, the Authority disagrees with TSTT's suggestion that the

				However, this is only part of the story and is misleading in terms of the more important question of the relationship among these products. TATT did not consider each of these three products as focal, and (for example) pose the questions whether, if: a) the access/calling/SMS product experienced a SSNIP, would consumers shift to the bundled access/calling/SMS/data product? b) the access/calling/SMS product experienced a SSNIP, would consumers shift to a data-only product? c) the bundled access/calling/SMS/data product experienced a SSNIP, would consumers shift to a data-only product?		Authority should assess the substitutability among products using several focal products as a starting point. This is explained in the Authority's response to item 18 above.
18	3.2.1	Demand-side considerations	TSTT	The questions a), b) and c) above corresponds to the questions, respectively: i. Is the bundled access/calling/SMS/data product a substitute for the access/calling/SMS product? ii. is the data-only product a substitute for the access/calling/SMS product? iii. is the data only-product a substitute for the bundled access/calling/SMS/data product? Of the additional product relationships that TATT should examine, i. is a straightforward "yes". Product relationships ii. and iii. are also "yes". With the advent of broadband, there are many applications that enable consumers to make voice calls and text via the internet.	TATT should conclude in the affirmative the substitutability of data for voice and calling. We discuss this in more detail elsewhere in this submission.	The Authority notes TSTT's views as to which products are substitutes for one another. However, the Authority also notes that the consideration of whether products belong in the same economic market is wider than a simple question of substitutability. In section 3.2 of the Determination, for example, the Authority explains the complementary nature of mobile data and other

						services within bundles (i.e., access, calls and messaging). In section 3.2.3 of the Determination, the Authority finds that mobile data services belong in the same market as mobile access, call and messaging services. The Authority understands that TSTT's overall position on the treatment of mobile data services within the assessment of the relevant market aligns with the Authority's findings. The Authority further notes TSTT's comment regarding the ability to call and send messages over an Internet connection. The various limitations of these, and analysis of the implications for defining relevant economic markets – in particular setting out

						the considerations beyond product characteristics which must be taken into account are discussed at length, both in the Determination and in the Authority's responses to both TSTT and Digicel throughout this document.
19	3.2.1.2	Uptake and usage trends	TSTT	TATT notes that 54% of the respondents to the TATT-CMR Survey are currently using the bundled calling/SMS/data services and that 81% of those respondents are using mobile data services on their mobile phones. TATT concludes that "this suggests end users in Trinidad & Tobago prefer accessing mobile data services in combination with mobile calls and SMS… rather than data as a standalone product." This conclusion is not particularly insightful as it states that consumers are rational: they would rather have more than less. The more important question is the substitutability of these different products in light of a SSNIP.	TATT to expand its analysis to more of the product relationship discussed above and follow the SSNIP methodology it has provided itself.	The Authority's findings do not simply state that customers are rational but, rather, say something about their stated preference for buying services together. TSTT simplifies this to a conclusion of consumers preferring to have "more [rather] than less". However, this suggests that the respondents were answering a question of whether they would use additional services if they were available at no additional cost. This is not the case, of course; consumers generally face higher prices for bundles of services which include

						larger allowances or more services, all else being equal. As the Authority has alluded to above, the survey respondents had shown a preference for consuming bundles of services. The Authority further notes that it has weighed all the available evidence and that the survey responses form only one part of this evidence base, with other evidence assessed including, for example, the product characteristics, relative pricing, uptake and usage trends. This has been used together to assess demand-side substitutability overall, and to help infer the likely impact of a SSNIP on the focal product.
20	3.2.3	Conclusions	TSTT	TATT cites dated market reviews as support for its analysis. The most recent of the case of international precedent that TATT cites is from 2017, which, for the reasons described above under "1.3 Purpose" are inadequate for support. Of the jurisdictions cited, Oman	TATT should examine the relevance of works cited as international	The Authority affirms that the overall approach it has followed in undertaking this market definition

				has recently issued another consultation, which arrives at the same market definitions, but, as the analysis was conducted by the same consultancy TATT has employed, using the same approach (not to mention language and formatting), it can hardly be characterized as a “different” study.	precedent more critically.	exercise is an established one. The prevalence of such an approach and the similarity in its findings reflect a consistency in applying such practice when conducting market reviews. The Authority has contracted its suppliers to provide robust and impartial advice, in order to support the Authority’s duties as an independent and effective regulatory authority. References specific to retail mobile services in particular are limited, since mobile services are not considered to be susceptible to ex-ante regulation in many countries, as there are usually three or more mobile network operators active in these markets, and often several mobile virtual network operators (MVNOs) as well.

						However, in the context of this market definition exercise, the Authority has reviewed the approaches to defining the relevant market in a range of ex-ante market reviews and mobile merger analyses elsewhere. This included but is not limited to ex-ante market reviews in Bermuda[12], Kenya[13], Malaysia[14], South Africa[15] and a range of GCC countries[16]. The Authority has also reviewed recent European Commission mobile merger cases in Ireland,

[12] https://www.ra.bm/documents/market-review-preliminary-report/?wpdmdl=14035&refresh=5f97fed0178321603796688 and https://www.ra.bm/documents/2020-09-01_market-review-of-the-electronic-communications-sector-final-report-decision-and-order/?wpdmdl=15146&refresh=5f97fed00d51f1603796688

[13] https://ca.go.ke/wp-content/uploads/2018/02/Presentation-on-Telecommunication-Competition-Study-to-Stakeholders-.pdf

[14] https://www.skmm.gov.my/skmmgovmy/media/General/pdf/Market-definition-analysis-Final_1.pdf

[15] https://www.icasa.org.za/legislation-and-regulations/inquiries/priority-markets-inquiry

[16] As set out in the Determination, this includes market reviews conducted in Bahrain, Oman, Qatar, Saudi Arabia and the UAE.

						Italy, the Netherlands and the UK[17]. Additionally, TSTT is advised that TATT-CMR 2018 captured the preferences and consumption patterns of the retail mobile market in Trinidad and Tobago. In addition to providing other evidence for this exercise, this survey informed the demand-side analysis and contributed to the validation of the international experiences where applicable, in supporting the wider conclusions of this market definition exercise.
21	4.1	Are Retail Fixed Voice and Domestic	TSTT	TATT concludes that there are product characteristics that constrain the substitutability of mobile voice service with fixed voice service. We believe that this is true. However, it is important to note that this is the classic instance of asymmetric substitutability and thus, while from the view of mobile voice as focal product,	TATT should set out how it is treating asymmetric substitution in the case of fixed and mobile voice	The Authority refers TSTT to its response to item 11, where the Authority sets out its views on the two possible approaches to

[17] See, for example, European Commission (EC) decision of 27th November 2018 in case M.8792 – T-Mobile NL/Tele2 NL; EC decision of 1st September 2016 in case M.7758 – Hutchison 3G Italy/WIND JV; EC decision of 11th May 2016 in case M.7612 – Hutchison 3G UK/Telefonica UK; and EC decision of 28 May 2015 in case M.6992 – Hutchison 3G UK/Telefónica Ireland.

		Mobile Voice Services in the Same Product Market?		these two services are not part of the same market, from the view of fixed voice as focal product, they are. As discussed in BEREC (2011), "Asymmetric substitution can be a relevant factor to consider in FMS [(Fixed-Mobile Substitution)] mainly due to the mobility feature of the mobile services (the mobility features means that end-users may substitute from fixed services to mobile services but not the other way around)." While BEREC cautions that this is not the only factor to determine whether the two (2) are in the same market, it states that developing countries like Trinidad and Tobago are more likely to have such a market structure. As highlighted in the BEREC report, specific market characteristics may mean that a given regulator may treat asymmetric substitution, not as a market definition issue, but as a relevant issue in a three-criteria test for imposing ex ante regulation. In any case, as noted in our comments above, TATT should set out its position on this important aspect of market definition.	services: either defining markets asymmetrically, i.e., mobile voice services are part of the fixed voice services market, but not vice-versa, OR that neither are part of each other's markets, but mobile voices services are sufficiently substitutable for fixed voice services. Either treatment puts the appropriateness of ex ante regulation of fixed voice under question.	assessing the asymmetric substitution set out by BEREC in its 2011 document. In summary, the Authority noted that the direction of any possible asymmetric substitution would be from fixed to mobile, so the choice of Practice A or B would have no impact on either the Authority's mobile market definition approach or its findings.
22	4.1.1.2	Service availability and uptake	TSTT	TATT states that observed trends of uptake or average usage for fixed and mobile services do not support the notion of substitution. However, the trend in average monthly domestic call *minutes per fixed and mobile connection* DOES provide evidence of substitution. It is not surprising that *connections themselves*, i.e., access, do not display the same substitution because lines are being used for more than just voices services. Indeed, in the TATT- Consumer Market survey, more respondents said that they used fixed broadband services (62%) than those saying fixed landline/calling	TATT should revise its view of the evidence of usage substitution between fixed and mobile.	The Authority acknowledges that the domestic fixed call usage data may be interpreted as a declining trend. However, the Authority notes that the direction of asymmetric substitution which TSTT is referring to is substitution from fixed towards mobile

				services (51%), which indicates that a portion of consumers do not even associate their fixed lines with voice usage. Furthermore, TATT suggests that fluctuations in demand appear to be seasonal, but this is clearly not the case. While there is seasonality in usage, the overall trend in fixed usage per connection is down. This is clearly consistent with the asymmetric substitution. Finally, to deny such substitution is to reject what every consumer knows and has known for some time: mobile voice usage substitutes for fixed voice usage.		services (i.e., asymmetric). As previously explained in its response to items 11 and 21 above, the Authority is concerned with substitution away from mobile services, so the possibility of asymmetric substitution from fixed to mobile is not relevant here and does not impact the Authority's market definition findings. The average monthly domestic call minutes per mobile connection, shown in figure 6 in the Determination, remained around 200 minutes throughout the period September 2015 to June 2018. To the Authority, this in itself does not provide evidence of substitution from mobile to fixed call services. Similarly, on fixed connections, TSTT focusses on explaining why end users may not

						substitute away from their fixed lines. However, again, this is not relevant to this market definition, which is concerned with substitution away from mobile services. In response to TSTT's final point: "mobile voice usage substitutes for fixed voice usage", the Authority refers TSTT to the earlier part of this response to item 22, in which it explains that the asymmetric nature of any demand-side substitution between fixed and mobile services does not support the inclusion of fixed services in the retail domestic mobile market. Most importantly, TSTT appears to suggest that mobile call services may be a demand-side substitute for fixed services. As stated previously, this assessment is beyond the scope of this market definition exercise, which focuses on retail

						domestic mobile services only. The Authority recognises that the Covid-19 pandemic has impacted consumer behaviour in Trinidad and Tobago and elsewhere. In light of the increased need to work from home, this is likely to also have impacted the demand for and usage of fixed and mobile services. However, the Authority considers it too early to be able to conduct a thorough assessment of the impact on consumer behaviour and whether any change is likely to be a short-term phenomenon or to result in more permanent changes in consumption patterns. The Authority will monitor the situation and form a view on this once more evidence becomes available.

						Furthermore, as stated in item 1, prior to conducting the dominance assessment in the domestic retail mobile market, the Authority will review its market definition and confirm that it remains valid and reflective of the current market environment. This will take into account any latest trends in fixed and mobile service usage.
23	4.2	Are Fixed Broadband Services in the Same Product Market as Mobile Data Services?	TSTT	TATT has only looked at substitution of fixed broadband services for mobile. Although we believe many of the conclusions differ in respect to this asymmetry, the absence of its consideration is a gap in the analysis.	TATT should consider the relevance of asymmetric substitution in the case of fixed and mobile broadband services and, in the case of its validity, state how it proposes to treat asymmetric substitution from a regulatory perspective.	As with item 22, TSTT is again referring to asymmetric substitution from fixed towards mobile services. For the reasons set out in the Authority's response to item 22, the asymmetric nature of any demand-side substitution means that it is not relevant for defining the boundaries of mobile markets and therefore does not impact the Authority's market definition findings in the

						case of retail domestic mobile services. To be clear, the Authority reiterates that any assessment of the relevant market(s) for other services such as retail domestic fixed markets is out of the scope of this assessment; as such, the Authority does not comment on it within this document.
24	4.2.1	Demand-side considerations	TSTT	TATT ignores evidence of considerable negative own price elasticity and positive cross-price elasticity (in both directions), among fixed and mobile broadband in other countries, particularly as mobile technology improves. Srinuan et al (2012)[18] concludes that mobile broadband can be considered a substitute for fixed broadband in most areas in Sweden. Macher et al. concludes much the same for the United States(2013)[19]. Grzybowski et al. (2014)[20] concludes that the elasticity evidence in Slovakia is strong enough to conclude that	TATT should consider the evidence of strong cross-price elasticity between mobile and fixed broadband. Again, TATT should evaluate whether such substitution is	The Authority refers TSTT to its response to item 13, where the Authority cautioned that elasticities are likely to vary significantly across countries and explained that the use of the CMR survey aimed to provide

18 "Fixed and mobile broadband substitution in Sweden", Telecommunications Policy 36 (2012), 237-251

19 "Demand in a portfolio-choice environment: The evolution of telecommunications." Georgetown University Working Paper (2013) 1-35

20 "Market definition for broadband internet in Slovakia-Are fixed and mobile technologies in the same market?" Information Economics and Policy 28 (2014) 39-56. See also "Substitution between fixed-line and mobile access: the role of complementarities" Ku Leuven Center for Economic Studies Discussion Paper Services 12 (2014).

				mobile broadband should be included in the relevant anti-trust market of fixed broadband. Cincera et al (2015)[21], drawing from European data, shows that the substitution effect doubles when a country adopts 4G.	symmetric or asymmetric.	insights into respondents' willingness to switch in response to price changes. The Authority further notes that elasticities can differ significantly across jurisdictions and over time, and that some of the references provided by TSTT are rather dated. As such, there may be significant limitations to interpreting these in the context of the Trinidad and Tobago market in 2020. Most importantly, the majority of TSTT's references appear to relate to substitution from fixed to mobile services. Since this market definition exercise is focused on the reverse relationship, these are not relevant in this context (for example, see

[21] "How much does speed matter in the fixed to mobile broadband substitution in Europe," ECARES working paper, 25 (2015)

						the Authority's response to items 12 and 21 in relation to asymmetric substitution).
25	4.2.1.1	Product Characteristics	TSTT	TATT makes the case that mobile data and fixed data services are packaged differently. This is not sufficient to distinguish the two as belong to different markets and, even if it were the case, over time any existing distinction will be reduced as technology and use patterns converge.	TATT should reconsider its analysis of mobile and fixed broadband and conclude that they are either part of the same market or, at the very least, impose direct competitive price constraints on one another.	In response to items 21 and 23 above, the Authority explains that there may be elements of potential asymmetric substitution from fixed to mobile services, for voice services and broadband/data services, respectively. The Authority also reiterates its position that it does not consider there to be any meaningful level of substitution in the other direction, i.e., from mobile to fixed services – again either for voice services or broadband/data services. The Authority's discussion of the way in which services are packaged served to highlight differences between the dimensions on which

						concessionaires compete to offer services within the two sets of services. For example, fixed broadband is only available on a postpaid basis. This is likely to reduce the degree of substitution for prepaid mobile data end users. Additionally, 51% of the TATT-CMR survey respondents indicated that their mobile data connection was not their only Internet connection. Specifically, 76% subscribe to both mobile data and fixed broadband services. This shows that both services maybe in fact be used in parallel, specific to the domestic market. TSTT seems to suggest that the Authority considers this observation to be sufficient to determine that mobile and fixed services belong in the same market. However, this is certainly

						not the case; the points referred to by TSTT are considered alongside other evidence, as stated above, in order to determine the product scope of the relevant domestic mobile retail markets.
26	4.2.1.1	Product Characteristics	TSTT	Convergence is now allowing different types of networks to provide the same range of services and so has deepened competition across a wider range of technologies. Markets have therefore widened in scope and as such, market definitions should be considered with this in mind. This is relevant here and network competition at all layers is intense. Limiting this analysis to a comparison of product characteristics does not allow for a realistic and comprehensive study.	As opposed to comparing product characteristics, TATT should be comparing the functionalities provided by mobile and fixed internet.	The Authority notes TSTT's concerns around convergence and technological developments. However, the Authority considers that TSTT's understanding of the scope of TATT's assessment is incorrect. The Authority has taken into account far more than simply product characteristics in its assessment of the relevant mobile market(s). For example, considerations such as relative pricing, switching evidence, and overall consumer views on the relative benefits of the

						services have all been considered in TATT's assessment. The Authority considers product characteristics and functionalities to be analogous to one another. With regard to mobile and fixed Internet services (mobile data services and fixed broadband services), these are assessed extensively in section 4.2 of the Determination. Please also refer to items 11, 22 and 23 above, where the Authority has explained its views on potential substitution between fixed and mobile services.
27	4.2.1.2	Service availability and uptake	TSTT	TATT makes the case that the majority of mobile data service users are consuming these as part of a bundle, which "is likely to constrain the substitutability… and [make consumers] less willing to give up the entire bundle and switch to a fixed broadband service." As discussed above, the presence within a single bundle does not deny substitutability of component products	TATT should reconsider its analysis of mobile and fixed broadband and conclude they are either part of the	In response to items 22, 23 and 25 above, the Authority explains why it does not consider any fixed services to be substitutes for mobile services,

				and preference of a bundle over a stand-alone is rational, but not dispositive of the absence of substitutability.	same market or, at the very least, impose direct competitive price constraints on one another.	although it acknowledges that there may be a degree of asymmetric substitution from fixed to mobile services which, importantly, does not impact the Authority's mobile market definition findings. The rationale for this is explained in more detail in response to item 11, where TSTT queries the implications for market definition of possible differences in approaches to assessing asymmetric substitution. Since the Authority finds no substitution in the relevant direction for either voice or broadband/data services as a result of differences in the individual services (for example, quality and features of the service as well as an absence of supply-side substitutability), it follows

						that fixed services remain outside the boundaries of the relevant mobile market(s), regardless of whether or not they are consumed within a bundle.
28	4.2.1.4	Switching evidence	TSTT	TATT argues that the consumer survey supports little substitutability as most respondents said they would shift to another mobile concessionaire in the case of a price increase, rather than switching to a fixed broadband offering. This is unconvincing. Firstly, TATT is citing responses specific to the users of broadband accessed via non-smartphone devices. It is not clear whether one can generalize substitutability on this narrow consumer group. Secondly, and more importantly, the observation is illogical in the context of the hypothetical monopolist test. There would be no other mobile concessionaire in this context, so the observation is not relevant. If we were to exclude mobile data options, then consumers would either stop using mobile broadband altogether (51%), switch to a fixed broadband services (30%), pay the increased price (19%). This indicates high substitutability of fixed broadband services. Not only are respondents saying explicitly that using fixed broadband services the first best alternative to mobile broadband services, but implicitly "stop using mobile broadband altogether" is likely to mean implicitly using fixed broadband service as consumers would seek to use broadband services from *some* source.	TATT should reconsider its analysis of mobile and fixed broadband and conclude they are either part of the same market or, at the very least, impose direct competitive price constraints on one another.	First, the Authority would like to point out that the Determination already acknowledges that some users of mobile data services may see fixed as a substitute. However, for reasons set out in our response to item 23, although there may be some asymmetric constraints, the Authority concludes that fixed services do not belong in the same market as mobile services. Furthermore, the Authority wishes to reiterate that the survey results referred to by TSTT was only one part of the evidence considered by the Authority.

						TSTT sets out several arguments in relation to the Authority's interpretation of the survey responses. These are listed below and addressed in turn: 1) The Authority notes TSTT's comment that the survey respondents represent only those users who accessed mobile broadband via non-smartphone devices. Whilst this user group only represents a sub-group of all mobile data users, the Authority considers these users to be most relevant to the question at hand. This is due to the product characteristics of mobile broadband services being more similar to fixed broadband services than mobile bundles, (inclusive of mobile data services) As such, if at all, it would be those users (of mobile

						broadband services via non-smartphone devices) who may consider switching to fixed broadband services in case of a SSNIP on their mobile broadband plan. 2) The Authority acknowledges that the questions posed in our survey cannot necessarily be translated directly into a SSNIP test, (and we recognised this in footnote 101 in the Determination). The Authority also emphasises that the survey was not necessarily designed to elicit such results; the survey mainly seeks to understand consumers' switching decisions more generally, for example, given the choices available to them. However, in response to what appears to be TSTT's attempt to interpret the results as the switching

						decisions that customers would make under a SSNIP, the Authority notes three major related issues, as follows: a) TSTT presents its interpretation of how the split of survey responses might look if the option to switch to an alternative mobile data service were to be removed (i.e., reflecting a hypothetical monopolist). TSTT first sets out the split of responses from respondents other than those who suggest they might switch to another mobile provider. TSTT presents the proportion of that subset of respondents who chose each of the other options. To walk through TSTT's example, 64% of respondents stated they would use another provider following a price increase and 11% said they would switch to a fixed

						broadband service. The proportion of this subset who would switch to a fixed broadband service is calculated by TSTT as: 11% x (100% / (100 - 64) %) = 30% It is correct in this example to infer that, among those respondents who would not switch mobile providers, 30% stated they would choose fixed broadband services. However, this cannot automatically be interpreted as the proportion of all consumers who would choose fixed broadband services in the event of a SSNIP, as it assumes that those who stated they would choose an alternative mobile provider would make decisions in proportion to the other respondents. This is unlikely since they chose a different response to the survey question itself. As

						such, one still only knows (according to the survey responses) the true preference of 11% of respondents – not the 30% stated by TSTT. b) TSTT suggests that the option to stop using mobile broadband altogether is “likely to mean implicitly using fixed broadband service”. The Authority considers this would not necessarily be the case, as the option to switch to fixed broadband services in the event of a SSNIP is itself an option in the same survey question. Respondents have chosen the option of ceasing to use mobile broadband, having already been given the option of using fixed broadband services, among others. c) Finally, TSTT states that fixed broadband

						services are "the first best alternative to mobile broadband services". The Authority wishes to point out that no alternatives are available for the respondents to meet their Internet connectivity demand. (The other response options include paying more, doing nothing, and cancelling the service). TSTT's statement is therefore misleading. More importantly, the Authority notes that a higher share of respondents would rather stop using mobile broadband services than switch to fixed broadband services (19% vs. 11%). A further 17% would rather access the Internet via their smartphone. This, to the Authority, does not support TSTT's view that mobile broadband users consider fixed broadband a substitute.

						Lastly, as noted in item 22 above, the Authority recognises that the Covid-19 pandemic has impacted consumer behaviour in Trinidad and Tobago. It seems likely that there has been a general increase in demand for Internet connectivity, but it is less clear to the Authority at this point whether this has impacted fixed broadband and mobile data services differently. The Authority is not aware why this would necessarily impact demand-side substitution between fixed and mobile broadband services. However, the Authority will monitor the situation and form a view on this once more evidence becomes available.
29	4.3	Are OTT Voice Services in the Same	TSTT	TATT concludes that OTT voice services and traditional mobile voice services do not belong to the same market. Consumer behavior in Trinidad and Tobago as elsewhere in the world is increasingly	TATT should recognise that OTT voice services and traditional mobile voice services are	The Authority notes but disagrees with TSTT's view on OTT voice services forming part of the same product market as

		Product Market as Retail Domestic Mobile Voice Services		demonstrating this to be a flawed, backward-looking conclusion.	part of the same market.	retail mobile voice services. The reasons for this are set out in section 4.3 of the Determination, where the Authority has assessed both demand-side and supply-side considerations before concluding that OTT voice services do not form part of the same product market as retail domestic mobile services. As discussed in relation to item 5, the nature of OTT voice services is such that increases in overall take-up of these services are unlikely to render them being part of the relevant market for retail domestic mobile services. This is due to the possibility that end users may consider switching between OTT services and domestic mobile services on a per-call basis. However, as OTT services require a

						(mobile) data connection, OTT services cannot substitute retail mobile services. OTT and retail mobile services are also not supply-side substitutes, for the reasons set out in section 4.3.1. of the Determination.
30	4.3.1	Demand-side considera tions	TSTT	The TATT-CMR Survey was carried out in 2018 which makes the results outdated to be used in 2020. Given how rapidly trends and developments emerge in the telecommunications industry, the survey should have been done in 2020, to provide accurate and timely data to inform the consultation. Further, the survey did not sufficiently delve into customers' reasons for their choices. It should have also focused on topics such as: i. Who/what led them to use mobile data/OTTs, (their closest and most frequent contacts, work etc.)? ii. Has their usage increased/decreased over time and if so why? iii. Their level of experience regarding technology/OTTs/internet etc. iv. The efforts to which they will go to avoid incurring communication costs e.g. using	The TATT-CMT Survey should have been executed in 2020 to provide up to date data. The survey should have also gone further to identify/ interrogate the nuances that differentiate customers and the reason(s) for their choices.	The Authority recognises that more timely evidence is desirable in any decision making. However, it is typically unlikely for the Determination to be published within a few months of conducting a survey, which TSTT suggests should have occurred. The survey was undertaken at the same time as the Authority initiated its data collection process. The subsequent delays in finalising the data collection (due to the late and incomplete responses to the information requests and the need for

				free Wi-Fi networks & OTTs, purposely scheduling communicating to times when (free) Wi-Fi is available. Additionally, many customers would be hard pressed to accurately state the number of minutes/calls/texts that they use/send weekly, unless they have been actively tracking their usage. This raises the concern that some of the survey responses could be over or understated and have inaccurate conclusions.		clarification on the data submitted)[22], the Authority could not commence its analysis as soon as the survey results were available. The Authority notes TSTT's suggestions as to some additional comments that might have been posed to respondents. The Authority designed the survey questionnaire in close collaboration with the market research experts at CMR. There are limits to the number of questions that can reasonably be asked in a single survey, and open-ended questions, which might be required in order to delve into some of the areas suggested by TSTT, are difficult to summarise and interpret consistently across respondents. The survey questionnaire also needs to be designed without

22 The data collection process commenced in July 2018. In the following months, the concessionaires largely submitted only partial responses to the information requests, despite frequent communication from the Authority. After receiving additional responses from the concessionaires in January 2019, the Authority decided to stop the data collection process, despite prevailing gaps, with the data available being consolidated and used as inputs for the analysis.

						knowing the answers received from respondents. As such, it does not allow posing additional questions during the interviews to follow up on specific responses or to adjust the questions to better reflect the responses received. In any case, in response to the additional topics (i to iv) which TSTT suggests could have been pursued, the Authority considers that these have, in general, been captured by the survey as administered. The following outlines that consumer behaviourial patterns have in fact been captured in the survey instrument • In the case of point (i), consumers' decisions to use one service over another are undoubtedly driven, to a large extent, by those services used by

						their closest and most frequent contacts. This reflects network effects; consumers will be drawn to the communication method(s) which allow them to communicate with others and is dependent on their choice of communication method(s). • In the case of points (ii) and (iii), the Authority refers TSTT to the representative nature of the survey respondent base, which ensured that consumers with a range of preferences were reflected in the overall survey responses. The Authority notes that TSTT has not provided any explanation as to how more information in relation to usage trends or level of technological experience at the

						individual level would provide any further insight. • Finally, in the case of point (iv), the Authority considers that the questions which asked about responses to a change in price provided sufficient insight into the price sensitivity of individual respondents. With regard to TSTT's concern that respondents may not know their exact weekly usage of each service they consume, the Authority acknowledges that in responding to survey questions such as those which are necessitated in this study, there will always be a margin of error. However, the Authority notes that respondents were not asked about the exact levels of

						usage but rather asked to select ranges of usage. This approach again was suggested by the consumer survey experts at CMR, based on their extensive experience in survey design. For example, respondents are asked how many SMSs they typically send in a week. A respondent selecting the option “between 7 and 50 messages” is stating that on average they send between 1 and 7 messages per day – something the Authority suggests most consumers would be able to determine and therefore provide an accurate answer. In the absence of any evidence that consumers systematically over- or under-estimate their usage, the Authority is not of the view that this would not bias the overall results.

						The Authority further notes that the survey was designed in a way to elicit relevant information relating to the use of mobile communications services in Trinidad and Tobago, and that survey data are used in conjunction with wider market data, which provides further insight as to how usage has changed over time. The Authority notes that, despite its criticisms, TSTT has not commissioned its own survey to verify the Authority's findings or seek further insight, nor has it recommended any practical suggestions as to how it would propose overcoming any potential limitations in respondents' awareness of their exact usage levels.
31	4.3.1.1	Product characteristics	TSTT	TATT considers the interoperability of OTT applications as significant. It is clearly not a problem. The applications are free and there is no constraint on	TATT should acknowledge that interoperability	The Authority does not consider the lack of interoperability of OTT

				users' ability to download multiple applications. Therefore, although there are network effects, there is little cost to joining multiple networks.	represents a low barrier to substitutability of OTT voice services and traditional mobile voice services.	apps a barrier to the use of OTT services. Instead, the Authority is of the view that, as it is not possible to use one OTT app to contact someone who does not also have that app, network effects are more important for OTT services than is the case for traditional mobile telecommunications services. In other words, whilst it may be easy to download an OTT app, a user is dependent on a sufficient number of other users also downloading that app for network effects to come into play. With traditional mobile services, users can contact others with mobile (and fixed) devices, regardless of the apps their contacts have installed. Whilst the Authority has limited information on the take-up of specific OTT services in Trinidad and

						Tobago, it recognises the possibility that some apps (e.g., WhatsApp) may have high take-up in Trinidad and Tobago. However, despite their non-trivial take-up, each OTT service may still not be as prevalent as traditional mobile services (i.e., 100% of mobile users can be contacted that way, which may not hold for any of the OTT services). To the Authority, this represents a limiting factor for end users, beyond considering potential substitution on a per-call basis. As stated elsewhere, the Authority wishes to remind TSTT that the discussion on interoperability of OTT apps is only one part of the demand-side substitution arguments set out in the Determination.
32	4.3.1.1	Product characteristics	TSTT	TATT considers the reliance on speed and stability of the Internet connection as significant. The advent of LTE and continuous addition of capacity in mobile	TATT should acknowledge that speed and stability	The Authority notes TSTT's comment and is of

				networks is making this consideration increasingly insignificant.	of mobile broadband is increasing, so that even if relevant at the time of its analysis, it will be increasingly inconsequential.	the opinion that the speed and stability of Internet connections remains a valid and significant measure that needs to be considered when evaluating the factors that influence consumer preferences or behaviour (i.e., when we consider quality of service and quality of experience parameters). An example of the significance of speed and stability of Internet connection is seen in the Authority's temporary assignment of cellular mobile spectrum in the 1900 MHz band and point-to-multipoint radiocommunications spectrum (broadband wireless access) to service providers from 23rd March 2020, for 60 days during the onset of the Covid-19 pandemic, as a response to service providers' requests for more capacity to treat with network degradation

						and congestion concerns. It should also be noted that the Authority's intervention illustrates the need for increased speed and stability of mobile broadband in the current market. The Authority understands that TSTT is referring here to the evidence from the TATT-CMR Survey 2018 which suggests that the quality of an Internet connection is indeed significant; as discussed in section 4.3.1.1, 60% of respondents cited "quality of service" as the main advantage of mobile voice services compared to OTT voice services. The Authority considers that such a strong, recently observed, driving factor in consumers' decisions is significant and cannot be ignored.

						The Authority gives consideration to the increasing capability of mobile data networks and will include relevant updates in its future review of the Determination document. However, operators are asked to recall that the survey captured consumer usage at the time and reflects limitations experienced by respondents during this time. TSTT's comments further underscore the importance of timely feedback by operators and the detrimental impacts of operators' untimely cooperation.
33	4.3.1.1	Product characteristics	TSTT	TATT did not speak to the fact that OTT applications add more functionality for the user. This adds to the attractiveness and substitutability of OTT voice for traditional voice. OTT platform design has meant that it can be easier and more convenient to use OTT applications for domestic voice. The breadth of functionality within the	TATT should acknowledge additional attributes of OTT, which increase its substitutability.	The Authority notes that OTT services may provide end users with enhanced features and functionalities compared to traditional mobile voice services, as they allow an easier

				WhatsApp application, for example, means a user can accomplish communications tasks more effectively than using traditional calling, SMS, emailing and content applications. Also, OTTs are generally designed as device-neutral and device-converged, so much of the OTT functionality is available on both fixed and mobile platforms. This has contributed to the increased irrelevance of the mobile vs. fixed market distinction.		transfer of text, photos, documents, video and recorded sound messages. This may, in turn, result in an increased take-up and usage of OTT services in Trinidad and Tobago. However, the Authority notes equally that making an OTT call may also not be as convenient as placing a mobile call. This is because end users may have to open the OTT app before making a call, whilst the app will not always synchronise well with the contact details on the mobile phone. There are also functional differences between OTT calls and mobile calls, such as the fact that the calling party needs to know whether the receiver is able to receive calls on a given OTT app and the fact that the user cannot seamlessly leave a voicemail on OTT applications if a call is not answered.

						The Authority will review the wording in section 4.3.1.1 to ensure it better reflects the discussion above. However, and more importantly, as discussed in item 5, the superior functionality alone of OTT services over mobile services and the increased take-up of OTT services does not unequivocally lead to these services forming part of the market for retail domestic mobile services. This is due to the reasoning that end users may consider switching between OTT services and domestic mobile services on a per-call basis. But as OTT services require a (mobile) data connection, OTT services cannot substitute retail mobile services.

						Concerning TSTT's last point, the Authority acknowledges that some OTT services can be used across mobile and fixed devices (e.g., Skype). However, this does not hold for all OTT services (e.g., WhatsApp or Facetime can only be used on a mobile). The Authority also does not agree with TSTT that this has resulted in an "increased irrelevance" of treating fixed and mobile services separately. For the reasons set out in the Determination, the Authority remains of the view that there are clear differentiating factors with both fixed and mobile services (on the demand-side and supply-side) which require treating them separately in market reviews. Recall that the TATT-CMR Survey 2018 captures Trinidad and

						Tobago consumers' usage and preferences irrespective of the features of the applications. The desirability of these features is determined and expressed by consumers' stated responses. Furthermore, OTTs continue to be accessed on mobile networks and jointly on or complementary with fixed networks.
34	4.3.1.1	Product characteristics	TSTT	In a June 22, 2018 letter to TSTT, TATT stated that "*The Authority also notes TSTT's concerns that all providers of potential substitute services, including OTT providers, ought to be treated similarly in the Authority's data gathering process with uniformed data requirements. In this regard, the Authority will make similar request(s) of said operators by way of written correspondences.*" Did TATT contact OTT operators with requests for data, and if so, what was the outcome?	TATT to clarify whether they requested data from OTT operators, and what was the outcome.	The Authority appreciates TSTT's inquiry and seeks to allay any concerns it may have regarding the Authority's communication with OTT operators for the purposes of the Determination, by providing much needed context and clarification below. The Authority, by email, communicated to OTT operators on 15th May 2018, with the primary

						objective of soliciting data (i.e., national usage data for Trinidad and Tobago's customer usage of Facebook Messenger and WhatsApp) for the determination of the relevant boundaries of the domestic retail mobile market of Trinidad and Tobago. Nonetheless, the Authority did not get a response from Facebook and WhatsApp at the conclusion of the determination exercise.
35	4.3.1.2	Service availability, usage and uptake	TSTT	TATT observes that the majority of end-users in Trinidad & Tobago who can access OTTs, also have available to them traditional mobile services. This leads it to conclude that OTT and traditional mobile calls are more likely to be considered complements rather than substitutes. Here as elsewhere in the document, TATT appears to be assuming that, simply because the two products are purchased and used together, that they are not substitutes. This is not logical.	TATT should return to basics with respect to the SSNIP methodology and recognize as most consumers intuitively understand: OTT voice is a substitute for traditional voice.	TSTT has oversimplified the Authority's analysis here. The Authority's conclusion that OTT calls and traditional mobile calls are not substitutes is not based solely on the observation relating to joint purchase and use, contrary to TSTT's interpretation of the Determination.

						The Authority's analysis of customer purchase and use habits form only part of the discussion leading to the Authority's conclusion that the aforementioned services are not substitutes. For example, as part of section 4.3.1 the Authority analysed numerous demand-side factors (including product characteristics, service availability, usage and take-up, relative prices and switching evidence) to reach its preliminary conclusion on why it does not consider these services to be substitutes. This is followed by an analysis of supply-side factors in section 4.3.1. Please also refer to items 5 and 33 for the Authority's explanation on why OTT services do not form part of

						the market for retail domestic mobile services.
36	4.3.1.4	Switching evidence	TSTT	TATT is undecided as to whether trends in traditional mobile call volumes and OTT call volumes means they are substitutes. Again, increased or stable demand of both is not necessarily evidence of complementarity. But, if trends are stable in Trinidad & Tobago, we are seeing that the tide is now turning for mobile call volume growth in a number of other markets. It may take some time yet in Trinidad for the underlying substitution relationship between OTT and traditional mobile voice to reveal itself. In the UK, mobile minutes per connection has been peaking in the last few years and fell for the first time, in 2019.[23] In Australia traditional mobile voice usage peaked in 2016/17, it has since dropped. From 82 billion minutes to 64 billion in 2018/19.[24] Closer to home, numerous Caribbean markets have seen similar declines. In St. Kitts & Nevis, traditional mobile traffic peaked in 2015; In St. Lucia, Dominica, Grenada and St. Vincent & the Grenadines in 2014.[25] Mobile call volumes in Jamaica has been in continuous decline at least since 2015 in Jamaica.[26]	TATT should acknowledge that increasing or stable volumes of both traditional mobile voice and OTT voice are unlikely to be a long-term phenomenon.	The Authority agrees with TSTT's summary of its evaluation of trends in mobile and OTT usage in the Determination, in that they were inconclusive. The Authority notes that, in the absence of further data, even strong trends in any two sets of volumes do not, alone, constitute irrefutable evidence of substitutability or complementarity of the services[27]. The Authority's analysis of usage trends was undertaken to help understand the wider picture of how take-up of services has evolved over recent years.

[23] Ofcom, https://www.ofcom.org.uk/research-and-data/telecoms-research/data-updates

[24] Communications Market Report for 2018-19. ACCC (2019)

[25] ECTEL Annual Electronic Communication Sector Review, 2018

[26] OUR, Update of the Mobile Cost Model, Consultation Document, 2020

[27] See footnote 68 on page 57 of the Determination.

						The Authority refers to TSTT's points raised here and in item 5, stating that any analysis of the market should be forward looking and take into consideration likely developments in the market. The Authority acknowledges this but would caution that current trends in other countries, even within the same region, do not necessarily provide an accurate prediction of what might occur in Trinidad and Tobago in future years. The Authority notes that TSTT has not provided any updated Trinidad and Tobago-specific data to illustrate whether there have been any significant changes to the trends observed since the end of the data collection period covered by this study. Given this, the Authority is not in a position to

						comment on whether "increasing or stable volumes of both traditional mobile voice and OTT voice are unlikely to be a long-term phenomenon."
37	4.3.1.4	Switching evidence	TSTT	TATT implies that the consumer survey provides ambiguous evidence of substitutability. We think this is incorrect. First, again, TATT misinterprets the data in the context of a hypothetical monopoly . It is irrelevant whether with in the presence of a SSNIP for one service provider's voice call, a customer would switch to another service provider/tariff plan. In the hypothetical monopoly context, there is no other service provider or tariff plan. In this light, switching to another mobile tariff plan is not an option. Second, as discussed under our comments on 1.2 Background, we believe that the sample may not be representative, and more consumers are likely to be in the higher value plans. We observe that the higher value plans from TT$20 per month, the plurality of respondents say that they would respond to higher pricing in mobile voice by shifting to OTT.	TATT should acknowledge that the consumer survey provides more robust evidence of substitutability between traditional and OTT voice.	TSTT's arguments here are based on its concerns around (1) the representativeness of the TATT-CMR Survey 2018 and (2) the Authority's analysis of the switching evidence with reference to the SSNIP test. The Authority has provided comprehensive responses to these concerns in items 6 and 28, respectively. The Authority notes TSTT's observations regarding certain groups of respondents but maintains that the conclusions presented in the Determination reflect an analysis of all mobile service consumers.

						The Authority further acknowledges that some users may indeed see traditional mobile and OTT services as potential substitutes in some instances. However, the Authority considers that this limited evidence does not change its conclusions when balanced with a wider analysis of the characteristics and use cases of OTT versus traditional mobile services. Please also refer to items 5 and 33 for the Authority's explanation on why OTT services do not form part of the market for retail domestic mobile services. Additionally, operators are asked to recall that OTTs are also consumed using mobile data – the primary component of the mobile

						market. Furthermore, operators are also asked to provide any evidence of data accessed on fixed networks using mobile devices to support substitutability assertions for the review period, or other volume-based datasets that show domestic OTT consumption on networks outside of traditional mobile data networks.
38	4.3.1	Supply-side considerations	TSTT	TATT suggests that there is no supply-side substitution between OTT and mobile voice services due to high barriers to entry in terms of the need to: obtain a mobile service license; gain access to mobile spectrum; deploy mobile network infrastructure; and develop a retail distribution. By definition, none of these are relevant to over-the-top services. There are little if any barriers to entry. Indeed, consumers themselves effectively determine if the OTT is introduced to the market by downloading the app.	TATT should acknowledge that there are little, if any, supply-side considerations for this analysis.	The Authority notes that TSTT has misunderstood the concept of supply-side substitution. TSTT comments that none of the entry barriers listed by the Authority are relevant to OTT services. That much is true, as the entry barriers refer to traditional mobile services. The relevant test involves assessing whether OTT service providers would be

						able to begin offering traditional mobile services, i.e., by entering as traditional mobile network operators (MNOs) rather than competing via application-based services, as they do currently. The Authority acknowledges that, in theory, an OTT service provider could substitute on the supply-side by competing in the provision of traditional mobile services via an MVNO model, relying on an existing concessionaire as a host operator. However, there has been no evidence of successful MVNO entry in Trinidad and Tobago, suggesting this is not an attractive business model for prospective entrants.
39	4.4	Are OTT Messagin g Services	TSTT	Our comments regarding OTT messaging and traditional messaging are largely the same as for voice.	TATT should reverse its preliminary conclusion on	Please refer to items 5, 31, 33 and 38 for the Authority's explanation on why OTT services do not

		in the Same Product Market as Retail Domestic Mobile Services			traditional messaging and OTT messaging and acknowledge them as belonging to the same market.	form part of the market for retail domestic mobile services. OTT messaging data growth goes beyond traditional messaging. The contribution of traditional messaging to OTT messaging volumes observed has not been definitively established by the data received. TSTT is asked to recall that the operator failed to submit its OTT usage data for said calculations to be verified.
40	6	Conclusions	TSTT	TATT concludes there is a single relevant economic market for retail domestic mobile services. Based on our foregoing critique, it is clearly considerably more complex. In particular: i. retail mobile access and domestic mobile calls/messaging should be considered in the same product market ii. mobile data services are substitutes for mobile domestic call and messaging services, but not vice versa. iii. prepaid mobile services are in the same market as post-paid mobile services. iv. residential and business mobile services are in the same market.	TATT should revise its conclusions along the lines that TSTT proposes.	Please refer to the Authority's detailed responses to TSTT's specific points above, i.e., TSTT has already highlighted the areas in which it disagrees, and the Authority has responded to each point raised. The Authority notes TSTT's summary of its views on the demand-side substitutability of specific

				v. domestic mobile voice services substitute for domestic fixed voices services, but not vice versa. vi. retail fixed broadband and mobile broadband belong to the same market vii. OTT voice services are part of the same market as traditional mobile voice services viii. OTT messaging services are part of the same market as traditional mobile messaging services. ix. The relevant geographic market is national.		services considered in the Determination and the resulting wider product market definition. The Authority has already responded to TSTT's foregoing comments on the Authority's assessment of each of these services and thus, it will not repeat these points here again. In summary, the Authority sees no need to revise its conclusions on the relevant product and geographic market definition for domestic retail mobile services, as set out in the Determination.
41	6	Conclusions	TSTT	TATT stated that they will '*endeavor to conduct periodic reviews of the retail domestic mobile market on a three-five year cyclical basis, or as it deems required, for accurate regulatory decision making and the fulfillment of the Authority's function and regulatory mandate in keeping with the Telecommunications Act Chap. 47:31 and all its subsidiary legislation.'*	TATT to conduct reviews at least every three (3) years and as it deems required. TATT is also asked to give legitimate consideration to	The Authority appreciates TSTT's recommendation on this issue. While the market should be reviewed on a regular

				Historically TATT has a less than desirable record as far as revisiting and updating decisions made to keep abreast with technology. TSTT was determined as dominant in 2010 for retail fixed narrowband (voice) access and fixed domestic retail voice services and our repeated entreaties for the review of these determinations considering changes in the markets have been denied. It is therefore understandable why TATT's statement provides little comfort to TSTT that the commitment for cyclical review of the domestic retail mobile market will be considered. Given the fast-paced nature of the environment, market reviews should be conducted at least every three (3) years. TATT is free to conduct ad hoc reviews more frequently and as desired.	requests made by operators for updates/reviews within the relevant three (3) year period.	basis, the frequency of reviews should be tailored to jurisdictions' specific characteristics and the state of market developments. For example, while the European Commission's 2014 recommendation working paper[28] refers to a three-year cycle, it also states that "[t]he length of the review period will depend first of all on the speed and significance of market developments, especially if they lead national regulatory authorities to gradually find retail markets competitive even in the absence of wholesale regulation." In a small island jurisdiction where the sector regulator has limited resources, as is the case in Trinidad and Tobago,

[28] https://ec.europa.eu/digital-single-market/en/news/explanatory-note-accompanying-commission-recommendation-relevant-product-and-service-markets

						market reviews every three years may be disproportionate. This is not out of line with common practice in the region. The Authority acknowledges TSTT's point that the Authority indeed has the capacity to initiate more frequent reviews of any market if it considers that there have been fundamental changes which may alter its previous conclusions. As this ability supports a need for a longer default review interval, the Authority considers that a five-year period is appropriate as standard to conduct market reviews. The Authority would like to reassure TSTT that it will make use of its ability to conduct more frequent reviews where needed.

						The Authority originally adopted the three to five-year review cycle for market definition of the domestic retail mobile market of Trinidad and Tobago, based on the following considerations: 1. Data submission and data validation timelines 2. Flexibility to adjust to localised scenarios, e.g., board appointments and delays in legislative amendments. The Authority would also like to bring to TSTT's attention that, barring any unforeseen circumstances beyond its control, it stringently abides with international best practice regarding the review of its

						competition and economic assessments. The Authority adamantly refutes TSTT's allegation that the Authority has a "less than desirable" record regarding updating competition and economic decisions to keep pace with technological advancements. Concerning TSTT's dominant status, determined in 2010, for retail fixed narrowband (voice) access and fixed domestic retail voice services, the Authority received formal correspondence on 9th May 2016 requesting a review of its fixed dominant status. The Authority responded on 23rd May 2016, advising TSTT to submit substantiating evidence to

						support TSTT's re-classification as non-dominant, based on the factors for determination of dominance as articulated in section 29 (8) and in conformance with section 29 (9) of the Act, which reads as follows: "Where a concessionaire, deemed dominant by the Authority pursuant to subsection (8), considers that it has lost its dominance, it may apply to the Authority to be classified as non-dominant and should the Authority so classify, the relevant concession shall be amended to reflect such classification". TSTT provided a response to the Authority's correspondence after 37 months, on 3rd June 2019, requesting the same reclassification of its

						dominance status. The Authority responded on 10th July 2019 requesting TSTT to provide evidence to substantiate the reclassification of its status as non-dominant. TSTT is also advised that despite the dominant status classification in 2010 and it being upheld in 2015, the Authority did not implement any pricing regime in said markets or upon the operator in the retail fixed narrowband (voice) access and fixed domestic retail voice services. Regardless, the Authority acknowledges TSTT's position on this issue and would like to bring to TSTT's attention that preliminary preparations are being made to review the domestic retail fixed

						voice services market as soon as reasonably possible.
42	n/a	General Comment	TSTT	TSTT is extremely disquieted by the fact that over a year ago, at the IPEC ITU AMERICAS 2019, TATT presented the findings of this determination, which is only now being consulted upon by stakeholders. TSTT questions the legitimacy of this consultation and is concerned that issues raised by stakeholders which challenges the findings of TATT will not be given the due consideration they deserve. As TATT ought to be aware, it is regulatory best practice to conduct the necessary consultation on matters such as this before arriving at and publishing conclusions/decisions. TATT's presumption of accuracy by having their unilateral findings on what we are now consulting on, presented to an international audience and published on the world wide web, sans disclaimer that these findings could not be accepted as final, is extremely concerning. This gives TSTT no comfort that this consultation will be fair and transparent.		The Authority notes TSTT's concerns and provides the necessary clarification below. The Authority seeks to allay TSTT's concerns by stating emphatically that it has and always will abide by section 18 (5) of the Act in its engagement with service providers. The Authority is guided by and thus operates, in conformance with its Consultation Procedures, section 2.2 titled "Forms of Consultation", which includes but is not limited to the following: • Group meetings, seminars, and workshops with representative groups and other interested

						parties – this process is useful when the issue being discussed is technical in nature. • Discussions with other regulatory professionals or advisors in the industry The Authority sought feedback on the preliminary findings of the Determination from an international audience comprising service providers and regulators, including IFT Mexico, Indotel, Huawei, Anatel Brazil, Conatel, Comtelca, Cullen International and CRC Columbia, to mention a few. It is also pertinent to note that no service provider's confidential or proprietary information was shared and that the Authority is not limited to feedback from domestic stakeholders in

						the execution of its mandate, as captured in section 18 1(p) and section 4 (a) of the Act.
43	n/a	Throughout	Digicel	In response to TATT's RFI submitted in 2019, Digicel submitted a wide range of requested quantitative data, of which only a limited selection was used in The Determination. Specifically, we found that several useful data points appear not to have been taken into account where they could have usefully be included: i. **OTT data traffic (separated into voice and messaging traffic):** this data could have been converted into equivalent total minutes/messages to determine the relative share of OTT services relative to their traditional mobile counterparts. This could then have been used to qualify figures such as OTT penetration referenced in Section 4.3.1.4 of The Determination or to examine long-term trends in OTT service usage and uptake to establish potential scope for demand-side substitutability in Sections 4.3.1.4 and 4.4.1.2 ii. **Total prepaid/post-paid data traffic:** this data could have been used to provide additional information for changes in consumer mobile use preferences when considering demand-side substitution in Sections 4.3.1 and 4.4.1. This could also have been used to provide a relative scale to compare OTT data traffic volume to in Sections 4.3 and 4.4	Many of the data points submitted to TATT provide useful information related to a number of discussions throughout the report, as referenced in the "Comments" column to the left, however were excluded from The Determination despite being available at the time of writing. TATT should review the data submitted in response to its RFI, potentially request updated data from operators to make sure it uses the latest market data and modify their discussions and	The Authority refutes Digicel's statement that only a limited selection of quantitative data submitted by Digicel was utilised. The Authority goes further to provide context regarding Digicel's wide range of quantitative data submission. Firstly, the Authority acknowledges and appreciates that Digicel submitted the following information, in six tranches, on the dates below: 1st tranche - 30/12/2017 2nd tranche - 02/06/2018 3rd tranche - 05/11/2018 4th tranche - 04/12/2018 5th tranche - 18/12/2018 6th tranche – 18/04/2019 The Authority issued draft quantitative data request

				iii. **Number of prepaid/post-paid calls:** this data could have been used to provide further supporting evidence for changes in consumer mobile voice habits over the period, such as those referenced in Section 4.3.1.4 when domestic mobile call volumes are considered and concluded to be "*generally stable within the last three years*" iv. **Revenue/cost data:** this data could have been used to provide additional evidence for changes in the retail mobile market over the period. For example, SMS/MMS revenue could have been used to quantify changes in SMS/MMS usage trends and used in Section 4.4.1.4 The absence of this data in The Determination suggests that the review undertaken by TATT was not sufficiently detailed or thorough.	conclusions in the event of any disagreement between this data and data from other sources.	forms to Digicel on 25th August 2017. After an original deadline of 29th September 2017, and issuance of reminder letters from the Authority, Digicel submitted an incomplete data request form with their company data on 30th November 2017 (1st tranche). 1st tranche: Incomplete were columns 16, 17 and 22 through 25, which pertained to OTT traffic (TBS) data-SMS, OTT traffic (TBS) data-voice, mobile annual cost of sales-voice and SMS, annual operating expenses mobile voice and SMS, respectively. 2nd tranche: Incomplete were columns 4, 7, 11, 16 and 17. These columns pertained to total postpaid subscribers monthly, total corporate postpaid calls

						monthly, total corporate postpaid minutes monthly, OTT data traffic (TBS) MMS and voice, respectively. 3rd tranche: Incomplete were columns 1-5, 6, 9, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42 and 43-71. These columns pertained to subscriptions, postpaid minutes, data traffic, OTT traffic, revenue, and end-to-end unit costs data. 4th tranche: Incomplete were columns 1-5, 6, 7, 8, 9, 10, 25, 27, 28, 29-31, 33-36, 38, 40, 42-53, 60, 62, 64, 66 and 67. These columns pertained to subscriptions, postpaid minutes, data traffic, OTT traffic, revenue, and end-to-end unit costs data. 5th tranche: Incomplete were columns 1-10, 15-17,

						21-31, 33-36, 43, 45, 47, 48, 49, 50, 60, 62, 64, 66 and 67. These columns pertained to subscriptions, postpaid minutes, data traffic, OTT traffic, revenue, and end- to-end unit costs data. 6th tranche: Incomplete were columns 9, 27, 31,33-36,43, 45,47,49,50, 60, 62, 64, 66 and 67. These columns pertained to subscriptions, postpaid minutes, data traffic, OTT traffic, revenue, and end-to-end unit costs data. The timeline (listed above) also shows that it took all of one year and eight months for Digicel to submit its data to the Authority to conduct this crucial exercise. Within this period, the Authority also facilitated conference calls and face-to-face meetings with the provider to clarify and verify data sets that

						were submitted. The above also shows that the data form submitted to the Authority was incomplete. In general, the Authority can assure Digicel that it has thoroughly reviewed all the data and qualitative information submitted by concessionaires in response to its requests for information. When submitted evidence is not presented in the Determination, this is due to the information/data being incomplete (despite the Authority's repeated follow-up/clarification questions) or the information not been deemed relevant by the Authority. Concerning Digicel's references to the specific data not being presented in the Determination, the Authority responds as follows:

						OTT data traffic The Authority sent out the final version of its quantitative data request form (18th July 2018), which included columns pertaining to OTT data traffic separated into voice and messaging traffic for the period September 2014 to June 2018. Digicel submitted OTT traffic data for a 6-month time period – from January 2018 to June 2018. A resultant gap in quantitative data requested by the Authority for OTT voice and messaging (columns 33 through 36) was observed, hence the use of the qualitative approach. The Authority notes that this approach is in line with those adopted by other regulatory authorities when assessing the demand-side substitutability of OTT and mobile services.

						The overall market information submitted for OTT data traffic on service providers' networks was minimal. As such, this did not allow for scaling the data up to the total market level, without applying potentially unfounded assumptions. Given this, the Authority was not in a position to draw conclusions on the overall OTT penetration or long-term trends in OTT service usage, as suggested by Digicel. In addition, given the varying nature of OTT services, the Authority was not able to convert the data traffic provided by Digicel into a measure which is comparable to "traditional" minutes or messages for domestic mobile services. Taking the foregoing into the consideration, the

						Authority lists the following: • It is not possible to isolate the traffic data relating only to “domestic” OTT traffic (i.e., OTT calls made between two OTT users within Trinidad and Tobago) only. • It was not possible to distinguish between voice and video calls in the OTT data, and these notably require a different amount of data traffic usage per minute. • This approach would also neglect to account for Wi-Fi offloading. **Prepaid/postpaid data traffic**

						The Authority acknowledges and appreciates Digicel's submission of quantitative data (30th December 2017 until 18th April 2019) for postpaid and prepaid mobile data traffic. With regard to the data traffic submitted by Digicel, the Authority noted a significant discrepancy in the magnitude of data traffic submitted by both service providers. This was not possible to be resolved, despite the Authority issuing requests for clarification to the relevant operator. The Authority also did not have alternative data sources at hand to verify and resolve this matter. As such, the Authority decided not to present this specific data in the Determination and instead to rely on the other

						usage trends presented in that document. **Prepaid/postpaid calls volumes** With regard to prepaid/postpaid call volumes, the Authority privileged the use of minutes per customer rather than number of calls, as it believes the former is more informative about consumer mobile voice habits. **Revenues/cost data** Regarding the suggestion to use revenues and cost data, the Authority notes that it has derived and presented average revenue trends in the Determination, where the underlying revenue and connection/traffic data were available.

						The unit cost data received from concessionaires were not sufficiently comprehensive or granular to allow any separate analysis. This information was also incomplete for the market, having not been submitted by one of the operators. In addition, the Authority wishes to point out that the detailed revenue (traffic) and unit cost information were requested, with the intention, amongst other things, of conducting a quantitative SSNIP test. However, the data received were insufficient for the Authority to do so. Digicel's comments underscore the justification of the qualitative methodology applied by the Authority to avoid

						misestimation and other biases of incomplete data.
44	1.2	Background	Digicel	According to Section 1.2, TATT commissioned Caribbean Market Research (CMR), a market research firm, to undertake a consumer survey of 1,000 users of retail mobile services in Trinidad and Tobago. Digicel has a number of concerns about the process with which the survey was carried out as well as the potentially selective use of survey results in The Determination, which have been summarized as follows: 1. According to footnote 8, the survey was conducted *“under a random intercept approach, (where) the interviewers approach prospective respondents in high-traffic areas to conduct face-to-face interviews.”* This approach raises concerns about the geographical, segmental and user type (e.g. employed / student/ young/ old / business / consumer) selectivity of the survey. We also assume that no normalization was applied for the characteristics of the random survey relative to the population as a whole, including both business and residential mobile users. 2. The exact wording of the questions asked to the respondents has not been published. As a result, it is impossible to check whether the wording was precise and could not have inadvertently or incorrectly led respondents towards a certain response. 3. The response from an individual in-situ regarding how we would react to a 5%–10% price increase (a SSNIP), such as in Sections 4.3.1.4 and 4.4.1.4, is	The concerns outlined in the “Comments” column to the left must be properly addressed in order for the survey to provide any degree of reliability or transparency to the conclusions which TATT draws. Digicel recommends that TATT releases the TATT-CMR survey to the public, thereby allowing a review of the process and data gathered. A further round of consultation would then be required to allow respondents to provide comments on the methodology and in particular whether the structure of the sampling and the	The Authority notes Digicel’s comments on the consumer survey and responds to each concern in (points 1 to 4 below). Before doing so, however, the Authority wishes to remind Digicel that the consumer survey was only one element of the overall evidence and information considered by the Authority in this market definition exercise. Given this, the Authority sees no need to consult further on this matter. It will also not repeat the consumer survey. Furthermore, in line with the Authority’s general consultation procedures, Digicel could have requested a copy of the consumer survey from the Authority during the public

				not necessarily reflective of that individual's real-world response to such a situation. First, the individual may find it hard to immediately realise the financial implications of a SSNIP for them, particularly given the short time frame over which the interview was most likely conducted. Additionally, the response from the individual would be significantly affected by what choices were made available in the question. If, for example, respondents were given the choice between switching to OTT services, reducing the number of calls or switching to another mobile provider then the results would have differed from those produced if the only choice was to switch to OTT services or reduce the number of calls. 4. The results from the entire survey remains unpublished, raising concerns regarding the potential for selective use of the survey's findings in The Determination to support a particular market definition. The heavy reliance of The Determination on the TATT-CMR survey increases the importance of ensuring that the data was collected in a robust and transparent manner. In addition to the above, it is unclear how a candidate's suitability for the survey was assessed. The Determination states in Section 1.2 that the respondents were *"end users of retail mobile services in Trinidad and Tobago"* however this assessment would have required a pre-existing market definition to determine which services would form part of "retail mobile services". This creates the potential for	survey questions were likely to have resulted in inaccurate outcomes. This additional consultation would also allow respondents the opportunity to assess the reliability of the conclusions drawn by the Authority. In particular, this additional stage of consultation is necessary to address each of the concerns highlighted in the "Comments" column. Depending on the outcome of the review it may be necessary to repeat the survey using sounder methodology or discard specific data points in favor of more concrete	consultation period but decided not to exercise that option. Moreover, operators are advised that the subject determination consolidates factual content from both operators and consumers. Therefore, in accordance with section 1.3 of the Consultation Procedures, the evaluation and determination of the market boundary of the retail domestic mobile market is not subject to the procedures therein. However, out of an abundance of consideration for operators, the Determination was provided for feedback. 1. The intercept methodology is a very common approach for conducting consumer surveys. It is used specifically to ensure that the sample includes many different segments of the

				particular groups of end users to have been ignored, such as standalone OTT service users, even though they may be included in the final market definition. Excluding such users would be definition have skewed the results and underestimated the take-up of OTT services. The survey is also unlikely to have addressed the different priorities and responses of business users compared to consumers. Although it is stated in Footnote 7 that the survey was deemed representative of the population based on the market split of prepaid and post-paid as well as the demographics of the respondents, Digicel is not at all convinced that this is the case based on the survey findings that only 13% of the population use OTT services as stated in Section 4.3.1.4. This is significantly lower than OTT penetration numbers found by Digicel (as discussed in our comments on Section 4.3.1.4 in this response) and therefore raises significant doubts on the representativity of the survey.	quantitative data provided by Digicel. In either of these cases the effect on the retail mobile market definition will need to be carefully reconsidered, as Digicel believes that there are serious flaws in TATT's conclusions which are drawn from incorrect, incomplete or selective evidence.	population. For example, interviews were conducted in numerous locations, such as: • <u>North Trinidad:</u> City Port of Spain, the Regional Corporation of Diego Martin, the Regional Corporation of San Juan/Laventille, the Regional Corporation of Tunapuna/Piarco, the Borough of Arima and the Regional Corporation of Sangre Grande • <u>Central Trinidad</u>: The Borough of Chaguanas and the Regional Corporation of Couva/Tabaquite/Talparo • <u>South Trinidad</u>: City of San Fernando, the Borough of Point Fortin, the Regional

						Corporation of Siparia, the Regional Corporation of Penal/Debe, the Regional Corporation of Princes Town and the Regional Corporation of Mayaro/Rio Claro • Tobago: All of the Parishes (St. George, St. Mary, St. Andrew, St. Patrick, St. David, St. Paul and St. John). Furthermore, the "high-traffic" areas where respondents were approached included busy streets, shopping areas and malls, catchment areas close to transportation hubs, and commercial enterprises such as restaurants, banks, and insurance companies. As such, the Authority and CMR are confident that the methodology ensured the

						survey reflected a representative sample of the demographics listed by Digicel in its consultation response. 2. When the Authority has presented consumer survey results in the Determination, it has referred to the wording of the underlying questions, to allow the reader an understanding of the question asked when reviewing the results. 3. The Authority notes Digicel's concerns around the complexity of the SSNIP test and how this may be translated in consumer survey questions. The wording of each survey question was developed jointly with CMR to ensure that the questionnaire items allowed for the obtaining of robust results. As stated in item 28 and elsewhere,

						the Authority wishes to emphasise that the consumer survey was designed mainly to understand consumers' switching decisions in general, for example, given the choices available to them. As such, it cannot necessarily be translated directly into a SSNIP test (which is recognised in footnote 101 in the Determination). 4. The Authority refutes Digicel's allegations that it may have used the survey results selectively to support a particular market definition. Instead, it has presented the survey results, where it deemed these to be informative, over and above the other information and evidence presented in the Determination. More importantly, the Authority disagrees with Digicel's

						view that there was a "heavy reliance" on the survey results in the Determination. As stated before, the survey results represent only one part of the evidence and information considered by the Authority in reaching its determination. The consumer survey was designed to inform the market definition of domestic retail mobile services in Trinidad and Tobago. With this in mind, the Authority considers it appropriate to focus first and foremost on end users of retail mobile services and then ensure that the overall sample is representative of particular sub-groups of these services and the population at large. This, contrary to Digicel's claim, does not require a prior retail mobile market definition. Furthermore, as OTT

						services require a data connection, this approach would not exclude "standalone OTT service users", as stated by Digicel.
45	3	Assessment of the Need for Separate Markets for Different Domestic Mobile Services	Digicel	Digicel is concerned with the lack of robust economic analysis and lack of evidence in TATT's analysis which we find concerning both it itself and a potential precedent for future markets analysis. Market analysis are a very important base of regulation and therefore should be done with the utmost rigor. We detail our specific concerns in the following rows of this table.		The Authority has set out its responses to the particular points by Digicel in relation to product market definition (items 46-69) below.
46	3.1.1 3.1.3	Demand-side considerations Conclusions	Digicel	In Section 3.1.3 of the determination, TATT states *"the TATT-CMR Survey provides evidence that no more than 62% of respondents make outgoing calls or messages."* However, in Section 3.1.1 TATT says that *"The majority of end users (62% of respondents to the TATT- CMR Survey) state that they mostly use their mobile phone to make phone calls rather than only receive them."* These two statements seem to be based on the same percentage (62%) but do not mean the same thing at all. The quote in Section 3.1.3 would mean that 38% of users only receive calls or messages while the one in Section 3.1.1 would mean that 38% of users receive more calls or messages than they make. Those 2 statements therefore are not consistent and represent a misinterpretation of the results of the TATT-CMR survey. Conclusions drawn throughout The Determination which rely on results from the	To address this issue and allow other potential issues to be identified, TATT should release the results of the TATT-CMR survey to the public. Additionally, quotations of survey data in The Determination should be carefully reviewed so that other misclassifications	The Authority notes Digicel's concern around the use of the survey results to inform the Authority's analysis. The Authority would like to point out that a typographical error seems to have caused the confusion here. Below, the Authority clarifies exactly how the information was used. Figure 1 in the Determination summarised the responses to the survey

				survey may be inaccurate due to flawed interpretation or quotation of the data.	can be identified if they exist. In the case of the specific issue already identified all conclusions based on this misclassification should be re-assessed based on the correct interpretation of the survey output and a detailed analysis provided by the Authority for further consideration by the Consultation respondents.	question concerned, which asked: "For which of the following do you use your mobile phone mostly?" The figure of 62% refers to the proportion of respondents whose main use of their mobile phone was to make, rather than receive, calls (the sum of all the responses other than "to receive" calls in figure 1). This clearly supports the statement made in section 3.1.1 of the Determination. Another inference which can be drawn from this figure is that, at the very least, 62% of the respondents make at least some outgoing calls or messages (since for 62% of the respondents, that is their main use; the remaining 38% either make fewer outgoing calls or messages, or none at all).

						However, Digicel rightly points out that, in section 3.1.3, the Authority states that "no more than 62% of respondents make outgoing calls or messages" [emphasis added]. This should indeed read "no less than 62%...". This supports the Authority's explanation that access is largely used along with calls and messages, i.e., few people have mobile access yet never make outgoing calls or messages. The Authority will ensure the final version of the document reflects this correction.
47	3.2.2	Supply-side considerations	Digicel	In Digicel's view, Section 3.2.2 presents a flawed argument regarding the supply-side substitutability of mobile data services with mobile access, call and messaging services. It is stated that "*From a supply-side perspective, mobile data services are provided through the same infrastructure used for access, call and messaging services, as well as through the same sales channels.*"	TATT should ensure it is consistent and uses robust analysis and evidence when applying a SSNIP test. In this instance, a more	The relevant question to assess supply-side substitution in the context of section 3.2.2 is whether a mobile data operator that is currently not offering mobile bundled services

				In reality, the provision of mobile data services cannot be done using only "the same infrastructure used for access, call and messaging services". Offering mobile data for an operator previously only offering access, call and messaging services would mean deploying additional equipment[29] from those used to provide access, call and messaging services. In addition, even equipment[30] that is used both by access, call and messaging and by mobile data would not be able to absorb at an incremental cost more than a very low volume. As soon as the demand reached a realistic volume, providing mobile data would become one of the main drivers of investment. Furthermore, we note that the provision of mobile data requires additional spectrum and in particular access to certain spectrum bands that an operator only offering access, call and messaging services may not have acquired or indeed require given spectral capacity needed for voice/SMS is low.	thorough analysis of the barriers to entry for an operator which already offers mobile access, call and messaging services to begin to offer mobile data services must be conducted by TATT before it can reliably draw conclusions about supply side issues.	(i.e., the focal product), would consider it profitable to launch mobile bundled services in the case of a SSNIP in mobile bundled services. The Authority remains of the view that this is likely to be the case. However, it will review the wording in the Determination to reflect the feedback received by Digicel on the differences in network equipment required for these services. The Authority is of the view that the role of supply-side substitutes is a key reason the EC has defined single retail markets when looking at a merger.
48	3.4.1.1	Product characteristics	Digicel	Digicel notes that although it submitted a comprehensive Qualitative Response to TATT's RFI it is only explicitly referenced once, in Section 3.4.1.1. TATT states that *"the Authority has, therefore, considered the responses it received to the information*	There is no evidence of Digicel's Qualitative Response having	In general, the Authority can assure Digicel that, when preparing the Determination, the

[29] For example, data carriers, PCU, SGSN, GGSN, routers and access to the Internet
[30] For example, towers/sites, BTS, BSCs, NodeBs, RNCs, eNodeBs, SGW and backhaul

				requests" in Section 1.2 however it is unclear in the report if and where the qualitative response has been used outside of the explicit reference above. Even where Digicel's Qualitative Response has been used the extent or otherwise of the Authority's consideration is not transparently set out. A related issue arises in connection with any other Qualitative Responses considered by the Authority. In respect of these responses the Authority gives no indication as to the extent to which all responses were aligned or if it preferred some responses over others it does not set out any reasoning for this. The lack of transparency is a significant flaw in this consultation process as it shields aspects of the Authority's decision making from examination and comment.	been used outside of Section 3.4.1.1. We recommend that TATT makes it clear where it was used to help guide discussions in The Determination to demonstrate that it was taken into account when determining the market definition and an opportunity provided to comment on this.	Authority thoroughly reviewed and considered both the qualitative and quantitative information submitted by concessionaires in response to its requests for information. When submitted evidence is not clearly referenced in the Determination, this does not mean it has not been taken into account by the Authority. Furthermore, the Authority wishes to remind Digicel that Digicel itself labelled its entire response to the Qualitative Data Request as "Corporate Proprietary and Confidential", limiting how the Authority can reference the information provided by Digicel. As explained in the Determination, the qualitative information provided by concessionaires is only one

						source of information considered by the Authority, with other data sources including, but not limited to the quantitative submissions, and the CMR survey. The Authority has used the responses to the request for qualitative information to, amongst other things, validate the tariff plan information and to ascertain a better understanding of the product offerings, network coverage information and the consumer survey results in terms of what end users consider important when making decisions about their mobile services. Not all qualitative responses received from concessionaires provided incremental information or evidence which the Authority considered

						important enough to be specifically referenced in the Determination. This was also based on the fact that some of the additional information provided would have required further data to allow the Authority to consider it with the Determination. For example, the survey results on willingness to pay presented by Digicel contained four user groups, but no information was provided on the relative importance of these groups, such as their approximate share of total mobile customers. The Authority wishes to remind Digicel that it is under no obligation to "evidence", demonstrate or justify why specific information provided by concessionaires have (or have not) been used. However, the Authority

						will review the Determination to include further references, where deemed helpful.
49	4.1	Are Retail Fixed Voice and Domestic Mobile Voice Services in the Same Product Market?	Digicel	No comment		The Authority notes Digicel's endorsement of its findings that retail fixed voice and domestic mobile voice services do not belong in the same product market. The Authority welcomes Digicel's comments on fixed voice non-substitutability or other portions of the determinations representative of Digicel's experience.
50	4.2	Are Fixed Broadband Services in the Same Product Market as Mobile	Digicel	No comment		The Authority notes Digicel's endorsement of its findings that fixed broadband services and mobile data services do not belong in the same product market.

		Data Services?				
51	4.3	Are OTT Voice Services in the Same Product Market as Retail Domestic Mobile Voice Services?	Digicel	*"Whilst OTT voice services are offered at a significantly lower price than mobile voice services, limited substitutability from the demand side and supply side indicates that they do not belong to the same relevant market. This is explained below."* Digicel does not agree and is extremely concerned with TATT's analysis and conclusion regarding OTT voice services. We detail our specific concerns in the following subsections of Section 4.3	.	The Authority has set out its responses to the individual items raised by Digicel in relation to this subsection under items 52-58 below.
52	4.3.1	Demand-side considera tions	Digicel	*"The TATT-CMR Survey reports that when end users are asked to compare OTT and traditional mobile domestic calls, they state that traditional mobile calls generally have a higher price but also better service quality. In assessing demand-side substitution between these services, the Authority, therefore, considers differences in product characteristics, including the ability of users to make or receive calls across platforms, and the cost of switching from traditional mobile services to OTT services."* Digicel does not agree and is extremely concerned with TATT's analysis and conclusion regarding OTT voice services. We detail our specific concerns in the following subsections of Section 4.3		The Authority has set out its responses to the individual items raised by Digicel in relation to this subsection under items 53-58 below and items 6, 31 and 32 above.

53	4.3.1.1	Product characteristics	Digicel	*"OTT voice services (such as FaceTime or WhatsApp) are often not interoperable. This means a call can only be terminated on the same application on which it was initiated*[31]*, This generates network effects for individual platforms, as users have a greater incentive to join platforms with more subscribers.* *Whilst some OTT apps, such as Skype or Viber, allow calls to fixed and mobile numbers, these typically attract a per-minute charge. Furthermore, no OTT apps allow users to receive calls originating from outside the platform (i.e. non-interoperability between OTT applications)*[32]*. This represents one of the challenges to demand substitutability between OTT and traditional mobile calls, as the former requires two users to either be on the same network or to both subscribe to traditional mobile services in order to make and receive calls.* *Reliance on the speed and stability of an Internet connection further limits mobile calls' substitutability for OTT voice services. In particular, a poor Internet connection negatively impacts OTT calls and thus might result in users being forced to opt for mobile calls. Indeed, most survey respondents cited quality of*	TATT has overstated the interoperability and data-dependency issues and wrongly concluded that they were making demand substitution by OTT "unlikely to exist". TATT should reassess its analysis and conclude that there is (at least partial, but steadily increasing) demand substitution which is sufficient to exert a competitive constraint on traditional mobile calls.	The Authority notes Digicel's views on the discussion in section 4.3.1.1 of the Determination and addresses each of the five points in turn below. Concerning Digicel's first point (network effects**)**, the Authority acknowledges that OTT apps are free and straightforward to install and end users can install multiple OTT apps on their smartphone at no cost. However, as stated in the context of item 31 above, the Authority does not consider the lack of interoperability of OTT apps to be a barrier to the

[31] This is also highlighted in the Authority's consultative document on dominance in termination markets (published in May 2018), (p.28, subsection 3.3.2.4) available at https://tatt.org.tt/DesktopModules/Bring2mind/DMX/Download.aspx?Command=Core_Download&EntryId =1091&PortalId=0&TabId=222

[32] Whilst this does not constrain end users in making calls, it may influence their overall view on whether the OTT service is a substitute for mobile services, as mobile users value both making and receiving calls.

				service as the main advantage of mobile calls relative to OTT services[33] *These characteristics suggest that demand substitutability between these two products is unlikely to exist, as explored further in the following sub-section."* Digicel disagrees with TATT's analysis as explained below: 1. TATT's analysis seems to assume that a mobile end user considering using OTT for calls would need to choose one single application which would limit their ability to use OTT services with many of their contacts. However, as discussed in Section 4.3.1.3, there is no cost to installing multiple apps. Mobile end users are therefore able to use different apps depending on who they speak to. In addition, TATT states in Footnote 110 that "WhatsApp is the most popular OTT call and messaging service in Trinidad and Tobago, according to the TATT-CMR Survey" which means that the network effects mentioned by TATT have already led to WhatsApp becoming the most popular OTT service in Trinidad and Tobago. As a result, a mobile end user installing WhatsApp would have immediate access to a large number of contacts.		use of OTT services. Instead, the Authority notes that, as it is not possible to use one OTT app to contact someone who does not also have that app, network effects are more important for OTT service than is the case for traditional mobile telecommunications services (i.e., whilst it may be easy to download the OTT app, a user is dependent on a sufficient number of other users also downloading that app for network effects to come into play; with traditional mobile services, users can contact others with mobile (and fixed) devices, regardless of the apps their contacts have installed). The Authority recognises the possibility that some OTT apps (such as WhatsApp) may have high

[33] Although the concessionaires offer nationwide coverage across various technologies, end users have noted that the quality of service is sometimes a barrier to the use of mobile data networks for some communication services; 60% of respondents cited "quality of service" as the main advantage of mobile voice services compared to OTT voice services.

				2. TATT's analysis also seems to assume that a mobile end user considering using OTT would need to stop making or receiving non-OTT calls. This is not the case, however. A mobile end user can use OTT with some contacts while also making and receiving non-OTT calls from other contacts, all from the same device. In addition, some OTT applications, such as Skype, allow the mobile end user to receive traditional voice calls to an individually assigned number. Similarly, several OTT conferencing applications, such as Microsoft Teams, support a dial-in functionality by which a mobile end user can participate in a call via a mobile voice call. Finally, as indicated by TATT, some OTT voice services, such as Skype and Viber, allow calls to fixed and mobile numbers. All the evidence above demonstrates that the level of interoperability between traditional mobile voice services and OTT voice applications is far greater than that stated by TATT. 3. TATT should also consider the arbitrage opportunity that OTT represents. Effectively a mobile user with an OTT application and access to mobile voice services can choose on a per call basis whether to use OTT and non-OTT calls. This could for instance lead a user to use OTT for international calls or as a substitute for using out of bundles minutes. From this we can see that there exists at least a partial degree of demand-side substitutability.		take-up in Trinidad and Tobago. However, despite their non-trivial take-up, these services may still not be as prevalent as traditional mobile services. To the Authority this represents a limiting factor for end users. In response to Digicel's second point (interoperability of OTT and mobile services), the Authority recognises that some OTT services are interoperable with traditional mobile services and will amend the discussion in section 4.3.1.1 of the Determination accordingly. The Authority also concurs with Digicel that an end-user's choice between OTT services and traditional mobile call/SMS services is likely to occur at the individual call/message

				4. Finally, TATT's analysis appears to assume that the need for speed and stability of an Internet connection means mobile end users will refuse to use OTT calls at all even when they have a good internet connection. However, in practice users switch between OTT and non-OTT services depending on the quality of their connection. 5. Digicel notes that the broad approach adopted by the Authority to the market definition results in some non-substitutable elements being included in the same service bundle. For example, a voice call is not substitutable for a SMS message. Digicel does not disagree with the Authority's approach to consider a basket of related elements as being in the same market. However, the fact that key elements of the portfolio are capable of being substituted by OTTs means that in the context of the market definition, the OTTs are capable of substituting for these elements and so exercise a competitive constraint potentially rendering the SSNIP unprofitable. They therefore must form part of the market.		level rather than, for example, end users making a choice to use only mobile services or only OTT service (This is further discussed in items 5 and 33). However, this does not alter the more general point that OTT services do not change the level of competition for mobile services, as end users need a mobile subscription from one of the concessionaires regardless. Please refer to items 5 and 33for the Authority's explanation of why OTT services do not form part of the market for retail domestic mobile services. The Authority notes that the need for a data connection (fixed or mobile) to use OTT services is one of the European Commission's key stated reasons (in recent mobile merger

						procedures) for why it considers that OTT services do not form part of the retail mobile services markets[34]. In particular, according to the European Commission: "OTT services cannot substitute mobile telecommunications services, as OTT services rely on mobile telecommunications (data) services (and fixed broadband services) to function. As they depend on data services to function, and voice, SMS and data services are part of the same market, OTT services cannot substitute retail mobile telecommunications services"[35].

[34] See, for example, European Commission decision of 27 November 2018 in case M.8792 – T-Mobile NL/Tele2 NL; European Commission decision of 1st September 2016 in case M.7758 – Hutchison 3G Italy/WIND JV; and European Commission decision of 11th May 2016 in case M.7612 – Hutchison 3G UK/Telefonica UK.

[35] See page 42 of European Commission decision of 1st September 2016 in case M.7758 – Hutchison 3G Italy/WIND JV (available here: https://ec.europa.eu/competition/mergers/cases/decisions/m7758_2937_3.pdf).

						The Authority addresses Digicel's third*- point (arbitrage opportunities) as part of item 56 below. Notwithstanding any potential demand-side substitution resulting at the individual call level from these arbitrage opportunities, this does not change the reasons (set out in item 5) why OTT services do not form part of the market for retail domestic mobile services. In response to Digicel's fourth point (need for stable Internet connection), the Authority agrees that a variation in the quality of the Internet connection may not stop end users from using OTT services altogether; instead the stability of the Internet connection is likely to impact their choice of service on an individual call basis (and may adversely impact their overall demand for OTT services if the stability of

						the Internet connection is a constant issue). However, in the Authority's view, this again does not change the wider reasons (set out in item 5) why OTT services do not form part of the market for retail domestic mobile services. Concerning Digicel's fifth point (mobile bundle components), the Authority refers Digicel to item 13. In the context of defining the market for domestic retail mobile services, the Authority does not consider it necessary to then also examine the level of demand-side substitution of different focal products (such as domestic mobile calls or SMS), as retail mobile services are predominantly offered and purchased in bundles and, hence, demand-side substitution needs to be assessed at that level. The Authority notes

						that this approach is in line with those adopted elsewhere (see items 13 and 20).
54	4.3.1.2	Service availability, usage and uptake	Digicel	*"Smartphones and tablets capable of connecting to the Internet via mobile data or Wi-Fi are common in Trinidad and Tobago, with 97% of the TATT-CMR Survey respondents owning at least one of these devices*[36]*. This provides a strong foundation for the widespread use of OTT services in Trinidad and Tobago.* *As per the TATT-CMR Survey, the most common uses of OTT services in Trinidad and Tobago are third-party mobile app-based voice and video calls (83%*[37]*) and third-party mobile app-based messaging (77%)*[38]*. In general, communication by this means requires that both parties (sender and receiver), have installed the same application on their devices and have access to a good Internet connection. However, from a demand perspective, OTT and traditional mobile calls are more likely to be considered complements rather than substitutes.* *Most OTT calls are likely to be originated by mobile bundled end users who have access to both traditional mobile calls and mobile data services within one subscription, and they are indicative of the large*	TATT has again overstated the impact of potential interoperability issues as well as incorrectly concluding that OTT and mobile voice services are complements rather than substitutes. TATT should reconsider its arguments and consider the effect that these have on the demand-side substitutability of OTT and mobile voice services.	The Authority notes Digicel's points raised and refers Digicel to item 53, where it has addressed the comment around multiple OTT app usage by end users, and the potential demand-side substitution between OTT and mobile services on an individual call/SMS level. As stated before, this does not influence the Authority's overall position that OTT services do not form part of the market for retail domestic mobile services (see items 5 and 33).

36 TATT-CMR survey

37 TATT-CMR survey results presentation, slide 65

38 WhatsApp is the most popular OTT call and messaging service in Trinidad and Tobago, according to the TATT-CMR survey. Other, less common, OTT applications include Skype, Google Voice, Viber and Facetime for making voice and video calls, and iMessage or WeChat for messaging.

				majority of data usage by prepaid and post-paid mobile end users in Trinidad and Tobago. This suggests, therefore, that the majority of end users who can access OTTs also have available to them traditional mobile services. Indeed, end users would be more likely to opt for traditional mobile calls when the recipient is not subscribed to a common OTT platform or if there is no Internet connection available (but mobile calls are possible). On the other hand, they are more likely to use OTT services to communicate with other OTT platform members or where Internet connection is accessible (for example, where an end user is able to connect to Wi-Fi)" Digicel largely disagrees with TATT's analysis as explained below: 1. TATT again seems to imply that users can have only a single OTT application installed when, in reality, a mobile end user will have several, reducing the effect of interoperability issues as explained in the comments on Section 4.3.1.1 of this report. 2. TATT asserts that "*OTT and traditional mobile calls are more likely to be considered complements rather than substitutes*" which is an unsupported statement. In Digicel's opinion, from a demand perspective OTT and mobile voice calls are likely to be considered substitutes by an end-user. Both services ultimately fulfill the same task which is establishing a voice call between two users. TATT itself points out that if no internet is available users		

				are likely to opt for a mobile voice call but in situations where high-quality internet is available will instead choose to use OTT services. This clearly demonstrates that the two services are direct substitutes for each other and not, as TATT claims, complements[39].		
55	4.3.1.3	Relative prices	Digicel	*"In general, OTT applications are downloadable either free of charge or entail a very low fixed fee (for example, WhatsApp previously cost US$0.99 per year and is now free), in most cases, with no applicable charge per call or message sent or received. Instead, end users face an implicit charge for the data usage required to make calls or send messages. For common-platform OTT calls, generally no charge is applied (other than any implicit cost for the data usage)[40]. Some OTT apps, however, such as Skype and Viber, allow calls to fixed and mobile numbers, which incur charges, depending on the length of the call. Tables 9 and 10 show, for example, that the OTT price for calls to a fixed landline in Trinidad and Tobago is aligned with prepaid PAYG charges[41], while OTT rates for calls to a mobile number in Trinidad and Tobago are*	TATT should analyze the effect of the arbitrage opportunity that OTT represents in its analysis of demand substitutability.	The Authority addresses Digicel's comment on the arbitrage opportunities as part of item 56 below. However, as noted before, notwithstanding any potential demand-side substitution resulting at the individual call/SMS level from these arbitrage opportunities, this does not change the wider reasons (set out in item 5) why OTT services do not form part of the market for retail domestic mobile services.

39 Complementary services would, for instance, be domestic vs. international calls.

40 The Authority notes that the prices of common-platform OTT services are significantly lower than the prices of traditional mobile services, sometimes with the direct marginal cost to the end user of a call or message being zero (although, depending on the subscription plan, there may be a non-zero marginal cost or opportunity cost of data incurred by the end user as a result of their use of the OTT platform). This is reflective of the business/operational plans of OTT service providers being significantly different from those of mobile concessionaires. This is also reflected in the higher prices for OTT calls to fixed or mobile numbers which incur a termination charge by the OTT provider to the relevant terminating party. Note that these remarks apply to both call and messaging services.

41 The comparison focuses on prepaid PAYG and OTT call services, as both offer unit prices for calls to domestic mobiles and fixed lines.

considerably more expensive than the prices charged by the concessionaires.

Table 9: Calls to domestic mobiles, MNOs and prepaid PAYG offers versus OTTs

Provider	**Unit price (TT$)**
Operator X	1.15/minute
Skype	2.77/minute
Operator Y	1.10/minute
Viber	2.77/minute

Source: OTTs' and concessionaires' websites, accessed February 13, 2019

Table 10: Calls to domestic fixed lines, MNOs and prepaid PAYG offers versus OTTs

Provider	**Unit price (TT$)**
Operator X	1.15/minute
Skype	1.16/minute
Operator Y	1.10/minute
Viber	1.52/minute

Source: OTTs' and concessionaires' websites, accessed February 13, 2019

Low or non-existent OTT app fees combined with free intra-platform calls provide end users with the opportunity to download such apps and use them only for the types of calls where it is the most convenient or cost-effective solution. The potential price differential between OTT and domestic mobile call services depends on the call scenario, with both services offering calls at zero marginal costs (i.e., intra-platform OTT calls over a Wi-Fi network or where an end user has unlimited data and mobile calls within their monthly allowance). This price differential also further depends on how much, if anything, the OTT end user has to pay for the data usage required to make the call. This will depend on whether that end user can use the data within his or her monthly allowance or uses Wi-Fi (in these cases, there is no extra cost), has to pay the out-of-bundle data charge or is on a PAYG plan."

				As indicated by TATT “Low or non-existent OTT app fees combined with free intra-platform calls provide end users with the opportunity to download such apps and use them only for the types of calls where it is the most convenient or cost-effective solution.” This is exactly the arbitrage opportunity that OTT represents that Digicel was mentioning above.		
56	4.3.1.4	Switching evidence	Digicel	*“As shown in Figure 10, domestic mobile call volumes (both prepaid and post-paid) have been generally stable within the last three years and have not declined as demand for OTT call volumes is likely to have increased*[42]*. However, the observed trends neither support nor refute substitutability between both services.*  Figure 10: Average domestic call minutes per connection Source: Analysis based on concessionaire data submitted to the Authority (December 2018 — January 2019) ” Digicel disagrees with TATT’s analysis as explained below:	The data provided by Digicel clearly shows the significant and increasing role that OTT voice services play in the retail mobile telephony market – one that has been underestimated in The Determination. Data on the usage of OTT voice services shows a growing trend that is expected to continue into the future, representing a significant competitive threat to traditional voice	Having reviewed the evidence set out in Digicel’s consultation response on item 56, the Authority does not share Digicel’s views that this is clear evidence to support the view that significant and increasing switching occurs from domestic mobile call services to OTT services. The average mobile call traffic per connection trends developed by the Authority for the overall market (and shown in figure 10 in the Determination) do not

[42] The Authority advises that data on the growth of OTT voice calls and minutes domestically were not available at the time of writing. Furthermore, additional information would be required to assess how mobile traffic would have evolved in the absence of OTT services.

				1. Non-OTT voice minutes have been declining as demonstrated by the data provided by Digicel to TATT in 2019 which showed a significant fall in domestic call minutes per connection over the same period for prepaid subscriptions of around 5% as shown in Figure 1 below. *Figure 1: Domestic call minutes per connection per month for prepaid subscriptions [Source: Digicel data provided to TATT, 2019]*	services such as those offered by Digicel. TATT should review its assessment of switching data taking into account both the data provided in 2019 and new data available since then.	suggest significant declining usage over time. As stated before, it is not clear to the Authority how Digicel estimated/calculated the volume of OTT calls over its mobile network. As the Authority has, to date, not seen average OTT call usage for "domestic" calls, any inference that the alleged increase in OTT calls represents substitution away from a particular type of traditional mobile voice call must be supported by further data. As such, as noted in the Authority's analysis, the more general point still stands that aggregate volume trends alone cannot confirm or refute substitution hypotheses. More specifically, the Authority has reviewed

				[redacted] This trend does not appear to have continued over the last year, as shown in Figure 2 below but it would be worth checking at the overall market level. *Figure 2: Most recent trend in domestic call minutes per subscriber per month [Source: Digicel, 2020]* [redacted] 2. OTT voice minutes have been increasing as can be seen from data provided by Digicel to TATT in 2019 as shown in Figure 3 below.		Digicel's points and its considerations can be summarised as follows: With regard to Digicel's first point (non-OTT voice traffic trends), the Authority is of the view that the information presented by Digicel may not contradict figure 10 in the Determination. This is because: (1) Digicel only presents prepaid call volumes, whilst the Authority presented average usage for both prepaid and postpaid connections; and (2) Digicel only presents the average prepaid usage for its customers, which may not be representative of the overall market trend (as shown by the Authority). Indeed, the Authority replicated Digicel's figure 1 using prepaid and postpaid data for the overall market (i.e.,

				Figure 3: Estimated call minutes per subscriber per month carried by OTT services[43] *[Source: Digicel data provided to TATT, 2019]* [redacted] This is confirmed by the latest data as shown in Figure 4 below. *Figure 4: Most recent trend in OTT call minutes per subscriber per month [Source: Digicel, 2020]*		including TSTT's) and found a rather stable trend, as shown in figure 10 in the Determination. Therefore, the Authority disagrees with Digicel's conclusion that average usage of domestic mobile call services has declined at the total market level, over the period under consideration. Furthermore, Digicel is advised that the market can comprise multiple players. Therefore, similar OTT traffic data would be required for the conclusions of the *Determination of the Domestic Retail Mobile Market* to be revised.

[43] Estimated based on the proportion of mobile data consumed by OTT voice applications on Digicel's network and using the conversion formula: outgoing minutes = total megabytes* 1024)/250 i.e., assuming an average consumption of 0.244 B per minute

				[redacted] 3. Combining the two points above, we can see that an increasing share of voice traffic is taken by OTT as shown in Figure 5 below. *Figure 5: Share of OTT voice minutes expressed as a percentage of total voice minutes [Source: Digicel, 2019]*		With respect to Digicel's second point (OTT voice traffic trends), Digicel's finding cannot be verified through evidence available to the Authority. In particular, it is not clear whether and, if so, how Digicel: 1. distinguished between "national" and "international" OTT calls, considering that only the former are relevant for the purpose of this market definition, and the data submitted by Digicel does not present a breakdown at this level. 2. identified the relevant proportion of its mobile customer base using OTT services (when deriving its average usage trends). The Authority notes that the figure 3 presented by Digicel shows that OTT

				[redacted] This trend is confirmed with the latest data as shown in Figure 6 below. *Figure 6: Graph showing rising OTT penetration [Source: Digicel, 2020]* [redacted]		usage may have increased in 2017/18, but only from a lower usage basis (i.e., 60 mins/month in June 2018, compared to 200 mins/month for domestic mobile calls, as shown in figure 1). Regarding Digicel’s third point, the Authority disagrees with Digicel’s conclusion based on the reasons presented above. The Authority also points out that it cannot verify the evidence presented in figure 5. With regard to Digicel’s fourth point, the Authority wishes to remind Digicel that international call services are out of the scope of this market definition. The Authority has only assessed average usage of domestic mobile services.

				4. We note that the analysis above does not include the arbitrage opportunity we raised above. Even if the total number of non-OTT minutes was not decreasing, this could be masking a reduction in international or out of bundle calls. Data from 2017 to 2020 shows a significant reduction in out-of-bundle minutes as shown in 5. Figure *7* below. *Figure 7: Graph showing decline in out-of-bundles minutes [Source: Digicel, 2020]* [redacted] 5. It is important to note that the figures used above only account for the portion of OTT voice calls conducted over Digicel's mobile data network. A large volume of additional OTT calls is likely to be carried over other data networks (e.g. Wi-Fi) although an accurate estimate of this is difficult as		Concerning the downward trend in total out-of-bundle minutes shown in figure 7, the Authority finds it difficult to draw any firm conclusions from that trend in terms of the average domestic mobile call traffic per mobile customer. This is because, for example, the Authority does not know (1) how the total minute trend translates into an average usage per connection; (2) how many mobile customers this data relates to; (3) whether the traffic data covers domestic call traffic only; and (4) if the observed reduction may have been caused by a change in customer mix and/or an increase in the average monthly call allowances. The Authority notes Digicel's fifth point (Wi-Fi offloading) and tentatively agrees with the stated

				this traffic is 'invisible' to Digicel. As a result, the prevalence of OTT voice calls is even greater than as shown above. 6. The Qualitative Response submitted to TATT by Digicel in 2019 stated on Page 7 that "*OTT voice and messaging applications are very popular amongst our mobile subscribers. In June 2018, at least 15% of the data traffic on Digicel's mobile network was attributed to either voice or messaging OTT applications, as shown below. Keeping in mind the low bandwidth required by these applications and the fact that the majority of usage is over Wi-Fi and, hence, not captured in this analysis, this highlights the already high take-up of OTT applications.*" In doing this we were already stressing the high level of voice substitution, but TATT appears to have disregarded this evidence.		implications of this data limitation. The Authority notes Digicel's sixth point (qualitative submission) and wishes to assure Digicel that it reviewed and considered all qualitative and quantitative submissions received when preparing the Determination. For example, the information submitted by Digicel at the time suggested that, for the period October 2017 to June 2018, Digicel's total OTT data traffic, as a percentage of total mobile data consumed, ranged between 14.97% and 19.08%. The TATT-CMR survey 2018 indicated that 13% of total respondents use OTT services. Thus, Digicel's data submission is not at odds with the

						TATT-CMR survey's OTT penetration results. Furthermore, the Authority acknowledges that OTT usage is likely to have increased in Trinidad and Tobago in recent years. However, based on the evidence seen to date, the Authority is yet to confirm the extent of that usage and whether that has resulted in end users substituting their domestic mobile call usage with OTT call usage. As stated in the Determination, the Authority considers it likely that mobile users are making decisions at the call/message level rather than consuming either only OTT or only traditional mobile services. The evidence available is therefore not sufficient to show that increases in OTT

<table>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td>traffic represent substitution away from traditional mobile services.</td></tr>
<tr><td>57</td><td>4.3.1.4</td><td>Switching evidence</td><td>Digicel</td><td>

"This observation is further *supported by the TATT-CMR Survey which revealed that, on average, 33% of all survey respondents would make fewer domestic mobile calls and instead make an increased number of OTT calls, if faced with a 5% – 10% rise in mobile call prices (compared, for example, to ceasing to use mobile voice services at all, or switching to another mobile provider)*[44]*. This response is higher amongst respondents with higher levels of consumption, as shown in Table 11. In particular, the share of respondents willing to switch to using OTT voice in case of a price increase in mobile call services drops to less than 26% for mobile users making fewer than 60 minutes of calls each week (representing 47% of the total respondents).*

Table 11: Intention to substitute (some) mobile for OTT calls following a 5% – 10% increase in the price of mobile voice services

<table>
<tr><th>Band of mobile voice service consumption</th><th>Share of total users in the consumption band</th><th>Share of users willing to switch to using OTT voice within each band</th></tr>
<tr><td>Fewer than 20 minutes per week</td><td>13%</td><td>21%</td></tr>
<tr><td>Between 20 and 60 minutes per week</td><td>34%</td><td>26%</td></tr>
<tr><td>Between 60 and 120 minutes per week</td><td>24%</td><td>40%</td></tr>
<tr><td>More than 120 minutes per week</td><td>30%</td><td>39%</td></tr>
<tr><td>Weighted average</td><td></td><td>33%</td></tr>
</table>

Note: Figures may not necessarily sum to 100%, due to rounding.

Source: TATT- CMR Survey

</td><td>

TATT's analysis and conclusion lack robustness and evidence. Digicel recommends TATT conduct a more rigorous and detailed review before drawing conclusions about profitability following a SSNIP.

A further round of consultation would then be required to allow respondents to assess the reliability of the conclusions drawn by the Authority.

</td><td>

The Authority notes Digicel's comments and addresses each in turn below. The Authority does not see a need for a further round of consultation.

Concerning Digicel's first point, as stated in response to item 28, the Authority acknowledges that the questions posed in the CMR survey cannot necessarily be translated directly into a SSNIP test (and recognised this in the Determination).

The Authority also emphasises that the survey was not necessarily designed to elicit such results; the survey mainly seeks to understand

</td></tr>
</table>

44 Note that, in order for respondents to consider switching usage to OTT voice calls, they do not necessarily need to be already subscribed or have downloaded the relevant app. Therefore, the proportion of respondents willing to switch some usage in the event of a price increase may be higher than the proportion of respondents who currently use OTT services.

				Although this evidence suggests that a share of end users of mobile voice services do consider OTT voice services to be an option if mobile call prices were to increase, it is not appropriate to conclude that switching to these services would make 5% – 10% price increases unprofitable for a hypothetical monopolist (which is the requirement of the SSNIP test, in order to conclude that OTT voice services are in the same market as traditional voice services)[45]*. In particular, the following considerations suggest that, in practice, the scope for end users substituting away from domestic mobile services to OTT services is low in Trinidad and Tobago*[46]*:* *a) Current OTT service penetration in Trinidad and Tobago appears to remain low, with only 13% of all survey respondents*[47] *reporting usage of these services*[48] *b) The degree of substitution has not been significant, with 76% of OTT users stating that*		consumers' switching decisions more generally, for example, given the choices actually available to them. In light of this, the 33% cannot be translated into a quantitative SSNIP "result" (irrespective of the underlying weighting factor applied, i.e., Digicel's second point). In particular, the responses to this survey question show the share of respondents who would change their behaviour slightly rather than switch away from

45 It is noted that, in certain situations, end users may opt for OTT services rather than traditional mobile services. Nonetheless, an assessment of whether services are substitutes does not only consider whether there would be any switching at all but also considers whether a sufficient degree of switching would occur, such that a hypothetical monopolist would find it unprofitable to increase prices by a significant amount of 5%–10% (see SSNIP narrative in subsection 2.1). Note that this applies to both call and messaging services.

46 It is noteworthy that culture (consumer habits or preferences) may also contribute to domestic customers' switching patterns. For example, despite mobile number portability domestically, 2018 and 2019 mobile subscription figures highlight that persons are still holding more than one mobile subscription, It is pertinent to note when considering the UK mobile number portability experience, all four of its GSM networks became largely equal subsequent to its introduction and prepaid packages, which became more competitive, resulting in lower switching barriers.

47 A total of 132 of the survey population responded in the affirmative.

48 Given the length of time OTT services have been available in Trinidad and Tobago and the high uptake of mobile data services in recent years, the low usage of OTT services may be reflective of the degree of the digital divide nationally. It is envisioned that OTT uptake will increase significantly in the near future. Therefore, the Authority reserves its right to conduct periodic and timely reviews of the market and all submarkets, in accordance with the Authority's regulatory functions and mandate.

				consumption of such services has not reduced their usage of traditional mobile services. *c) Mobile voice services still provide a perceived higher quality of service to end users than OTT services.* *d) An increasing trend towards bundled mobile services might limit end users' awareness of changes in the price for individual components and, with it, the willingness (and cost) to substitute consumption between services."* Digicel disagrees with TATT's analysis as explained below. 1. The alternatives to making an increased number of OTT calls considered by TATT in the TATT-CMR survey include "switching to another mobile provider" which does not make sense in the context of a SNIPP test which assumes a "hypothetical monopolist". In other words, the survey should have asked for people's intention to substitute (some) mobile to OTT calls <u>assuming that no other mobile voice provider was available</u>. This would likely have increased considerably the proportion of users willing to use more OTT calls in that case. 2. The 33% is calculated as the weighted average by the distribution of number of users in the different bands rather than by the distribution of revenue in the different bands. Using revenue would be more logical when assessing the profitability of a SSNIP		mobile services completely. Given the above, the Authority concurs with Digicel's third point that the 33% statistic cannot inform whether a SSNIP would be unprofitable but notes that the Authority did not state this in the Determination. Instead, the Authority said that there was insufficient evidence to conclude anything with conviction. The Authority further considers Digicel's worked example as rather extreme and thus equally unrepresentative of the potential impact of 33% of end users reacting to a SSNIP. Firstly, it seems very unlikely that 33% would cease to make any mobile calls at all in case of a SSNIP in mobile calls. Moreover, any shift to

				and would lead to a higher percentage of intention to switch as users making more calls are more inclined to switch based on TATT-CMT survey 3. Even taking the number of 33% at face value, TATT's conclusion simply asserts that "it is not appropriate to conclude that switching to these services would make 5% – 10% price increases unprofitable for a hypothetical monopolist". This assertion is not based on any evidence and, in particular, did not estimate the impact on revenue and costs of such switching. Taking an extreme example, if the 33% of end-users decided to move all their calls to OTT, the revenue from mobile calls for the hypothetical monopolist would decrease by ~26%[49]. As costs for a telecom operator are largely fixed, it is not obvious that such a large drop in revenue would be profitable. 4. With regards to the 4 considerations mentioned by TATT: a) Digicel considers this figure to be unrealistically low based the high volume of OTT voice and messaging traffic observed on its network. More recent data shows that OTT penetration had reached 40% and 53% for voice and messaging services respectively as of August 2020, as shown above so there is a question regarding the representativity of the survey itself		making OTT calls would not result in complete loss in revenue, as the operator would still earn some revenues relating to mobile data services and/or the mobile bundle these users are subscribed to. The Authority will welcome additional evidence on OTT and other services submitted in the future, which it will consider in any upcoming validation exercises and dominance assessments. Digicel and TSTT are therefore implored to send data that may buttress the information available to the Authority. In response to Digicel's fourth point: a) The Authority refers Digicel to item 63

[49] Assuming a revenue of 100 before the price increase, revenue would decrease by 33% on the one hand and increase by 10% on the other hand. 100 * (1-33%) * (1+10%) ~ 74%

				b) data from Digicel presented above shows a decline in non-OTT calls so surveyed users' perceptions does not appear to match the reality c) the quality perception is not relevant to a SNIPP test, only whether people switching would make the price increase unprofitable d) this is speculative and not backed up by evidence		below where this point is addressed. b) The Authority refers Digicel to item 56 above where this point is addressed. c) The Authority did not claim that the quality perception was directly relevant to the SSNIP test but listed this as one of the factors that might reduce switching towards OTT services as a result of a price increase in mobile services. d) The Authority maintains that this statement was not positioned as a fact. Instead, it isa description of what the Authority considers to be a possible behaviour of end users.
58	4.3.1	Supply-side considera tions	Digicel	*"Similar to the analysis of the substitutability between mobile and fixed services discussed above, there is no supply-side substitution between OTT and mobile voice services in Trinidad and Tobago. This is due to*	TATT's analysis and conclusion lack robustness and evidence. Digicel recommends TATT	The Authority notes that Digicel has misunderstood the concept of supply-side substitution. As stated in

				the high barriers to entry to the mobile services market, in terms of the need to: *(i) obtain a mobile service licence.* *(ii) gain access to mobile spectrum.* *(iii) deploy mobile network infrastructure.* *(iv) develop a retail distribution network."* *Given the time, investment and licence requirements, the Authority considers it unlikely that an OTT provider would enter the mobile service market following a SSNIP in mobile voice services*[50]*"* Digicel disagrees with TATT's analysis as explained below. 1. The comparison to substitutability between mobile and fixed services is not in our view appropriate. On the one hand, fixed operators have no way to offer voice services competing with traditional mobile voice services apart from launching an MNO or MVNO. On the other hand, OTTs can and do already offer voice services competing with traditional mobile voice services.	conduct a more rigorous and detailed review before drawing conclusions about profitability following a SSNIP. A further round of consultation would then be required to allow respondents to assess the reliability of the conclusions drawn by the Authority.	item 38, the relevant supply-side substitution test involves assessing whether OTT service providers would be able to begin offering traditional mobile services in case of a SSNIP on mobile services, i.e., by entering as MNOs or MVNOs rather than by competing via application-based services, as they do currently. Whilst in theory an OTT service provider could launch retail mobile services based on an MVNO model, there has been no evidence of successful MVNO entry in Trinidad and Tobago, suggesting this is not an

[50] It should be noted that supply-side substitutability specifically concerns the ability of a provider, who currently does not offer the focal product, to switch production/service provision to offer the focal product(s), which, in this case, are traditional mobile services (i.e., those services which are delivered directly over the mobile network and require a licence in the relevant country). Since OTT services do not meet these criteria, they are not considered to be supply-side substitutes to traditional mobile services. The requirement to provide traditional mobile services means that a provider would need either to operate their own mobile network or to operate as an MVNO using an MNO's network (i.e., using the infrastructure of one of the concessionaires), with both requiring a licence in the relevant country. The ability of OTT platforms/providers to pose a competitive constraint and, therefore, the consideration of whether they may belong in the same market as traditional mobile services, is captured in a test of demand-side substitutability, where one examines whether end users are likely to view these alternative services as viable substitutes to traditional mobile services in case of a SSNIP in the latter. Note that this applies for both call and messaging services.

				2. In effect, TATT has used a circular argument by assuming that OTT and mobile voice services are so different that they cannot be substitutes and therefore supply-side substitution is not possible by an OTT provider and hence concluding that there is no supply-side substitutability between OTT and mobile voice services. This represents a flawed logical argument that needs to be addressed by TATT. 3. TATT's analysis seems to assume that the only way for OTTs to react to a small increase in the price of mobile voice services would be to launch an MNO or MVNO. However, this analysis does not take into account the possibility that either new OTTs could enter the Trinidad and Tobago market or that existing OTTs could modify their offerings[51] and/or stimulate the usage of their services by users (e.g. by offering the app for free if not already the case, by reducing its price, by advertising, by providing training to people not used to OTT yet, etc). We understand that TATT considers "whether end users are likely to view these alternative services as viable substitutes to traditional mobile services" as demand-side substitutability but this narrow view ignores how supply-side actions could impact that substitution. In other words, Digicel's view is that there is supply-side substitutability because OTT		attractive business model for prospective entrants. Digicel also appears to assume that if there is demand-side substitution, this will also result in supply-side substitution, as the relevant services are similar. However, the Authority disagrees with this view, as both are completely separate concepts.

[51] Similar to the point made in section 4.3.1.1 of this response, OTT services do not need to launch an MNO or MVNO in order to offer services competing with traditional mobile voice services. For example, Skype offers a service which allows users to receive calls to a unique, personal number. This has already been implemented in 25 countries. It also allows users to initiate traditional telephone calls to other numbers for a small fee. In this way, Skype offers service competing with those offered by a traditional network operator without having launched an MNO or MVNO, therefore bypassing all the barriers to entry cited in this section. Also, OTTs have launched advanced enterprise solutions.

				players (which are on the supply side) can take actions rather than simply wait for end users to switch to them (which would indeed be demand-side substitutability). 4. TATTs erroneous logic on supply side substitution seems to stem from its inability to admit that OTT and traditional voice calls are substitutes. It seems that TATT has not fully realized that the provision of services is now completely disaggregated from the provision of a network. As a consequence, its understanding of what constitutes a "mobile service market" is fundamentally flawed.		
59	4.3.2	Conclusions	Digicel	*"Based on the assessment above, the Authority considers that OTT voice services do not form part of the same product market as domestic mobile call services, since there is no, or limited, demand-side or supply-side substitution."* The conclusions drawn in this section are covered in detail above in the comments on subsections of 4.3.1.		The Authority has set out above (items 52-58) its responses to the individual items raised by Digicel in relation to this subsection.
60	4.4	Are OTT Messaging Services in the Same Product Market as Retail Domestic Mobile Services?	Digicel	*"The Authority's analysis and conclusions on whether OTT messaging and mobile messaging services (i.e., SMS and MMS) belong to the same relevant product market are similar to those for voice services, discussed above. This is because of similarities in the underlying technologies and relative characteristics and restrictions of OTT and traditional services."* Digicel does not agree and is extremely concerned with TATT's analysis and conclusion regarding OTT messaging services.		The Authority has set out below (items 61-68) its responses to the individual items raised by Digicel in relation to this sub-section.

				We detail our specific concerns in the following subsections of Section 4.4		
61	4.4.1	Demand-side considerations	Digicel	*"The low OTT penetration in Trinidad and Tobago is likely to limit substitution between these services."* Digicel does not agree and is extremely concerned with TATT's analysis and conclusion regarding OTT messaging services. We detail our specific concerns in the following subsections of Section 4.4		The Authority has set out below (items 62-66) its responses to the individual items raised by Digicel in relation to this subsection.
62	4.4.1.1	Product characteristics	Digicel	*"OTT messaging applications often have additional functionality compared to traditional mobile messaging services. Indeed, OTT messaging has "instant messaging" features which are not available with traditional mobile messaging services. End users can, for example, see when another end user is online, when he/she is typing, when he/she last accessed the platform and (in some cases) whether their messages have been read.* *However, sending OTT messages also requires that both parties share a common application (i.e., OTT messages can only be sent between users of the same app). As such, these services are more limited than OTT voice services which can also be terminated for a unit charge on fixed lines and mobiles.* *Access to the Internet is another requirement. However, compared to voice services, effective communication through OTT messaging does not require that both sender and receiver simultaneously*	TATT has overstated the impact of potential interoperability issues as well as incorrectly concluding that OTT and mobile messaging services have limited substitutability. TATT should reassess its analysis and conclude that there is some level of demand-side substitution and resulting competition between OTT and	The Authority notes Digicel's views on the discussion set out in section 4.4.1.1 of the Determination and addresses each of the four points in turn below. Concerning Digicel's first point (network effects and interoperability of OTT services), the Authority refers to its responses to Digicel's similar points raised on mobile call services. See item 53. The Authority notes Digicel's second point raised (parallel use of OTT

				have a good Internet connection. Under extreme conditions of poor Internet connectivity or delayed Internet availability for the receiver, messages arrive late rather than fail to be delivered (although when messages are no longer pertinent, this is equivalent to non-delivery). This is not the case for traditional mobile messages (SMSs), which do not require an Internet connection, only a minimum level of coverage. This could, therefore, limit substitution between both services; OTT messaging is free but less reliable, while SMSs might be subject to a charge but more likely to be delivered. *Indeed, respondents to the TATT-CMR Survey pointed out "quality of service" (which might include service availability) as the main advantage of mobile messaging compared to OTT messaging services, with 55% of respondents citing quality of service as the main advantage of mobile messaging services compared to OTT messaging services. This could again limit substitution. The stress on quality of service implies that there are different situations in which end users would choose to send one type of message or another. For example, SMSs are required in situations where no Internet connection is available."* Digicel disagrees with TATT's analysis for similar reasons to those previously stated in the comments on Section 4.3.1.1 in this response. The arguments are summarized below:	mobile messaging services.	and mobile services) and refers Digicel to item 53, where it has addressed the comment around multiple OTT app usage by end users and the potential demand-side substitution between OTT and mobile services on an individual message level. As stated before, this does not influence the Authority's overall position that OTT services do not form part of the market for retail domestic mobile services (see items 5 and 33). The Authority addresses Digicel's third point (arbitrage opportunities) as part of item 56. Notwithstanding any potential demand-side substitution resulting at the individual call level from these arbitrage opportunities, this does not change the wider reasons why OTT services do not form part of the market for

				1. TATT's analysis again appears to assume that the lack of interoperability between OTT applications is a limitation. We again point out that many OTT apps can be installed on a single mobile device, significantly reducing the impact of the lack in interoperability. Furthermore, due to network effects mentioned in Section 4.3.1.1 WhatsApp is the most popular OTT service in Trinidad and Tobago and so a user of this platform would already likely have access to a wide range of contacts 2. TATT's analysis also seems to assume that a mobile end user considering using OTT messaging would need to stop making or receiving non-OTT messages. This is not the case, however. A mobile end user can use OTT messaging with some contacts while also sending and receiving non-OTT messages from other contacts, all from the same device. 3. TATT should also consider the arbitrage opportunity that OTT represents. Effectively a mobile user with an OTT application and access to mobile messaging services can choose on a per message basis whether to use OTT and non-OTT messages. This could for instance lead a user to use OTT for international messages or as a substitute for using out of bundles messages. From this we can see that there exists at least a partial degree of demand-side substitutability		retail domestic mobile services (set out in item 5). Concerning Digicel's fourth point (need for stable Internet connection) the Authority refers to its responses to Digicel's similar points raised on mobile call services. See item 53. The Authority agrees that a variation in the quality of the Internet connection may not stop end users from using OTT messaging services altogether; instead the stability of the Internet connection is likely to impact their choice of service on an individual call basis. However, in the Authority's view, this again does not change the wider reasons why OTT services do not form part of the market for retail domestic mobile services (set out in item 5).

				4. Finally, the discussion in The Determination points out that in the extreme case of limited internet connectivity a user may only receive SMS messages, and therefore SMS services are more reliable. We point out that this is only an edge case, and unlikely to apply in most situations. In addition, a mobile device is capable of sending both SMS and OTT messages so an OTT user can, in general, freely switch to sending and receiving SMS messages in the case of poor internet connectivity. In Digicel's view this shows that the services can act as substitutes for each other.		Based on the trends observed in other countries, the Authority considers it likely that OTT take-up and usage may increase in Trinidad and Tobago. This may also hold for other market phenomena such as fixed Wi-Fi offloading (due to the National Wi-Fi initiative). However, at this point in time, the Authority considers it unlikely that these trends alone will alter its current conclusion that OTT services are not substitutes to mobile services. But the Authority will continue to monitor these trends and re-assess them in any future market reviews.
63	4.4.1.2	Service availability and uptake	Digicel	*"While OTT penetration in Trinidad and Tobago remains low, its use for messaging purposes seems considerable among those who do use such services. Amongst the 13% of total respondents to the TATT-CMR Survey who utilise OTT services, 77% revealed that they mainly used them for messaging functionality and 97% used these platforms to send messages at least once a day. This compares to 73% of all survey*	As expressed in previous recommendations TATT needs to reassess the data submitted to it by Digicel in response to its RFI, as well as reconsider its	The Authority notes Digicel's comments on the low OTT take-up stated in the Determination. As explained in the document, this was based on the CMR survey results.

				respondents who send more than seven SMS/MMS per week (i.e., at least one SMS per day, on average).” Digicel again disagrees with the OTT penetration figure of 13% quoted by TATT from the TATT-CMR survey. Our evidence that OTT penetration is higher than 13% is presented in comments on Section 4.4.1.4 in this response which shows OTT penetration reaching 50% by mid 2020.	conclusions regarding OTT penetration in light of new data collected.	The Authority further acknowledges the OTT penetration estimates in Digicel’s latest submission (see item 56). Whilst the Authority would require further details on how Digicel has developed the OTT penetration data and needs to establish how these may be extrapolated to a total market level, the Authority does reco gnise that the CMR study results are likely to provide a lower bound estimate of OTT take-up in Trinidad and Tobago. The Authority will amend the relevant wording in the Determination accordingly. However, this does not impact the Authority’s findings that OTT services do not form part of the market for retail domestic mobile services, as explained in items 5 and 33.
64	4.4.1.3	Relative prices	Digicel	*“The potential price differential between OTT messaging and domestic mobile messaging services*	TATT should analyze the effect of	The Authority addresses Digicel’s comment on the

				depends on the messaging scenario, with both services potentially offering messages at zero marginal costs. OTT messaging services do not attract a per-message charge, but end users may face the mobile data-related costs of sending the OTT message. This will depend on whether that end user can use the data within their monthly allowance (in which case there is no extra cost); has to pay the out-of-bundle data charge; or is on a PAYG plan. *This also holds for domestic mobile messaging services, as many mobile bundles include unlimited SMSs, which results in the marginal cost for traditional (SMS) mobile messaging services faced by end users also being zero. For all other mobile users, a per-message charge will apply"* As indicated by TATT "The potential price differential between OTT messaging and domestic mobile messaging services depends on the messaging scenario" This is exactly the arbitrage opportunity that OTT represents that Digicel was mentioning above.	the arbitrage opportunity that OTT represents in its analysis of demand substitutability.	arbitrage opportunities as part of item 56. However, as noted before, notwithstanding any potential demand-side substitution resulting at the individual SMS level from these arbitrage opportunities, this does not change the wider reasons why OTT services do not form part of the market for retail domestic mobile services (set out in item 5).
65	4.4.1.4	Switching evidence	Digicel	*"According to the TATT-CMR Survey, 29% of all respondents would send fewer mobile messages and instead increase their usage of OTT messaging services in response to a 5% –10% increase in mobile messaging prices*[52]*"*	TATT should review its assessment of switching data taking into account	Having reviewed the evidence set out in Digicel's consultation response on item 65 and,

52 It is pertinent to note that, according to data submitted by the concessionaires, SMS and MMS traffic volumes in Trinidad and Tobago have exhibited a downward trend in recent years. There is insufficient information available to conclude the reasons behind this observed trend with any certainty, although it is likely to be driven by a number of factors, over and above any increased uptake of OTT services. These might include, inter alia, a degree of substitution from SMS/MMS to voice calling; OTT messaging or voice services; lower overall levels of communication via telephony (for example, in lieu of email communication or increased face-to-face interaction); and changes in messaging habits (for example, sending fewer, longer SMSs rather than many shorter ones).

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Table 12: Intention to substitute (some) mobile for OTT messages following a 5% –10% price increase in mobile messaging services
<table>
<tr><th>Band of mobile messaging service consumption</th><th>Share of total users in the consumption band</th><th>Share of users with willingness to switch within each band</th></tr>
<tr><td>Fewer than 7 SMSs/MMSs per week</td><td>27%</td><td>21%</td></tr>
<tr><td>Between 7 and 50 SMSs/MMSs per week</td><td>45%</td><td>25%</td></tr>
<tr><td>Between 50 and 100 SMSs/MMSs per week</td><td>16%</td><td>38%</td></tr>
<tr><td>More than 100 SMSs/MMSs per week</td><td>13%</td><td>43%</td></tr>
<tr><td>Weighted average</td><td></td><td>29%</td></tr>
</table>
Note: Figures may not necessarily sum to 100%, due to rounding.
Source: TATT-CMR Survey
As discussed when assessing similar evidence for domestic call services, although this evidence suggests that a share of end users of domestic mobile messaging services do consider OTT messaging services to be an option if domestic mobile messaging prices were to increase, in order for switching to these services to make 5% – 10% price increases unprofitable for a hypothetical monopolist (which is the requirement of the SSNIP test), and conclude that OTT messaging services are in the same market as domestic mobile messaging services, further data on volume of traffic affected and the cost of same, will be required. However, low OTT penetration and quality differentials with mobile messaging services suggest that switching may be limited. Moreover, and more importantly, the majority (76%) of all survey respondents using OTT applications reported that availability of these services had not affected their usage of mobile services[53]. "
</td>
<td>both the data provided in response to its RFI in 2019 and new data gathered by Digicel since then since then.</td>
<td>having conducted some further analysis, the Authority recognises that demand for domestic SMS services has fallen over time and OTT usage may have increased. However, based on the evidence seen to date, the Authority is yet to confirm the extent of that usage and whether it has resulted in end users substituting their domestic SMS usage with OTT messaging. As noted before, it is not clear to the Authority how Digicel estimated/calculated the volume of OTT messages over its mobile network and the average usage volumes appear unrealistically high. As the Authority has, to date, not seen average usage for "domestic" OTT messages, any inference that the alleged increase in OTT</td>
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[53] Source: TATT-CMR Survey results presentation, slide 65. Unsurprisingly, for the remaining 24% which did report a change in consumption of traditional mobile services, 94% revealed that this change included sending fewer traditional mobile messages (SMS/MMSs), i.e., the reduction in usage was also for messaging services rather than voice or data. The Authority notes that the survey results are not necessarily reflective of the wider trends, which show SMS usage declining. This could be for a number of reasons, including changes in customer preferences over time.

				Digicel disagrees with TATT’s analysis for the below reasons: 1. We note that The Determination does not include data showing an historically observed market trend, unlike in Section 4.3.1.4 where TATT includes this data for voice services in Figure 10. Rather TATT only mentions in passing in a footnote the significant decrease in SMS and MMS traffic and simply asserts that it is likely to be driven by a random list of speculative reasons not backed up by any evidence. 2. In response, Digicel notes that it submitted relevant revenue data for messaging services, reproduced in Figure 8 below, to TATT in response to its RFI. This data reveals a very material fall in SMS/MMS revenue per subscriber over the period from June 2015 to June 2018.		messages represents substitution away from domestic SMS services would require more data. Furthermore, the CMR survey results (as repeated by Digicel as part of its submission) suggest that (1) 29% of all respondents would send fewer mobile messages and, instead, increase their usage of OTT messaging services in the case of a SSNIP in mobile messaging services, and (2) 76% of all survey respondents using OTT applications reported that availability of these services had not affected their use of mobile services. The Authority has reviewed Digicel’s specific points and responds to each in turn below.

				Figure 8: Falling trend in prepaid SMS/MMS revenue per subscriber [Source: Digicel, 2019] [redacted] 3. OTT messages have been increasing as can be seen from data provided by Digicel to TATT in 2019 as shown in Figure 9 below. *Figure 9: Estimated messages per subscriber per month carried by OTT services[54] [Source: Digicel data provided to TATT, 2019]*		With regard to Digicel's first point (missing SMS trends analysis), the Authority acknowledges that the Determination did not include a specific graph on the trends in average usage of domestic SMS over time. This was due to the Authority not having the required data at the time. The Authority's findings then were based instead on the CMR survey and its general understanding of the market in Trinidad and Tobago. The Authority notes that Digicel also focusses on average SMS revenue trends (see figure 8) than average SMS volume trends over time. The Authority has since obtained the relevant data. As shown in the graph below, average domestic

[54] Estimated based on the proportion of mobile data consumed by OTT messaging applications on Digicel's network and using the conversion formula: outgoing messages = total megabytes/0.00176)/2

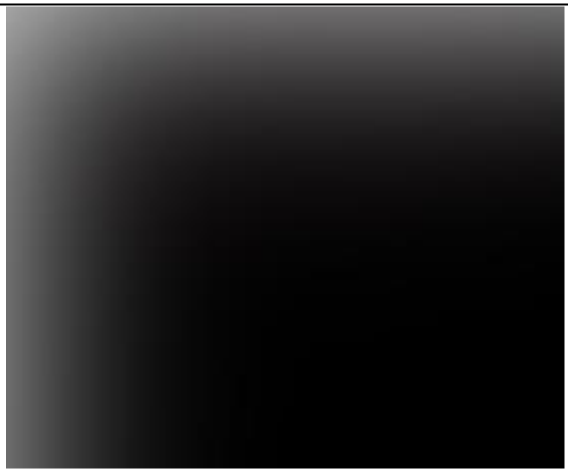
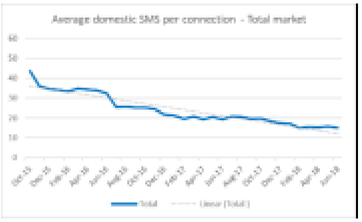
				 4. Combining the two points above, we can see that the use of SMS/MMS is declining while the use of OTT messaging is increasing. 5. Recent data collected by Digicel between August 2019 and August 2020 confirms the analysis above and shows that OTT messaging penetration is much higher than stated in The Determination. This data is presented in Figure 10. It should also be noted that the penetration is increasing rapidly, with a compound annual growth rate (CAGR) of 20.5%. In Digicel's view this data, combined with data from the previous points, is evidence of significant demand-side substitution between OTT and mobile messaging services as SMS and MMS usage decreases across the user-base while OTT messaging usage and penetration increases.		SMS per connection has fallen over time.  With regard to Digicel's second point (falling average SMS revenues for prepaid subscribers), the Authority notes the falling average SMS revenues for prepaid users. However, it does not consider this sufficient evidence to determine an overall market trend in SMS revenues per user. This is because Digicel does not show any postpaid SMS revenues or usage trends when the data are available. The Authority further notes that, on a total market level (i.e., prepaid and postpaid services), average SMS revenues per user have not

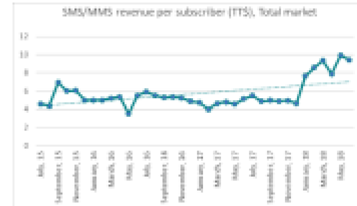
				Figure 10: OTT messaging penetration [Source: Digicel, 2020] [redacted] 6. Further evidence for demand-side substitutability is provided by recent data collected by Digicel for the year beginning August 2019. The percentage of subscribers solely using OTT messaging services for messaging (without using SMS) rose from 12.9% to 18.1% between August 2019 and August 2020. This sharp growth has a CAGR of around 40% and represents a strong demand-side substitutability between OTT messaging applications and traditional mobile services. Digicel expects this trend to continue, with mobile messaging services being dropped by end-users in favour of OTT messaging applications. The recorded trend is illustrated in Figure 11.		declined over that period, as shown below.  Additionally, the Authority considers SMS revenues per subscriber trends less insightful when assessing usage trends and potential substitution, than an analysis of average usage. This is because there may not be a clear link between average usage and the underlying SMS volumes. The unit price of messages can change over time. Moreover, for users on mobile bundles, deriving the average revenues requires data on actual usage and the effective unit price per SMS. With regard to Digicel's third point (increasing OTT

				Figure 11: Increase in subscribers using OTT only for messaging [Source: Digicel, 2020] [redacted] 7. We note that the analysis above does not include the arbitrage opportunity we raised above. Even if the total number of non-OTT messaging was not decreasing, this could be masking a reduction in international or out of bundle messages.		messaging), whilst the Authority acknowledges that OTT usage is likely to have increased in Trinidad and Tobago over recent years, the trends observed in figure 9 appear unrealistic. According to figure 9, each subscriber has, on average, sent around 600-700 OTT messages <u>per day</u> (18,000-22,000 OTT messages per month). Please also refer to item 33 for a discussion on potential drivers of any OTT take-up observed in Trinidad and Tobago. Concerning Digicel's fourth point**,** the Authority acknowledges that OTT messaging usage is likely to have increased over time (but not to the level set out in figure 9). However, as discussed above, it has not, to date, seen any evidence on declining domestic SMS

				8. It is important to note that the figures used above only account for the portion of OTT messages made over Digicel's mobile data network. A large volume of additional OTT messages is likely to be carried over other data networks (e.g. Wi-Fi) although an accurate estimate of this is difficult as this traffic is 'invisible' to Digicel. As a result, the prevalence of OTT messaging is even greater than as shown above.		usage across prepaid and postpaid mobile users. With regard to points 5 and 6, the Authority notes that figures 10 and 11 are based on data that cannot be verified, as the period goes beyond the period covered in the operators' submissions for this market definition and Digicel has not shared the data or its methodology with the Authority. As such, it would need to obtain and better understand the underlying analysis before being in a position to comment on the observed trends. The Authority would also need to obtain similar information from TSTT in order to assess the impact on a total market level. As stated previously, the Authority acknowledges

						that OTT messaging services are likely to be widely available and in use in Trinidad and Tobago. Whilst figure 10 suggests that around 50% of Digicel's mobile subscribers have access to/use OTT messaging services, it also suggests that the remaining 50% do not. This is despite, according to the CMR survey, the vast majority (97%) of mobile users having a smartphone or tablet. Pertinently, the difference between the number of persons with OTT accessible devices (97%) and the number of persons that utilise OTTs regularly (13%) can indicate the magnitude of the Internet literacy gap domestically. This gap illustrates the scope of activities required to improve persons'

						knowledge and capabilities, e-commerce skill-set, learning, entertainment, etc. with the use of these devices. The Authority, therefore, is partnering with interested stakeholders to reduce Trinidad and Tobago's Internet literacy gap. Current initiatives include infomercials on safety in cyberspace - You Don't Know What You Don't Know (YDKWYDK), electronic and print advisories on cybersafety, and ICT skills. Furthermore, Digicel will recall that in items 33 and 62, the Authority notes that OTT services may provide end users with more enhanced features and functionalities than traditional mobile voice services, as they allow an easier transfer of text, photos, documents, video

						and recorded sound messages. This may, in turn, result in an increased take-up and use of OTT services in Trinidad and Tobago, as seen in other countries. Finally, regarding points 7 and 8, the Authority has already responded to these issues in the context of mobile calls (see item 56).
66	4.4.1.4	Switchin g evidence	Digicel	*"According to the TATT-CMR Survey, 29% of all respondents would send fewer mobile messages and instead increase their usage of OTT messaging services in response to a 5% –10% increase in mobile messaging prices*[55]*. This response is higher amongst respondents with higher levels of consumption, as can be seen in Table 12, which illustrates how willingness to substitute usage to OTTs varies depending on end users' current SMS/MMS consumption. In particular, the share of respondents willing to switch to using OTT voice in case of a price increase in mobile services drops to less than 25% for mobile users*	A more rigorous and detailed review is needed by TATT to draw conclusions about demand-side substitutability.	The Authority notes Digicel's views on the discussion set out in section 4.4.1.4 of the Determination and refers to its responses to Digicel's similar points raised on mobile call services. These are discussed in item 57.

[55] It is pertinent to note that, according to data submitted by the concessionaires, SMS and MMS traffic volumes in Trinidad and Tobago have exhibited a downward trend in recent years. There is insufficient information available to conclude the reasons behind this trend with any certainty, although it is likely to be driven by a number of factors, over and above any increased uptake of OTT services. These might include, inter alia, a degree of substitution from SMS/MMS to voice calling; OTT messaging or voice services; lower overall levels of communication via telephony (for example, in lieu of email communication or increased face-to-face interaction); and changes in messaging habits (for example, sending fewer, longer SMSs rather than many shorter ones).

sending fewer than 50 SMSs each week (representing 71% of the total respondents).

Table 12: Intention to substitute (some) mobile for OTT messages following a 5% –10% price increase in mobile messaging services

Band of mobile messaging service consumption	Share of total users in the consumption band	Share of users with willingness to switch within each band
Fewer than 7 SMSs/MMSs per week	27%	21%
Between 7 and 50 SMSs/MMSs per week	45%	25%
Between 50 and 100 SMSs/MMSs per week	16%	38%
More than 100 SMSs/MMSs per week	13%	43%
Weighted average		29%

Note: Figures may not necessarily sum to 100%, due to rounding.

Source: TATT-CMR Survey

As discussed when assessing similar evidence for domestic call services, although this evidence suggests that a share of end users of domestic mobile messaging services do consider OTT messaging services to be an option if domestic mobile messaging prices were to increase, in order for switching to these services to make 5% – 10% price increases unprofitable for a hypothetical monopolist (which is the requirement of the SSNIP test), and conclude that OTT messaging services are in the same market as domestic mobile messaging services, further data on volume of traffic affected and the cost of same, will be required. However, low OTT penetration and quality differentials with mobile messaging services suggest that switching may be limited. Moreover, and more importantly, the majority (76%) of all survey respondents using OTT applications reported that

				availability of these services had not affected their usage of mobile services[56]*."* Digicel disagrees with TATT's analysis as explained below. 1. The alternatives to making an increased number of OTT messages considered by TATT in the TATT-CMR survey presumably include "switching to another mobile provider" similar to the voice question. If confirmed, this does not make sense in the context of a SNIPP test which assumes a "hypothetical monopolist". In other words, the survey should have asked for people's intention to substitute (some) mobile to OTT messages <u>assuming that no other mobile messaging provider was available</u>. This would likely have increased considerably the proportion of users willing to use more OTT messaging in that case. 2. The 29% is calculated as the weighted average by the distribution of number of users in the different bands rather than by the distribution of revenue in the different bands. Using revenue would be more logical when assessing the profitability of a SSNIP and would lead to a higher percentage of intention to switch as users sending more messages are more inclined to switch based on TATT-CMT survey		

[56] Source: TATT-CMR survey results presentation, slide 65. Unsurprisingly, for the remaining 24% which did report a change in consumption of traditional mobile services, 94% revealed that this change included sending fewer traditional mobile messages (SMS/MMS), i.e., these respondents preferred to reduce their usage of messaging services while leaving their demand for voice and data services unchanged. The Authority notes that the survey results are not necessarily reflective of the wider trends, which show SMS usage declining. This could be for a number of reasons, including changes in customer preferences over time.

				3. Even taking the number of 29% at face value, TATT's conclusion simply asserts that "it is not appropriate to conclude that switching to these services would make 5% – 10% price increases unprofitable for a hypothetical monopolist". This assertion is not based on any evidence and, in particular, did not estimate the impact on revenue and costs of such switching. Taking an extreme example, if the 29% of end-users decided to move all their calls to OTT, the revenue from mobile calls for the hypothetical monopolist would decrease by ~22%[57]. As costs for a telecom operator are largely fixed especially when considering mobile messaging services, it is not obvious that such a large drop in revenue would be profitable.		
67	4.4.2	Supply-side considerations	Digicel	*"Similar to the OTT voice services discussed above, there is no supply-side substitution between OTT messaging and mobile services in Trinidad and Tobago. This is due to the high barriers to entry to the mobile services market, in terms of the need to obtain a mobile service licence, gain access to mobile spectrum, deploy mobile network infrastructure and develop a retail distribution network. Given the time, investment and licence requirements, the Authority considers it unlikely that an OTT provider would enter the mobile service market following a SSNIP in mobile messaging services."*	A more rigorous and detailed review is needed by TATT to draw conclusions about supply-side substitutability.	The Authority notes Digicel's views on the discussion set out in section 4.4.2 of the Determination and refers to its responses to Digicel's similar points raised on mobile call services. These are discussed in item 58. In particular, Digicel appears to have misunderstood the concept

[57] Assuming a revenue of 100 before the price increase, revenue would decrease by 29% on the one hand and increase by 10% on the other hand. 100 * (1-29%) * (1+10%) ~ 78%

				Digicel disagrees with TATT's analysis for similar reasons to those discussed in comments on Section 4.3.2 in this response. The reasons for this disagreement are stated below: 1. In dismissing the possibility for a supply-side substitution by OTT service providers TATT assumes that OTTs can only react to an SSNIP of mobile messaging services by launching an MNO or MVNO. However, this analysis ignores the fact that new OTT service providers could enter the Trinidad and Tobago market or that existing OTT messaging applications could modify their offerings[58] and/or take action to stimulate usage of their services (e.g. by offering the application for free, investing in advertising, providing training for people unfamiliar with similar applications). TATT has neglected supply-side substitution arguments by taking a narrow-view based on its conclusions regarding the demand-side substitutability of these services. Digicel's view is that there is supply-side substitutability because OTT players (which are on the supply side) can take actions rather than simply wait for end users to switch to them (which would indeed be demand-side substitutability). 2. In addition, TATT has used the same circular argument commented on in Section 4.3.1 of this		of supply-side substitution. As stated in items 38 and 58, the relevant supply-side substitution test involves assessing whether OTT service providers would be able to begin offering traditional mobile services in the case of a SSNIP on mobile services, i.e., by entering as MNO**s** or MVNOs rather than by competing via application-based services, as they do currently. Theoretically, an OTT service provider could launch retail mobile services based on an MVNO model. However, the likelihood of this is highly subjective, given that there has been no MVNO entry in Trinidad and Tobago.

[58] As with the point made in section 4.3.1.1 of this response, OTT services do not need to launch an MNO or MVNO to offer services competing with traditional mobile voice services. For example, Skype offers a service, which has already been implemented in 25 countries, allowing users to receive calls to a unique, personal number. It also allows users to initiate traditional telephone calls to other numbers for a small fee. In this way, Skype offers a service competing with those offered by a traditional network operator, without having launched an MNO or MVNO, and bypassing all the barriers to entry cited in this section. Also, OTTs have launched advanced enterprise solutions.

				response and repeated as follows by assuming that OTT and mobile messaging services are so different that they cannot be substitutes and therefore supply-side substitution is not possible by an OTT provider and hence concluding that there is no supply-side substitutability between OTT and mobile messaging services. This represents a flawed logical argument that needs to be addressed by TATT.		
68	4.4.3	Conclusions	Digicel	*"Based on the assessment above, the Authority considers that OTT messaging services do not form part of the same product market as retail domestic mobile services. This is due to there being limited demand-side or supply-side substitution."* The conclusions drawn in this section are covered in detail above in the comments on subsections of 4.3.1.		The Authority has set out its responses to the relevant individual items raised by Digicel in relation to this subsection. Reference is made to (items 52-58), listed above.
69	4.5	Key conclusions	Digicel	The conclusions summarized in this section are covered in detail above in this response's comments on subsections of Section 4.		The Authority has set out its responses to the individual items raised by Digicel in relation to this section (Items 49-68), listed above.
70	5	Geographic scope of the Product Market	Digicel	Digicel does not have an objection to the market being defined as a national market.		The Authority notes Digicel's endorsement of its geographic market definition.
71	6	Conclusions	Digicel	Digicel disagrees with conclusions summarized in this section for the reasons covered in detail above in the		The Authority has set out its responses to all the

				comments on all sections and subsections in this response.		individual items raised by Digicel (Items 43-70), listed above.