هيئة الاتصالات وتقنية المعلومات
Communications and Information Technology Commission

Draft Market Definition

Designation and Dominance (MDDD) Report 2016

July 2016

INDEX

1 - Introduction

The Telecommunications Act (2001)[1] and the Telecommunications Bylaw (2002)[2] (together, the "Act" and "Bylaw") require the Communications and Information Technology Commission ("CITC") to define relevant markets in the telecommunications sector in Saudi Arabia, to determine dominance in those markets and to impose ex-ante regulatory remedies on any dominant licensed service providers in those markets. To comply with these obligations CITC undertakes regular reviews of the competitive dynamics in the telecommunications sector. This is referred to as the "Market Definition, Designation and Dominance" (MDDD) process.

The competitive landscape in the telecommunications sector in Saudi Arabia is changing at a rapid rate, reflecting developments in technologies, demand patterns and market conditions globally, as well as CITC's implementation of the Government's sector liberalisation strategy. Key developments in the Saudi telecommunications sector since the last MDDD report in 2010 include, amongst others, the continued deployment of broadband infrastructure and the launch of mobile virtual network operators (MVNO). Further, mobile broadband services have become increasingly popular and technological developments make them more comparable to fixed broadband access services.

This report sets out CITC's updated MDDD assessment. This follows the approach outlined in the Regulatory Framework for Designation of Markets and Dominance "the Regulatory Framework", is in line with international precedent and is based on the most recent data and information on the telecommunications sector, as provided to CITC.

1.1 Structure of this report

- The remainder of this report is structured as follows:

- **Section 1.2** describes the approach used to prepare the MDDD analysis;
- **Section 2** sets out the proposed market definitions and designates as Relevant Markets those susceptible to ex-ante regulation;
- **Section 3** details the dominance assessment in each Relevant Market; and
- **Section 4** sets out the proposed remedies for each Relevant Market in which a service provider is found to be dominant.

1 Telecommunications Act, Issued under the Council of Ministers resolution No. (74) dated 05/03/1422H (corresponding to 27/05/2001) and approved pursuant to the Royal Decree No. (M/12) dated 12/03/1422H (corresponding to 03/06/2001)
2 Telecom Act Bylaws, Issued by the of the Minister of Post, Telegraph and Telephone resolution No. (11) dated 17/05/1423H (corresponding to 27/07/2002)

1.2 The MDDD approach

Figure 1 shows an overview of the activities involved in the MDDD review.

Figure 1. Market review process

Market Definition | Dominance Designation | Remedies

Definition of Candidate Markets

Candidate Markets are identified as a starting point for the market definition process, talking into account Relevant Markets from previous MDDDs and latest market developments.

Dimensions:
- Service scope
- Customer segments
- Geographic scope

Method:
- Supply and demand side substitution to find homogeneous markets
- SNIP test is widely used

Identification of Relevant Markets

Three Criteria test (TCT) applied to each Candidate Market to determine those markets susceptible to ex ante regulation.

Only those candidate Markets that satisfy all three criteria pass the TCT and are then classified as Relevant Markets. for ex ante regulation.

Only Relevant Markets go forward to the next stages of Dominance Designation and Remedies.

Market Analysis and Dominance

Assessment of each Relevant Market to determine whether one or more provider(s) have a dominant position in that market.

Dominance indicators:
- Market shares
- Market concentration
- Countervailing buying power

Result:
- Dominance designation of providers in each Relevant Market not considered to be (prospectively) competitive

Obligation on dominant providers

Determine the relevant ex ante regulatory obligations for dominant providers in each Relevant Market to address competitive concerns in that market.

The available remedies are set out in the Telecoms Act. Bylaw and Regulatory Framework.

1.2.1 Approach to Market definition and designation

Candidate Markets are identified in terms of:

a) The services which form part of the same market;

b) Whether services offered to all customers form part of the same market; and

c) The geographic boundaries of the market.

This is based primarily on examining possible demand and supply-side substitution through the SSNIP (small but significant non-transitory increase in price) test. That is, to define the market, CITC considers the smallest group of services in which a SSNIP sustained for 12 months could be profitably maintained by a service provider. However, given the ex-ante nature of the review, CITC also takes into account practical considerations in defining markets. In particular, the pure application of the SSNIP test could lead to very granular markets. Where grouping markets together has no impact on the other stages of the MDDD process, CITC seeks to do so, in order to limit the regulatory complexity and burden that could otherwise arise.

The **Three Criteria test (TCT)** is then applied to candidate markets to determine if a market is susceptible to ex-ante regulation. The three criteria are:

a) Whether the market is subject to high and non-transitory barriers to entry;

b) Whether the market would not naturally tend, in the short or long term, toward sufficient competition to protect the interests of customers, even without regulatory intervention; and

c) Whether ex-post remedies alone would be insufficient to address concerns related to potential anti-competitive behaviour.

Candidate Markets that satisfy all three criteria are classified as susceptible to ex-ante regulation (termed "Relevant Markets".) and considered in the following stages of the review.

1.2.2 Approach to the dominance assessment

All of the Relevant Markets are subject to a dominance assessment, in line with the approach set out in the Regulatory Framework.

To determine whether to designate a service provider as dominant, a number of criteria are considered. These criteria cover a range of factors likely to influence the ability of a service provider to act without due attention to the behaviour of any competitors or the interests of customers. Factors which CITC may consider are set out in Section 4 of this report.

1.2.3 Approach to recommending remedies

The final element of the market review process is the recommendation of ex-ante remedies to address competition concerns arising from any dominance findings. These remedies must be:

- Proportionate – i.e. minimise the costs imposed by the regulation;
- Appropriate – i.e. designed to address the problem identified in an efficient manner; and
- Non-discriminatory – i.e. they must follow a transparent process and not unduly restrict any particular provider, compared to rivals in a similar position.

The Bylaw and Regulatory Framework define a set of remedies that CITC can apply to dominant providers.

2 - Proposed market definitions and designations

2.1 Introduction

In this section, CITC defines the Candidate Markets considered as part of this MDDD update. It then examines which markets are susceptible to ex-ante regulation. CITC's analysis is described in more detail below.

2.1.1 Definition of Candidate Markets

As a starting point, CITC has used the list of markets considered as part of the 2010 MDDD (see **Table 1** below), examining whether there is a need to amend this list of candidate markets, both in terms of the service and geographic scope of the markets. For this, it has assessed demand and supply-side factors, including considerations such as:

- Whether there are any substitutes available for the services under consideration.
- Whether there is an impact of product bundles on market definition.
- Whether services offered to different customer segments (are demand or supply-side substitutes.
- Whether the market is national or regional in scope.

CITC's analysis begins by defining the boundaries of the retail service markets. These are then used to determine the boundaries of wholesale markets. This is because the demand for wholesale services is derived from the demand for retail services. However, this does not mean that there will be a one-to-one mapping of retail and wholesale service markets. For example, some retail services require multiple wholesale services (like those relating to call origination, transit and call termination) and certain wholesale services are the basis for several retail services (e.g. wholesale access to physical network infrastructure – such as ducts and dark fibre– which can be used to deliver a number of retail services).

2.1.2 The Three Criteria Test

Following the market definition of each market, the TCT is applied to determine whether any of the Candidate Markets identified in the preceding section may be susceptible to ex-ante regulation.

If the TCT is met for a retail market (i.e., if the market is susceptible to ex-ante regulation), CITC also considers whether the presence of wholesale remedies in upstream markets would be sufficient to mitigate the competition concerns. If the wholesale remedies lowered barriers to entry in the retail market; implied a tendency to competition; or meant that ex-post remedies were sufficient at the retail level, the market may not be susceptible to ex-ante regulation at the retail level.

Table 1. Market definitions in 2010 MDDD

Candidate market[3]
Retail service markets
M1 - Retail fixed access services
M2 - Retail local and national fixed call services
M3 - Retail international voice call services
M4 - Retail national mobile services
M5 - Retail business data connectivity services at fixed locations
M6 - Retail fixed Internet access services
Wholesale service markets
M7 - Wholesale fixed call termination services
M8 - Wholesale transit interconnection services
M9 - Wholesale broadband access services
M10 - Wholesale leased line and managed network transmission services
M11 - Wholesale mobile termination services
M12 - Wholesale national roaming services
M13 - Wholesale international voice call services
M14 - Wholesale fixed call origination service

Source: Figure 6.1 in MDDD Report 2010

2.2 Retail markets

This section presents a definition of each of the Candidate Retail Markets.

2.2.1 Market 1 - Retail fixed access and local and national fixed call services Market definition

(a) Services Considered

The services considered include access to public telephone services at a fixed location in both residential and non-residential premises as well as local and national calls from a fixed location.

(b) Are individual fixed call services in the same market?

CITC considered whether different fixed local and national call services form part of the same market, CITC the extent of demand-side and supply-side substitution between those services is examined.

(b.1) Demand-side substitutability

CITC does not believe that different types of fixed local and national calls are **demand-side substitutes.** Whilst customers could potentially substitute between fixed-to-fixed and fixed-to-mobile calls (as a caller could try to reach a counterpart on either a fixed or a mobile number), there are differences in service characteristics between local fixed-to-fixed calls and national long-distance fixed-to-fixed calls as these services allow to customers to reach different people. As such, these are generally not substitutable.

(b.2) Supply-side substitutability

Different fixed local and national call services are likely to be **supply-side substitutes**. These call services are all delivered via the same network. Therefore a provider who offers fixed access line rental and local calls can relatively easily offer other call services as well, for example by purchasing interconnection services if it does not have its own network in the part of the country being called. Clearly, once a provider has a national network used to provide fixed access line rental and national long-distance fixed call services, he would be able to switch easily to provide local calls, calls to mobiles, and so on.

Therefore, given the supply-side substitutability between these services, CITC intends to define a single market for all fixed local and national call services.

(c) Whether fixed access and local/national fixed call services should be defined in the same market

CITC considered whether the retail access line rental service should also be included in the same market as national fixed calls.

(c.1) Demand-side substitutability

Demand-side substitution is likely to be limited. Retail access line rental and calling services are clearly complementary: that is, customers take a retail access line rental service so that they can make and receive calls, rather than purchasing retail line rental for the sake of it.

(c.2) Supply-side substitutability

Fixed access and local and national call services are likely to be supply-side substitutes as these services are delivered over the same network infrastructure.

In particular, in the absence of wholesale remedies in the upstream market, a service provider would need an access network to offer either local and national fixed calls, or a retail access (i.e. line rental) product. The former services would further require access to core or transmission network infrastructure which most service provider own or have access to and is deployable at a lower cost than a fixed access network. As such, in absence of licence restrictions, it appears likely that these services are supply-side substitutes.

(c.3) Competitive dynamics

It is increasingly the case that fixed call and access services are offered as part of a **single service bundle**. For example, STC is offering unmetered local calls and on-net national calls as part of its Jood 1 fixed call package (see Table 3 below).

Table 2. National fixed call prices (SAR/min)

Service provider	Plan	Local calls	Fixed-to-fixed national calls		Fixed-to-Mobile calls
			On-net	Off-net	
STC	Jood 1	Unmetered	Unmetered	0.25	0.40
	Hatif	0.05	0.10	0.20	0.40
Atheeb (GO (Telecom	*Various	0.12	0.05	0.12	0.35

Source: Service provider websites

* including Easy Phone, Phone, SAHL and all post-paid voice and broadband packages

This means end-users will consider the price across the bundle rather than for individual services when choosing a service provider. This suggests that these services could be considered in a single service market. Thus defining a separate fixed access market and a separate fixed local and national calls market would not lead to a different outcome in the dominance assessment.

Given the above, CITC has defined a single service market including retail fixed access services and fixed local and national call services.

(d) Fixed-to-mobile substitution

CITC considered whether mobile access and call services are effective substitutes for fixed access and fixed local and national call services.

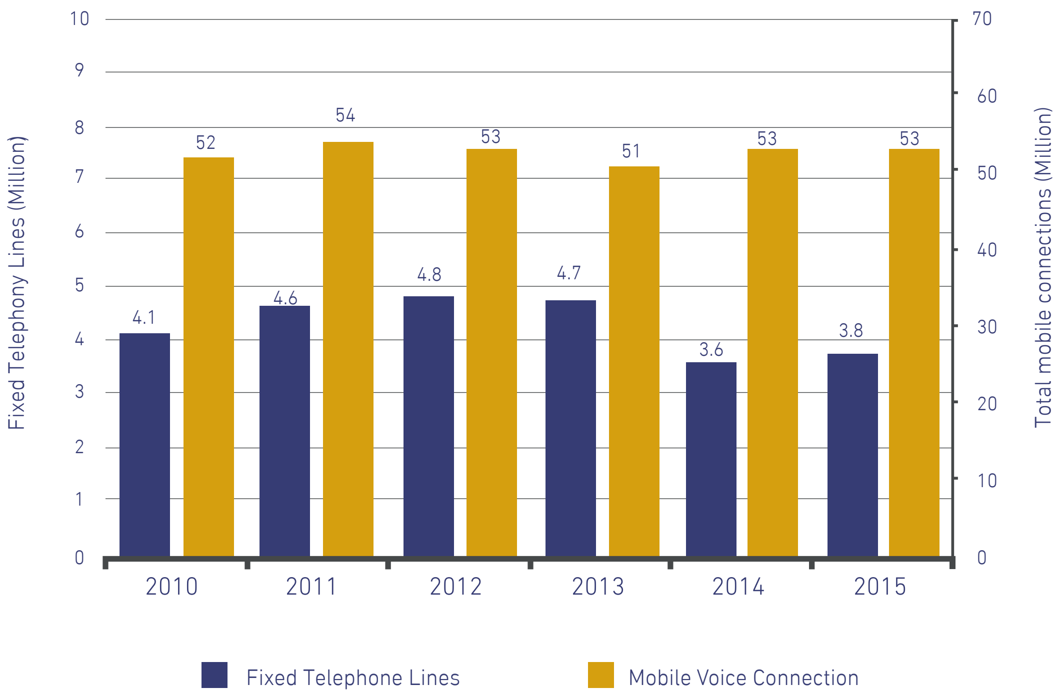
(d.1) Demand-side substitutability

There are several market characteristics which can indicate whether there is any fixed-to-mobile substitution:

Service characteristics. While mobile call services allow customers to make and receive calls in a similar way as fixed call services, there are significant differences between fixed and mobile call services with are likely to limit the extent to which mobile services act as a substitute for fixed services. For example, while mobile call services are commonly used by a single person, fixed call services are usually shared within a household. Further, mobile voice customers do not get a geographic number, are not entered automatically to the directory enquiries database and there is no automatic geo-location capability for emergency calls on mobile call services.

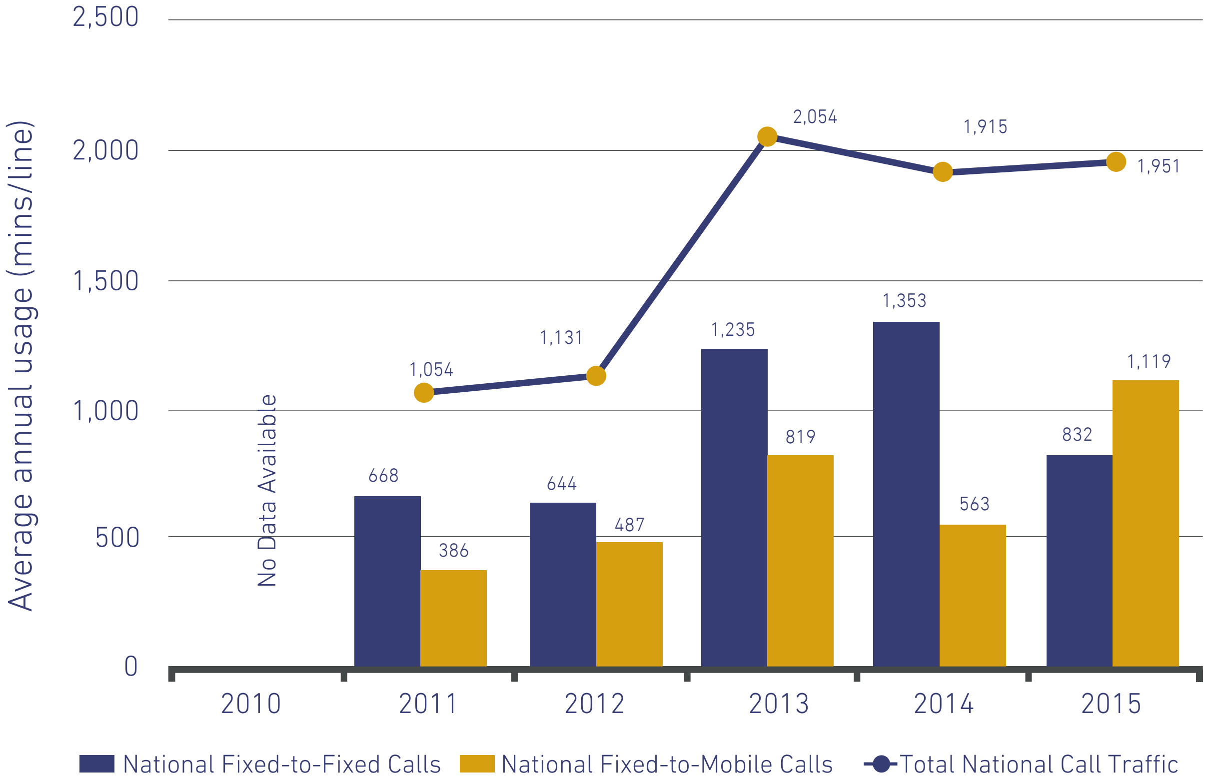
Switching evidence - Access. Opposing trends in fixed and mobile connections could indicate that substitution is taking place. However, this is not seen in Saudi Arabia where total fixed lines and total mobile connections have remained broadly stable in recent years (see **Figure 2** below). For example, the total number of residential fixed line connections remained stable between 2010 and 2013. Whilst there has been a noticeable drop in fixed lines in 2014, this decline can be explained by the cancelation of inactive customer lines that took place that year (with these customers having been inactive for several years already). This is evidence that customers currently do not consider fixed retail line rental and mobile access services as substitutes. This is partly linked to the unmetered local calls which are associated with STC's fixed lines services and customers keeping their fixed retail line rental services in order to access fixed broadband access services. For example, whilst STC's 'Jood Net' DSL services allow a user to purchase a DSL services from STC without having to also purchase a fixed voice access service, its pricing of this 'naked' DSL vis-a-vis its bundled fixed access and DSL service packages (i.e., SAR 149 or SAR 199 for naked DSL vs. SAR 199 or SAR 249 for comparable DSL and fixed voice access bundles from STC or Atheeb), means there is limited incentive for customers to switch to a naked DSL service. This is particularly the case given the unmetered local calls associated with STC's 'Jood' fixed call package. As such, any customers who wish to subscribe to a DSL service are also likely to obtain a retail access line rental service from the same provider.

Figure 2. Fixed access and mobile subscriber trends, 2010-15



Switching evidence – Calls. The average annual national fixed call traffic per fixed access line has not fallen significantly in recent years – as would be expected if fixed-to-mobile substitution was taking place. Whilst there has been a year-on-year decline in average traffic volumes between 2013 and 2014, both local and national fixed-to-fixed and fixed-to-mobile average traffic volumes were significantly higher in 2015 than in 2011 or 2012 (see **Figure 3** below).

Figure 3. Average annual usage of national local and national fixed calls, 2010-15



Given the above, CITC considers that there is not enough evidence to show that customers will, going forward, switch in sufficient numbers to mobile services in the event of a 5-10% SSNIP in retail line rental and local and national call services, to make these services part of the same market.

(d.2) Supply-side substitutability

Fixed and mobile services are delivered based on different network technology and require separate service licences,3 resulting in high barriers to entry into the fixed service market for mobile service providers. This makes it unlikely that mobile service providers will start to offer fixed retail line rental and local and national call services in case of a SSNIP in fixed services.

As such, CITC considers that mobile services do not form part of the market for retail fixed access and local and national fixed call services.

(e) Potential substitution with OTT-based VoIP services

CITC considered whether over the top (OTT) based VoIP services are an effective substitute for fixed call services. OTT-based voice (and messaging) services are offered by international application providers (e.g. Skype, or WhatsApp). Users require an Internet connection and a personal computer, laptop, tablet or mobile smartphone in order to access these services, which are provided via an OTT software solution (such as an app for smartphones or software for PCs or laptops).4

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3 CITC notes that the latter may change under a unified licence framework.

4 Some of these services are only available on a smartphone (such as, WhatsApp), whilst other OTT services are available on both smartphones and laptop and PCs (such as, Skype).

(e.1) Demand-side substitutability

OTT VoIP services allow customers to make and receive calls at comparable or even lower prices than are available through traditional telephony services. However, CITC has not seen any quantitative evidence on the take-up of OTT VoIP services in Saudi Arabia. As such, it has reviewed international precedent on the treatment of OTT VoIP services in the context of market reviews. Based on this, it appears that there are certain distinguishing features of OTT VoIP services that mean they are unlikely to be, at this time, an effective demand-side substitute for fixed local and national call services.

Geographic number – OTT VoIP services do not provide a geographic number, meaning a user can only receive calls from users of the same OTT service (i.e., these customers cannot be called on their OTT accounts from a fixed line or a mobile phone). Furthermore, these services do not provide some of the other call features offered by fixed call services, such as being able to contact emergency services and call blocking.

Quality of service – OTT VoIP services are often of a lower quality than fixed local and national calls. There is also often limited customer service and support for VoIP services.

Relative prices – While access to VoIP software is usually free or available at a low cost, those users who do not already have a broadband connection will face additional costs if they were to switch. Given current prices for retail broadband services, this could be a barrier to switching for customers with no broadband connection, should the price of STC's fixed call service increase by 5-10%.[5] However, given the prevailing high (fixed and mobile) broadband penetration, this does not appear to be relevant in Saudi Arabia.

When excluding broadband connection costs, OTT VoIP is cheaper than traditional fixed retail line rental and local call services. Whilst CITC has no information on take-up or usage levels of OTT VoIP services. STC's total fixed line connections have not declined in recent years (see **Figure 2** above) is an indication that customers do not consider these services as suitable substitutes to providing access to fixed local and national call services. As such, CITC does not consider OTT VoIP services would render a SSNIP on fixed access services unprofitable.

CITC has limited information on **call prices** for OTT VoIP services. However, comparing the price of calls from Skype (as a prominent OTT VoIP service provider) to those of STC and Atheeb, reveals that Skype is only similarly priced for calls within Saudi Arabia when a user calls another Skype user (see **Table 3** below). Whilst unmetered Skype-to-Skype calls may increase the potential substitutability between OTT VoIP and local and national fixed call services, the growth in national fixed call traffic in recent years (see **Figure 3** above) is an indication that users do not regard these services as close substitutes.

Table 3. High-level comparison of national call prices for Skype, STC and Atheeb (SAR/min)

Service provider	Plan	Call to Skype customer	Calls to Saudi fixed line			Calls to Saudi mobile
			Local	On-net	Off-net	
Skype	***Pay as you go**	Unmetered	1.21 – 0.94			0.59
STC	**Jood 1**	n/a	Unmetered		0.15	0.40
	Hatif	n/a	0.05	0.10	0.20	0.40
Atheeb	****Various**	n/a	0.12	0.05	***n/a	0.35

Source: Service provider websites, XE.com spot exchange rate
*average price per 3 min call ** including Easy Phone, Phone, SAHL and all post-paid voice and broadband packages ***not stated on Atheeb's website

5 For example, STC's basic telephone package "Jood 1" costs SAR 99 per month while STC's basic internet package "Jood Net" costs SAR 149 per month.

(e.2) Supply-side substitutability

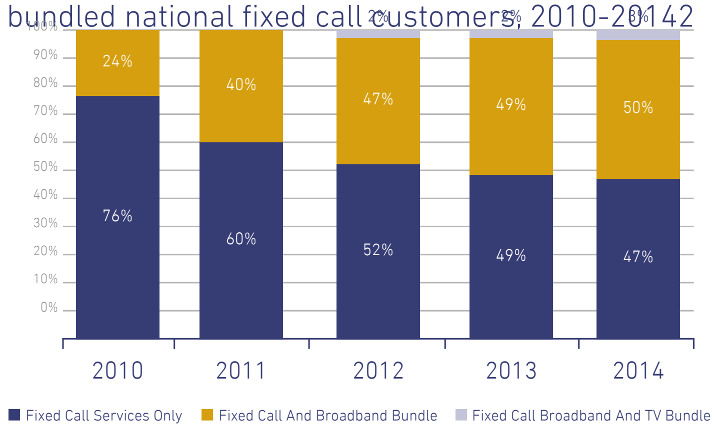
OTT service providers are not licenced in Saudi Arabia and are therefore not authorized to deploy and operate any fixed network infrastructure. Further, given the significant time and investment required to deploy a national fixed access and core network, it is unlikely that OTT providers would start providing retail fixed access and local and national call services in Saudi Arabia following a SSNIP of fixed access and local and national fixed call services.

Therefore, CITC concludes that OTT VoIP services do not represent an effective substitute for local and national fixed call services and so do not form part of the market for retail fixed access and local and national fixed call services. However, it is possible that these services will in future provide an increasing competitive constraint on local and national fixed call services. CITC will continue to monitor this.

(f) Defining a single service market for retail fixed access, local and national fixed call services, and broadband services

Fixed broadband and voice services are provided over the same infrastructure, whilst bundled (voice and broadband) services are also becoming more popular, as illustrated in Figure 4 below. CITC has therefore considered whether fixed broadband access services should be included in the same market as fixed access and fixed local and national call services.

Figure 4. Standalone vs. bundled national fixed call customers, 2010-2014[2]



(f.1) Demand-side substitutability

Local and national fixed call and broadband services are not demand-side substitutes for each other. In theory, due to the emergence of VoIP technology, end-users could switch away from local and national fixed call services to broadband only services and use an OTT VoIP service to make and receive calls. However, CITC does not consider OTT VoIP services and traditional local and national fixed call services to be substitutes. As such, it is unlikely that sufficient end-users would adopt the above alternative to render a SSNIP on fixed access and local and national call services unprofitable because of switching to broadband.

(f.2) Supply-side substitutability

In theory, all providers of national fixed call services are usually also able to provide fixed broadband access services and vice versa, especially given the increased roll out of fibre technologies. However, CITC notes that only STC and Atheeb are licensed to provide national fixed call and broadband services. This limits the actual potential for supply-side substitution from fixed broadband to national fixed call services (i.e., a SSNIP in national fixed call services would not necessarily attract fixed broadband providers to provide such services).

Therefore, CITC concludes that fixed broadband access services should not be included in the market for fixed access and local and national fixed call services.

(g) Whether national fixed access and local and national call services provided to residential and business customers fall into the same market

The market could, in principle, be divided into residential and business segments. Indeed, within the business customer segment, further segmentation may be possible into small businesses and large corporations. This is because the demand for fixed telecommunications services is likely to vary by size of the business.

(g.1) Demand-side substitutability

Marketing strategies and market standards typically differ significantly between residential and business segments. Whereas residential customers have to choose among standardized tariff options, larger business customers might negotiate on individual terms. Due to differences in consumption levels (total connections and/or average usage), tariff structures (including discounts) will also differ substantially. These distinguishing characteristics reduce the potential for **demand-side-substitution**, although CITC notes that it currently does not hold any information on customer switching behaviour for these services.

(g.2) Supply-side substitutability

Similar equipment and infrastructure is used to deliver both small business and residential services (though there may be differences in the retail channels through which services are sold). So, in the event of a SSNIP by a hypothetical monopolist of residential local and national fixed access and call services, a provider of business services could switch to the supply of residential services and vice versa. However, this is contingent on business and residential customers being located in the same areas, as otherwise the access network for one group of customers may not cover the other group. Overall, given the prevailing market structure in Saudi Arabia, CITC considers that supply-side substitution is likely to remain limited.

(g.3) Competitive dynamics

Despite the differences in service offerings for these two customer segments, the market structure and competitive dynamics for these customer segments are sufficiently similar to reach the same conclusions on the market analysis and dominance designation for both services.

CITC therefore defines a single market for business and residential retail fixed access and local and national fixed call services.

(h) Relevant geographic market

CITC considered whether demand and/or supply-side substitutes for retail fixed access and local and national fixed call services vary by geography.

(h.1) Demand-side substitutability

CITC has not seen any evidence that the nature of demand for these services varies significantly at a sub-national level. Demand for national fixed call services is local in nature (i.e., each customer demands a connection where they live / where their business is sited, and would not substitute this for a connection elsewhere). Furthermore, STC operates a ubiquitous fixed network and therefore has the capacity to provide national fixed call services throughout Saudi Arabia.

(h.2) Supply-side substitutability

STC and Atheeb offer fixed access and local and national fixed call services at a uniform price and service specification across Saudi Arabia. Atheeb has coverage only in limited parts of Saudi Arabia (i.e. predominantly in Riyadh, Jeddah and Dammam), and even in areas where Atheeb is present, STC serves the vast majority of the customers within such areas. This indicates that localized competition for national fixed call services has not emerged.

Given the national pricing and similarity in the competitive dynamics across Saudi Arabia, CITC sees no reason for defining sub-national markets for fixed access and local and national fixed call services.

Market definition for fixed access and local and national fixed call services

In summary, CITC concludes it is appropriate to define a single market for retail line rental and local and national fixed call services, including all local and national fixed call services (residential and business segments) originating at a fixed location, independent of the technology used to deliver these services.[3]

Further, this market:

- includes both the residential and business customer segments;
- does not include OTT-based VoIP services; and
- is national in scope.

Market designation

(a) High and non-transitory entry barriers

There are high and non-transitory barriers to entry in the market for retail fixed access and local and national fixed call services. A market entrant is dependent on access to infrastructure. This means that any potential entrant needs to either gain wholesale access to infrastructure or build a competing network. The high level of costs required to build such a network constitutes a key barrier to entry, in particular considering that a ubiquitous fixed network already exists. Furthermore, licensing requirements may constitute a further barrier to entry.

Whilst OTT-based voice services do not face similar barriers, they are an ineffective substitute and so not are considered part of the market.

(b) Tendency to competition

Market shares.[6] Only STC and Atheeb offer a retail line service. STC's market share remains close to 100%.[7] Given this, CITC considers it unlikely that, in the absence of any regulatory intervention, this market will tend to effective competition in the timeframe considered in this MDDD update.

Price trends and pricing behaviour. Table 4 shows that weighted average prices for national fixed call services remained steady over the past few years. This could be the result of a number of factors. However, it could suggest that STC does not face competitive pressure from other service providers.

Table 4. Weighted average tariffs for fixed access and local and national fixed call services, 2011-2014

Tariff (weighted average)	2011	2012	2013	2014
Installation fee for residential fixed telephone service	SAR 300	SAR 300	Free	Free
Monthly subscription for residential fixed telephone service	SAR 30	SAR 30	SAR 45	SAR 45
One minute of fixed telephone local call ((peak and off-peak	-	(STC 0.5)	(STC 0.5)	(STC 0.5) (GO 0.12)
One minute of fixed telephone national (call (peak and off-peak	-	(STC 0.10)	(STC 0.20)	(STC 0.10) (GO 0.12)

Source: CITC

6 In line with the principles set out in the Bylaw, CITC has focussed its assessment, where possible, on revenue market shares throughout this draft MDDD report. Where the relevant revenue data is not available, connection or traffic market shares have been used instead. Revenue market shares allow taking into account a differentiated service offering, as they capture both pricing and volume information.
7 As revenue data was no available for all service providers, for this market CITC has focussed on connections shares.

Control of bottleneck infrastructure. STC is in control of the only national fixed access and core network required to provide retail access and local and national call services. Thus, without intervention, the market may not tend towards competition, as this control creates a significant barrier to other providers expanding.

Based on the above evidence, CITC concludes that the market for retail fixed access and fixed local and national call services is unlikely to tend towards competition in the timeframe considered as part of this MDDD update.

(c) Impact of ex-post controls

CITC concludes that ex-post remedies alone are not sufficient to remedy anti-competitive behaviour in this market.

Considering STC's control of the only ubiquitous national fixed infrastructure, the provision of ex-ante remedies could be used to support the development of competition.

(d) Wholesale remedies do not negate the conclusion that the market is susceptible to ex-ante regulation

CITC considers that this market would remain susceptible to ex-ante regulation even in the presence of functioning relevant wholesale remedies. There are already a suite of ex-ante regulations imposed at the wholesale level, including on call origination and termination, which do not appear to have moved the market significantly towards competition.

(e) Conclusion

CITC concludes that the market for retail fixed access and local and national fixed call services remains susceptible to ex-ante regulation.

2.2.2 Market 2 – Retail fixed broadband access services

Market definition

(a) Services considered

Services considered include all retail fixed broadband[8] access services, irrespective of the technology used to deliver the service and the broadband speed offered.

(b) Are individual fixed broadband access services in the same market?

In Saudi Arabia, fixed broadband access services are provided over a range of network technologies:

- ITC, Bayanat and STC provide broadband services via their fibre-optic cable networks.
- STC also offers DSL broadband services via its nationwide copper cable network.
- Bayanat offers fixed-wireless broadband services via its LTE network.
- Atheeb offers broadband services via a limited WiMAX access network and based on wholesale access to STC's fibre-based access network.

All four service providers offer a range of retail fixed broadband access services, varying in price and (advertised download) speed, as set out below in **Table 5** (for residential offers).

8 Broadband refers to "transmission capacity that is faster than primary rate Integrated Services Digital Network (ISDN) at 1.5 or 2.0 Megabits per second (Mbits)". Source: Recommendation I.113 of the ITU Standardization Sector

Table 5. Overview of residential fixed broadband offers

Service provider	DSL		Fibre		Fixed wireless broadband	
	Speed	*Monthly price	Speed	*Monthly price	Speed	*Monthly price
STC	10Mbps	SAR 149	10Mbps	SAR 149	n/a	SAR 100
	20Mbps	SAR 199	20Mbps	SAR 199		
			40Mbps	SAR 299		
			100Mbps	SAR 449		
			200Mbps	SAR 749		
Atheeb			20Mbps	SAR 150	512Kbps	**SAR 67-149
			40Mbps	SAR 225	1Mbps	**SAR 79-175
			100Mbps	**SAR 339-345	2Mbps	**SAR 92-199
			200Mbps	**SAR 562-570	3Mbps	**SAR 108-225
Bayanat			25Mbps	**SAR 221-299	***n/a	****SAR 106 – 160
			50Mbps	**SAR 296-399		
			100Mbps	**SAR 370-499		
			200Mbps	**SAR 592-799		
ITC			Up to 1Gbps	No prices available online	512Kbps up to 2Mbps	No prices available online

Source: Service provider websites *excludes set-up costs and equipment costs **effective monthly price varies with contract length ***effective speed is not advertised for this product ****effective monthly price varies with type of device used, contract length and monthly data allowance

CITC has considered whether it is necessary to define separate markets for different download speeds or network technologies.

(b.1) Demand side substitution

CITC has taken STC's DSL services as a focus point and assessed whether the alternative broadband access services provide a sufficient competitive constraint (i.e. whether customers would switch in sufficient number from DSL services to one of the alternative offerings in case of a 5-10% SSNIP of DSL services) to make those services part of the same market.

DSL vs. Fibre. STC's DSL broadband packages are similar in (advertised download) speed, price and data allowance[9] as the lower speed fibre-based broadband offers. As such, where fibre broadband is available, these offerings are likely to be considered as substitutes to DSL broadband. Whilst it is possible that there could be a separate market – or at least limited demand-side substitution – between DSL and higher speed fibre based broadband, there remains limited demand for very high speed broadband in Saudi Arabia to date. As shown in **Figure 5** below, 80% of broadband connections have speeds of 20Mbps or less[10] (i.e. the maximum advertised speed currently offered on DSL). Given this, CITC considers that DSL and fibre-based broadband services form part of the same market.

DSL vs. wireless broadband. Where available, wireless broadband offers can give customers another choice for accessing Internet services. This includes the WiMAX services offered by Atheeb and the 4G wireless broadband services (i.e. Connect 4G services) offered by Bayanat.

9 i.e., both DSL and fibre-based broadband packages offer unlimited high-speed internet connectivity for a monthly charge (plus initial set-up charges).
10 The high volumes of low speed subscription rates are often due to the limited network capacity offered by DSL technology in specific geographic areas, and as such, they are not necessarily a customer's choice.

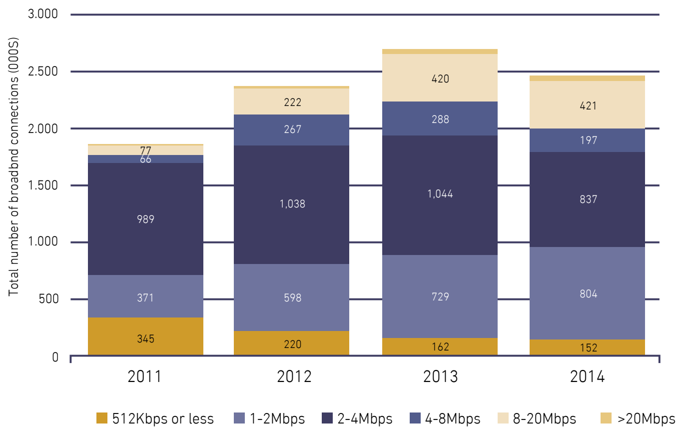
- Bayanat's wireless broadband services are offered via a SIM card, which allows them to be used with WiFi routers, laptops, smartphones and tablets). The services are nomadic (without seamless cell to cell handover), which means that they are more suitable for use within the home (or other fixed locations). In addition, these services have comparable effective monthly prices to DSL services (see Table 5 above). As such, CITC considers it likely that these services will be, at least to some extent, demand side substitutes for DSL services and thus, should form part of the same service market. CITC also recognises that the technical characteristics of the wireless broadband services may, to an extent, also limit the extent to which they place a full competitive constraint on DSL and fibre services, despite being in the same market. This is addressed again later in this report.

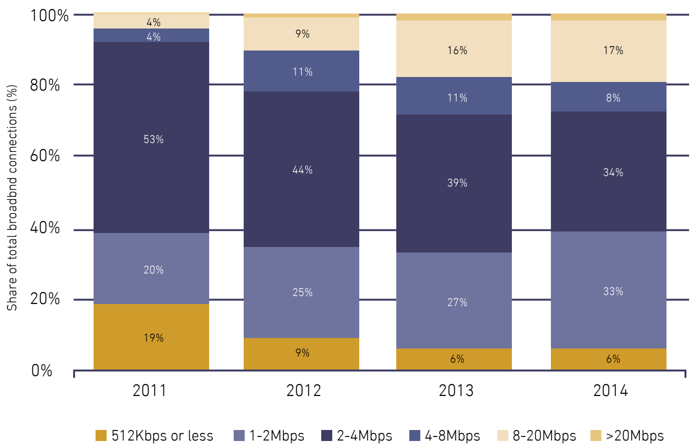
- The take-up of Atheeb's WiMAX services in recent years, both in absolute terms and as a share of total fixed broadband connections has been decreasing: from around 280,000 WiMAX connections in early 2011 to around 90,000 connections at the end of 2014[11]. Despite this, CITC recognises that WiMAX may be an effective substitute for lower speed DSL services. Further, given the chain of substitution between broadband services of different speeds, CITC does not see merit in defining a separate market for WiMAX offerings.

(b.2) Supply side substitution

There is unlikely to be supply side substitution between fixed broadband access services provided using different technologies. This is because of the costs and time required to roll out a network with a new technology in the event of a SSNIP in DSL products, and in the absence of wholesale access to other network technologies.

Figure 5. Trends in retail broadband connections by speed, 2011-20144





Therefore, given the demand side substitution evidenced above, CITC defines a single market for all fixed broadband network technologies and (advertised download) speeds.

11 Source: CITC quarterly indicator database

(c) Fixed-to-Mobile broadband substitution

CITC considered whether mobile broadband services could form a substitute for fixed broadband access services.

(c.1) Demand-side substitutability

When considering mobile broadband services it is useful to split these services into two groups:

1. **Mobile voice and broadband plans** – i.e. mobile voice and broadband plans for smartphones; and

2. **Dedicated connectivity mobile broadband packages** offering mobile access to the Internet from a laptop, tablet or PC, based on a dedicated SIM card or USB modem.

In its assessment of whether fixed and mobile broadband services form part of the same market, CITC focuses on dedicated connectivity mobile broadband services. This is because mobile voice and broadband plans are clearly different in their service characteristics and effective pricing to fixed broadband access services. Instead, these services are commonly complements to fixed broadband access services and form part of the retail mobile service market, discussed further below.

As part of its assessment of demand-side substitutability, CITC has considered the following:

Service characteristics. While both fixed and mobile broadband services allow customers to access the Internet, there are differences in their service offerings. With the exception of some fixed wireless broadband offerings, fixed broadband subscriptions are commonly offered with an unlimited data allowance, but vary in (advertised) download speed and monthly price (see **Table 5** above). Further, they are increasingly bundled with fixed call services by STC (see **Figure 4** above) and can only be accessed at a particular geographic point, but often at a high guaranteed service speed and quality. Mobile broadband packages in Saudi Arabia are commonly differentiated by the data volume offered (in terms of Gigabyte (GB) per time period) and/or the time period for the connection. Download speeds are not advertised for mobile broadband offers and vary according to the number of other users in a given cell at a time. CITC does not hold any information on the average usage of fixed customers (i.e., the average GBs downloaded per month) to assess whether these exceed, on average, the monthly data allowances for mobile broadband services and thus further constrain the substitutability of these two services. However, on balance, the above differences are likely to limit demand-side substitutability.

Besides these differences, mobile and fixed broadband are used differently. While fixed broadband access services are shared in a household, mobile broadband services are commonly used for personal broadband access (although this does not hold for mobile broadband offerings with WiFi routers)[12]. These services may be complements as a result of this, with mobile broadband services primarily being used outside the home and "on the go", but with customers often "offloading" to fixed (WiFi) broadband services at home, even if using a mobile device).

Availability and take-up trends. Both fixed broadband and mobile broadband services are widely available and used across Saudi Arabia. Total fixed broadband penetration was 50% of total households; dedicated mobile broadband penetration was 65% of total population by the end of 2015 and total mobile broadband penetration, which includes dedicated broadband and standard mobile subscriptions (voice with data SIM), was 106% of total population. This widespread availability could increase the ability of customers to switch between services.

Prices. Table 6 shows the effective monthly prices (i.e., controlling for the minimum contract length) for mobile broadband services from STC, Mobily and Zain. This indicates that mobile broadband services are commonly offered at a lower or comparable price to fixed broadband access services. For example, as shown in **Table 5** above, STC's basic (10Mbps) DSL service is offered at a monthly price of SAR 149. As such, from a customer's perspective and looking solely at the prices of services, mobile broadband services could potentially be a substitute for fixed broadband access services.

12

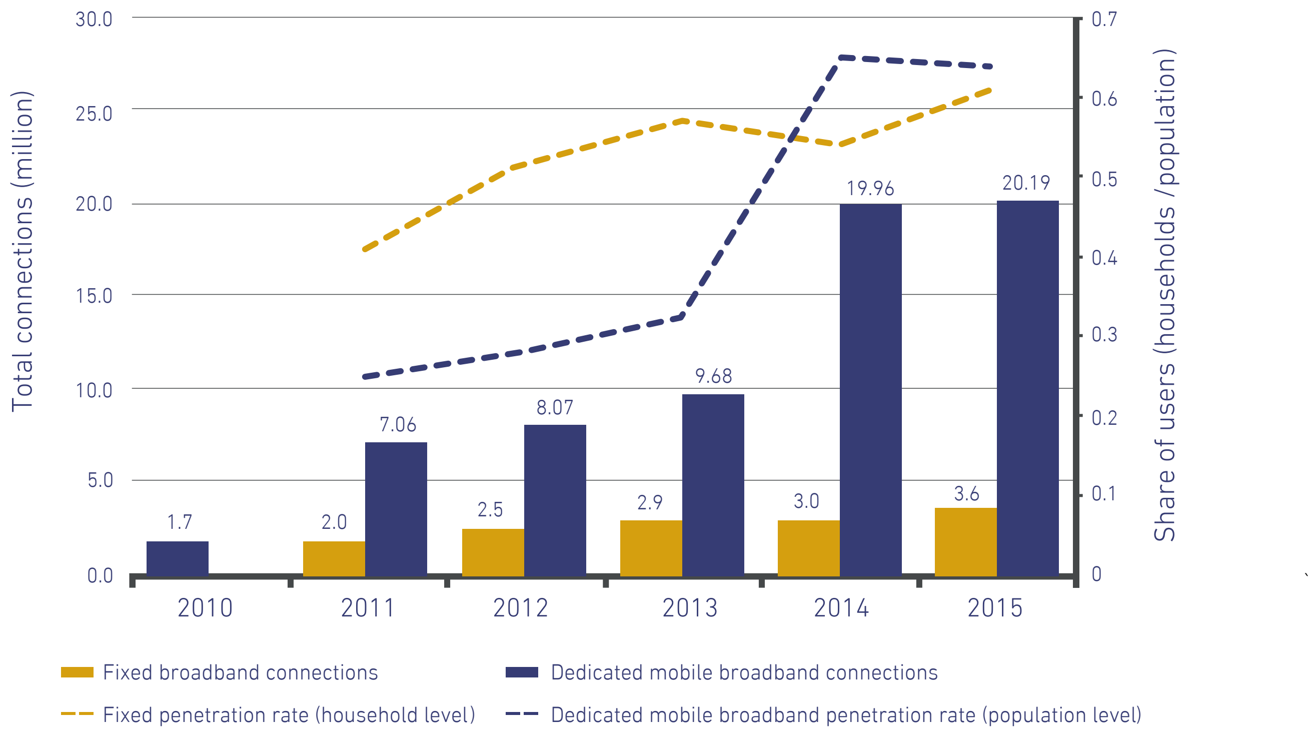
Table 6. Overview of selected residential dedicated mobile data packages[5]

Service provider	Package / Data allowance contract length	Effective monthly data allowance	Effective monthly *price
STC	**QuickNet 4G MyFi**		
	50-GB / 3 months	17-GB	SAR-192
	300-GB / 6 months	50-GB	SAR-150
	1,000-GB / 12 months	83-GB	SAR-120
	QuickNet 4G Router		
	300-GB / 6 months	50-GB	SAR-148
	1,000-GB / 12 months	83-GB	SAR-117
Zain	**4G Mifi**		
	30-GB / 3 months	10-GB	SAR-150
	60-GB / 6 months	10-GB	SAR-100
	120-GB / 12 months	10-GB	SAR-63
	4G Mifi/router		
	unlimited / 3 months	unlimited	SAR-117
	unlimited / 6 months	unlimited	SAR-142
	unlimited / 12 months	unlimited	SAR-217
Lebara[18]	****Mobile Net Saver**		
	250-MB / 1 months	250-MB	SAR-15
	500-MB / 1 months	500-MB	SAR-25
	1-GB / 1 months	1-GB	SAR-35
	2-GB / 1 months	2-GB	SAR-50
	5-GB / 1 months	5-GB	SAR-110
Virgin Mobile[19]	*****Standard**		
	500-MB / 1 months	500-MB	SAR-75
	1-GB / 1 months	1-GB	SAR-125
	2-GB / 1 months	2-GB	SAR-150

Source: CITC based on service providers' websites
*excluding set-up and hardware costs **Lebara further offers weekly packages with a data allowance of up to 160MB ***includes 3 SIM cards and a monthly allowance for calls and SMS

evidence of substitution. However, in Saudi Arabia total fixed broadband connections have increased in recent years, despite the growth of mobile broadband services (see **Figure 6** below). CITC considers this as evidence that Saudi customers do not use fixed and mobile broadband services as substitutes, but more as complementary services. Indeed, the roll-out of fibre networks and increasing demand for (higher speed) fibre-based broadband services may further limit the substitutability of fixed and mobile broadband services.

Figure 6. Fixed broadband and dedicated mobile broadband connection trends, 2010-15



(c.2) Supply-side substitutability

There is no **supply-side substitution** between fixed and mobile broadband services. With the exception of fixed wireless services, the services are delivered based on different access network technologies. Further they require separate service licences, resulting in high barriers to entry into the fixed broadband market for mobile broadband service providers).

Therefore, CITC concludes that mobile broadband services do not form part of the same service market as fixed broadband access services.

(d) Residential and business customers

Service providers offer fixed broadband business services targeted at small and medium sized businesses, with more tailor-made voice and data solutions being offered to larger businesses. As such, in the below, CITC focusses on the offerings aimed to residential customers and examines if they form part of the same market as services offered to small and medium sized business. Business connectivity and corporate data services offered to larger businesses are considered as part of a separate market.

(d.1) Demand-side substitutability

Residential and business service offerings may differ in a number of respects. Business customers require higher quality of service (contention ratios), customer service and security provisions, which may result in higher effective prices. All these distinguishing characteristics reduce the potential for demand-side-substitution.

(d.2) Supply-side substitutability

Residential and business fixed broadband access services are likely to be supply-side substitutes, as similar equipment and infrastructure is used to deliver both business and residential services (although there may be differences in the retail channels used to sell these services). As such, in the event of a SSNIP by a hypothetical monopolist of residential fixed broadband access services, a provider of business fixed broadband access services could switch to the supply of residential services and vice versa.

(d.3) Competitive dynamics

The market structure and competitive dynamics for these customer segments are sufficiently similar to reach the same conclusions on the market analysis and dominance designation for both services. CITC therefore concludes that these customer segments are within a single service market.

(e) Relevant geographic market

While the availability of fibre-optic and wireless broadband networks does differ by geography, CITC does not consider that it is appropriate to define sub-national markets for retail fixed broadband access services. This is because:

- Bayanat and STC services are both offered on a nationwide basis. Together, these services constituted the vast majority of all fixed broadband connections at the end of 2015.

- Neither STC nor Bayanat differentiates the prices or non-price conditions of their retail fixed broadband access services between areas where fibre-based broadband services are available and those areas where they are not.

- Finally, geographic markets require stable boundaries. Given the on-going roll out of fibre networks, any sub-national geographic markets would not offer stable boundaries at this time.

Market definition for fixed broadband access services

CITC defines a single market for fixed broadband access services, independent of the technology used to deliver these services.

This market:

- Includes DSL, fibre-based broadband and wireless broadband services;
- includes both the residential and business customer segments;
- does not include mobile broadband services; and
- is national in scope.

Market designation

(a) High and non-transitory entry barriers

There are high and non-transitory barriers to entry for providers of retail fixed broadband access services, as entry is dependent on access to infrastructure. As such, a potential entrant needs to either gain wholesale access to an existing fixed network or build a competing infrastructure. The high level of costs required to build such a network constitutes a key barrier to entry.

(b) Tendency to competition

Market shares. STC holds a revenue market share that is significantly higher than the share of all its competitors combined. This share increased somewhat since 2012.

Control of bottleneck infrastructure. There are two fixed network infrastructures in Saudi Arabia with national coverage: STC's fixed network and Bayanat's wireless broadband network. ITC also operates a fibre network but with more limited geographic coverage. Despite Bayanat having a national network infrastructure, CITC notes that STC retains a very high share of total revenues in this market.

Barriers to expansion. Competitors to STC and Bayanat may be constrained in their expansion by requiring either wholesale access to STC's or Bayanat's network, or incurring the high costs associated with expanding their own networks.

In conclusion, since the last MDDD, wireless broadband services have, on some measures, grown in importance in this market. However, despite this STC has retained a revenue market share that is significantly higher than the share of all its competitors combined. Furthermore, CITCthere is potential for STC's position in this market to strengthen as fibre roll out increases and consumers increasingly switch to fibre services, in order to access content and other applications which rely on network quality of service and speeds which may not be available over wireless technologies.

As such, CITC concludes that there is not sufficient evidence that this market is tending towards competition to consider the market not to be susceptible to ex-ante regulation.

(c) Impact of ex-post controls

As set out above, STC continues to enjoy a high market share in this market. Whilst there are currently competing infrastructures, STC's market position may be strengthened, and other operators' reliance on its network increased, as fibre take-up grows. This could put STC in a position where it is able to limit the development of retail competition by restricting access to its wholesale services. As such, CITC concludes that ex-post regulation is unlikely to be sufficient to remedy anti-competitive behaviour in this market.

A set of ex-ante regulations are already imposed at the wholesale level, aimed at ensuring that other licensees can replicate STC's own retail broadband services. These include wholesale line sharing access and bitstream services. However, there has been limited use of these wholesale services to date and they have not yet resulted in the market tending towards competition.

(e) Conclusion

Based on the evidence above, CITC concludes that the retail market for fixed broadband access services is susceptible to ex-ante regulation.

2.2.3 Market 3 - Retail business data connectivity services at fixed location

Market definition

(a) Services considered

The services in this market comprise both national connectivity services (i.e. services which originate and terminate within Saudi Arabia) and international connectivity services (i.e. services which originate in Saudi Arabia and terminate in another jurisdiction). They are typically characterised as services which offer capacity between two points in a network, with services available at various speeds.

Within this, services can vary in several ways. In particular:

- Services can be based on physically dedicated capacity (using legacy TDM transmission technology such as leased lines) or virtual dedicated capacity provided over shared infrastructure (using ATM or managed IP-based services).

- The services can be offered for a point-to-point connection between two sites or between multiple sites (i.e., point-to-multipoint).

- The services can be offered between points within Saudi Arabia (i.e., national business data connectivity services), and between Saudi Arabia and international points (i.e., international business data connectivity services).

(b) The need to consider different bandwidths in separate markets

CITC considers there is demand-side and supply-side substitution between services of different bandwidths and that all the various bandwidths available should be included in the same Candidate Market.

(b.2) Demand-side substitutability

The incremental benefit of additional bandwidth may be small so a business customer may be more willing to substitute to a different bandwidth in response to a change in the relative price of services with different bandwidths. This is likely to create a chain of substitution between all services of different bandwidths.

(b.1) Supply-side substitutability

The different bandwidths are supply-side substitutes. The underlying infrastructure required to provide differing bandwidths is similar, meaning it would be relatively quick and low cost for a provider to switch to offering a higher (or lower) bandwidth service, in response to a SSNIP for the focal service.

(c) The need to consider physical capacity and virtual capacity in separate markets

(c.1) Demand-side substitutability

Physical and virtual services require different interface technologies, meaning business customers may incur a small cost in switching between interfaces. However, they offer the business customer similar functionality. In addition, the actual cost of switching is limited. Therefore, these services are likely to be demand-side substitutes.

(c.2) Supply-side substitutability

There is only likely to be limited supply-side substitution. Although the same access network is used to provide both types of service, the cost of migrating from TDM networks to packet based IP networks may be relatively high.

However, given the potential for demand side substitution, CITC concludes that physical capacity and virtual capacity business data connectivity services at a fixed location should be considered in the same market.

(d) The need to consider point-to-point and point-to-multi-point services in separate markets

(d.1) Demand-side substitutability

There is likely to be limited demand-side substitution between point-to-point business data connectivity services at a fixed location and point-to-multipoint business data connectivity services at fixed location. This is because these two types of service offer different functionalities. However, if a business customer is buying several point-to-point links, to connect multiple sites, then the customer may be more willing to substitute to a multipoint virtual business data connectivity service. That is, there may be demand-side substitution between virtual and physical dedicated business data connectivity services at a fixed location for multipoint connectivity.

(d.2) Supply-side substitutability

There is a strong degree of supply-side substitutability between point-to-point and point-to-multipoint virtual business data connectivity services at a fixed location, as both use common core and access networks.

CITC therefore concludes that point-to-point and point-to-multipoint business data connectivity services at a fixed location, provided over virtual and physical capacity, are in the same service market.

(e) The need to consider national and international business data connectivity services at fixed location in separate markets

CITC has assessed whether national and international business connectivity services should be considered in a market separately or jointly.

(e.1) Demand-side substitutability

National and international business connectivity services are not demand-side substitutes. If the price of a national business connectivity increased by 5-10%, it would not be feasible for a customer to switch to an international business connectivity service and vice versa. This is because the two services meet very different kinds of demand.

(e.2) Supply-side substitutability

There is a high degree of supply-side substitutability between both services, as both services are commonly provided by service providers who operate national fixed networks and have access to international connectivity. Consequently, if the price of national business data connectivity services at a fixed location were to increase, it is plausible that a provider of international business data connectivity services at a fixed location could profitably switch to the provision of national business data connectivity services at a fixed location, assuming that the provider of international business connectivity also has its own network in Saudi Arabia. This is a reasonable assumption because (in the absence of wholesale access to another network) a provider of an international service originating in Saudi Arabia also needs to provide a connection to an end-user in Saudi Arabia.

If wholesale capacity is available for the international leg, a provider of national business data connectivity services at a fixed location could, in theory, switch to the provision of international business data connectivity services at a fixed location, in case of a 5-10% SSNIP of the former (and vice versa).

Thus, national and international business data connectivity services form part of a single market.

(f) Relevant geographic market

(f.1) Demand-side factors

CITC has not seen any evidence that the nature of demand or pricing of retail business data connectivity services at a fixed location varies significantly at a sub-national level. While demand for these services is local in nature, STC operates a fixed network with coverage at a national level and therefore has the capacity to provide retail business data connectivity services at a fixed location throughout Saudi Arabia.

(f.2) Supply-side factors

In line with the treatments of Market 1 and Market 2 above and for the same reasons, CITC considers that supply-side substitution exists.

Given the above, CITC concludes that the retail market for business data connectivity services at a fixed location is national in scope.

Market definition for retail business data connectivity services at fixed locations

CITC defines a single market for retail business data connectivity services at a fixed location. This includes national business connectivity services and international business connectivity services, irrespective of the technology used to provide physical or virtual capacity. The services can be offered (for a point-to-point connection between two sites or between point-to-multipoint

.This market is national in scope

Market designation

(a) High and non-transitory entry barriers

There are high and non-transitory barriers which limit the potential for alternative providers to enter the market to provide national and international business data connectivity services at a fixed location. A key barrier to entry is the availability of the physical network infrastructure. That is, to offer services an entrant either needs to gain wholesale access to national infrastructure, or incur the costs of building a competing network capable of offering similar services.

Licensing requirements constitute a further barrier to entry.

(b) Tendency to competition[13]

Market shares. STC has a very high and stable revenue market share in this Candidate Market.

13 CITC has not analysed recent price trends in this market given the often bespoke nature of pricing for business data connectivity services.

Control of bottleneck infrastructure. STC has control over key infrastructure used to deliver business data connectivity services at fixed location. Alternative service providers thus in part depend on wholesale access to STC's fixed access network in order to provide these retail services.

Barriers to expansion. Competitors to STC are constrained in their expansion by requiring either wholesale access to STC's network, or incurring the high costs associated with expanding their own networks beyond their current footprints.

(c) Impact of ex-post controls

Similarly to the markets for retail fixed access and fixed local and national calls, ex-post remedies are not sufficient to address potential anti-competitive behaviour in this market. This is because STC controls the only ubiquitous national fixed network infrastructure; hence the provision of ex-ante remedies could be used to support the development of competition.

Ex-ante regulations are already imposed at the wholesale level, including the need to prepare and publish a reference interconnection offer (RIO) and a reference offer for data access (RODA) which include, amongst others, wholesale services needed to provide business data connectivity services at a fixed location. However, despite these remedies STC still maintains a very high market share.

(e) Conclusion

CITC concludes that the market for retail business data connectivity services at fixed location is susceptible to ex-ante regulation.

2.2.4 Market 4 - Retail national mobile services

Market definition

(a) Services considered

Retail national mobile services, offered by network operators and virtual network operators, cover access to a mobile network in order to make and receive calls; the provision of national mobile voice and video calls; mobile messaging services (SMS and MMS); mobile voice and broadband plans and dedicated mobile broadband[14].

(b) Whether mobile access and national mobile voice services constitute separate markets

Given supply-side substitution, CITC considers it is appropriate to include retail mobile access and national mobile calls in the same market. Customers typically purchase mobile access and voice services together and all suppliers of mobile access services are also suppliers of other mobile services.

(b.1) Demand-side substitutability

Demand-side substitution between mobile access and national mobile voice services might be limited. Instead, access and calling services are complementary – i.e., customers purchase an access service so that they can make and receive calls, rather than purchasing a connection for the sake of it.

(b.2) Supply-side substitutability

Mobile access and national mobile voice services are supply-side substitutes as both services are delivered over the same network infrastructure.

14 Mobile international calls are considered separately.

(c) Whether individual national mobile voice services constitute separate markets

National mobile call services include on-net calls (i.e., calls within the same network) and off-net calls (i.e., calls carried between two networks). Off-net calls can further be distinguished by the destination network, (i.e., whether it is another mobile or fixed network in Saudi Arabia).

For the reasons set out below, CITC considers these form part of the same market

However, outgoing international calls from a mobile device exhibit different demand- and supply-side characteristics from national mobile calls, which means it is reasonable for these services to be considered separately. This is further discussed in the section on retail international call services.

(c.1) Demand-side substitutability

Demand-side substitution between different call types will be limited, unless the customer making that call was still able to reach the same recipient on different networks.[15] There could, in practice, be some degree of demand-side substitution since many customers do have multiple SIMs and may have access to fixed and mobile services.[16] Furthermore, the incremental price of an additional minute of an off-net call is often similar to an additional minute of an on-net call, meaning that a SSNIP in the price of one could induce demand-side switching to the other call type.

(c.2) Supply-side substitutability

Supply-side substitution between on-net and off-net calls is common, mainly due to any-to-any calling being a regulatory requirement and all of these call services requiring the similar network infrastructure.

(c.3) Competitive dynamics

In addition to the potential substitution described above, the competitive dynamics for individual mobile call services are sufficiently similar to include them in the same market. Customers typically buy mobile access and voice services in the same package. This means that typically, competition for different types of mobile national calls is not distinct, with different competitive dynamics not emerging for different call types.

Considering the above factors, CITC concludes it is relevant to include all national mobile call types in the same market.

(d) Whether pre-paid and post-paid services constitute separate markets

On the basis of demand and supply-side substitution, CITC concludes these services are in the same market.

(d.1) Demand-side substitutability

Pre-paid and post-paid packages are becoming increasingly similar, as pre-paid packages increasingly include bundles of services that resemble post-paid contracts. CITC has not seen any data to show the level of switching between pre-paid and post-paid plans and therefore, it is not clear if demand-side substitution is taking place. However, given the similarity in the characteristics of pre-paid and post-paid services, it is reasonable to assume that such substitution could take place in the event of a SSNIP in one service type.

(d.2) Supply-side substitutability

There is also likely to be supply-side substitution between pre and post-paid services, as both services are offered through the same network.

15 For instance, an end-user will not be able to substitute an off-net call to another end-user with an on-net call in the event of a 5-10% SSNIP for the off-net call.

16 With the mobile penetration in Saudi Arabia exceeding 185% of the total population (i.e. many people have more than one SIM card or mobile connection), whilst many households have access to both a fixed and a mobile phone.

(e) Whether other services might act as a competitive constraint on national mobile call services

CITC has considered whether fixed call services or OTT VoIP services should be included in this market.

(e.1) Whether fixed call or broadband services should be considered in the same market

(e.1.1) Demand-side substitutability

Fixed and mobile national call services do not offer the same features, so any substitution away from mobile to the use of fixed services is likely to be limited. Most notably, fixed call services do not allow for mobility, thus limiting when a fixed call could be used as a substitute for a national mobile call.

Similarly, fixed broadband services do not offer mobility, thus limiting the circumstances for when these could be considered substitutes for mobile broadband services.

(e.1.2) Supply-side substitutability

Fixed and mobile access and call services are not supply-side substitutes as different networks and licenses are necessary to deliver these services. The same holds for fixed broadband and mobile broadband services.

Given this, CITC concludes that national fixed call services and fixed broadband services should not be included in the market for national mobile services.

(f) Whether OTT services should be considered in the same market

(f.1) Demand-side substitutability

In line with international precedent and the discussion above on fixed access and local and national call services, it appears that OTT VoIP services lack many of the characteristics and service quality of mobile calls, so limiting the degree of demand-side substitution which is likely to take place. This is reflected in average usage trends per mobile connection which has continued to increase in recent years. For example, OTT VoIP services require an Internet connection. In addition, OTT VoIP services do not provide a personal mobile number, which limits the scope for customers to receive calls from customers to receive calls from other OTT-VoIP platforms. Finally, OTT- VoIP services may be lower quality.

(f.2) Supply-side substitutability

For the same reasons as discussed in the context of retail fixed access and national call services in Section 3.2.1 above, OTT VoIP services and mobile access and call services do not constitute supply-side substitutes. A provider of an OTT service would face significant barriers to provide mobile voice services (such as, acquiring the relevant licence, spectrum and deploying the required network infrastructure), in the event of a SSNIP on mobile voice services.

Therefore, OTT VoIP services do not form part of the market for retail national mobile services. However, it is possible that these services will in future provide an increasing competitive constraint on national mobile call and messaging services. CITC will continue to monitor this.

(g) Whether it is appropriate to include mobile voice and broadband plans in the market for mobile services

(g.1) Demand-side substitutability

There is unlikely to be significant demand side substitution between pure mobile voice services and mobile voice and broadband plans. This is because the voice and data services typically cover different customer needs However, CITC notes the increasing demand for and supply of both mobile voice and broadband bundles and that a data service can be used to access OTT voice services.

(g.2) Supply side substitutability

On the supply-side, these data services are offered through the same mobile network, and same SIM card, as other mobile services.

This means that these services are supply-side substitutes and so form part of the same market.

(h) Whether it is appropriate to include dedicated mobile broadband services in the market for national mobile services

(h.1) Demand-side substitutability

There are a number of characteristic differences between fixed and mobile broadband services which limit demand-side substitution between them. A fundamental difference is the mobility offered by mobile broadband services, but differences in prices and quality of service also play a part. Given this, the demand-side substitution between fixed and dedicated mobile broadband services is likely to be limited.

A number of characteristic differences also exist between mobile voice and dedicated mobile broadband services, which are generally used to satisfy distinct customer needs. Given this, there is unlikely to be demand-side substitution between them. That is, in the event of a 5-10% price increase for dedicated mobile broadband services, customers will not switch to take a mobile (voice only) service.

(h.2) Supply-side substitutability

Fixed broadband access services are provided over distinct networks to mobile broadband services. Therefore, there is no supply-side substitution between these services. Given the high fixed costs of network infrastructure there are considerable barriers to switching between fixed and mobile broadband services.

However, mobile voice and data/broadband services are supplied through the same mobile networks (and potentially the same SIM card), although for higher quality data services, 3G and 4G are necessary. Therefore there is a high degree of supply-side substitution between dedicated mobile broadband services and other mobile services. This is shown by the fact that all mobile service providers in Saudi Arabia offer mobile voice and dedicated mobile broadband services. Given the above, CITC concludes that it is appropriate to define a market that includes national mobile voice and all mobile broadband services together. This is in line with recent market definitions in Europe.[17]

(i) Whether national mobile services offered to residential and business customers form part of the same market

(i.1) Demand-side substitutability

There are likely to be some differences in the characteristics of business and residential services. For example, business customers may be more sensitive to quality of service (although differentiating network quality of service on a mobile network between different customers is generally not possible) and may be less likely to use OTT VoIP services. Business customers may also have more ability to negotiate on individual terms than residential customers.

CITC does not hold any information on customer switching behaviour for these services. In the absence of switching data, it is not clear if demand-side substitutability exists. However, the above service differences are not likely to be sufficiently great to prevent demand-side substitution between business and residential mobile services.

A recent market survey by CITC[18] further indicates that only a few businesses and government and

17 As part of its recent merger investigations of mobile network operators, the EC has defined mobile voice and broadband services to be part of a single market for retail mobile telecommunications services. This was predominantly based on supply-side substitutability and given that end-users commonly use mobile devices to make calls and access the internet. See, for example: http://ec.europa.eu/competition/mergers/cases/decisions/m6992_20140528_20600_4004267_EN.pdf

18 CITC "ICT Market Study Project 2014 – Establishment Report (Corporate, Government and Education)", available at: www.citc.gov.sa

educational institutions provide mobile call services to their employees (i.e., less than 32% of all survey respondents). Further, less than 40% of these entities are subscribed to any business package (with the remaining entities using mass market offerings). This is an indication that differences between these packages are limited.

(i.2) Supply-side factors

Business and residential services are offered through the same network. CITC considers that this would lead to supply-side substitution, in the event of a SSNIP above the competitive level for services offered to one of the customer groups.

Therefore, CITC concludes that national mobile services offered to business and to residential customers should be included in the same market.

(j) The geographic boundaries of the market

The policy to provide universal service in Saudi Arabia has resulted in some geographic areas where only one network service provider (i.e. the Universal Service Provider) owns and operates a network.[19]

At the same time, in areas which are not covered by the Universal Service Policy, there is competition between service providers. Therefore, CITC concludes that separate markets should be defined for areas where there are competing service providers and for areas in which only a single service provider is present (under the Universal Service Policy).

Market definition:

The retail national mobile services market captures mobile access, as well as voice and video call, messaging and broadband services for both business and residential customers. There are four geographic submarkets:

Market 4a: Retail national mobile services in areas outside the Universal Service Policy (with competing service providers);

Market 4b: Retail national mobile services in areas where STC is the Universal Service Provider;

Market 4c: Retail national mobile services in areas where Mobily is the Universal Service Provider;

Market 4d: Retail national mobile services in areas where Zain is the Universal Service Provider.

Market designation

Market 4a: Retail national mobile services in areas outside the Universal Service areas

(a) High and non-transitory entry barriers

There are high and non-transitory barriers that limit the potential for new service providers to enter this market, as a market entry is dependent on access to infrastructure. A potential new service provider faces the high costs of building a competing end-to-end network and gaining access to scarce spectrum. However, two MVNOs have entered the market since 2010 and are now providing national mobile services.

(b) Tendency to competition

Market structure and market shares. With three service providers owning and operating national mobile network infrastructures, the market has a strong degree of infrastructure-based competition. Actual market shares differ according to whether they are measured as the share of market revenues or

19 While the universal services are "fixed" voice and data services, in practice the designated universal service providers use mobile technologies to deliver telecommunication services, in line with the technological neutrality and least cost principles underlying the award of Universal Services Funding (USF). As such, the impact of USF affects only retail markets for mobile services.

the share of connections / subscriptions. However, in both cases market shares have been volatile, suggesting a relatively dynamic market.

There appears to be dynamic competition in this market. For example, one of the service providers has seen its market share (of connections) decline, to the benefit of the other service providers. Virgin Mobile and Lebara still have only a very small share of the market.

Price trends and pricing behaviour. As Table 10 shows, mobile pre-paid on and off-net call prices remained mostly stable over the last few years, with the exception of a price reduction by Zain for on-net pre-paid calls in 2012. This suggests that competition might be focused on factors like promotional tariffs or the introduction of new attractive packages, rather than headline prices.

Table 7. Mobile pre-paid call tariffs (SAR per one minute call), 2011-2015[8]

	2011	2012	2013	2014	2015
On-net mobile calls					
STC	0.55	0.55	0.55	0.55	0.55
Mobily	0.55	0.55	0.55	0.55	0.55
Zain	0.40	0.10	0.10	0.10	0.10
Virgin				0.55	0.55
Off-net mobile calls					
STC	0.55	0.55	0.55	0.55	0.55
Mobily	0.55	0.55	0.55	0.55	0.55
Zain	0.55	0.45	0.45	0.45	0.35
Virgin				0.55	0.55

Source: CITC

Barriers to expansion. CITC is not aware that existing network service providers face any barriers to expansion which constrain their ability to compete effectively with one another. Each provider could expand capacity to cater for demand currently being met by their rivals with minimal incremental investment. Further, CITC is not aware of any provider facing capacity constraints (both physical capacity such as backhaul and access to spectrum) to service their current customer base. However, access to spectrum and backhaul could begin to constitute a barrier to expansion for some service providers over the next years. In particular, fibre-based backhaul services will become increasingly important for mobile service providers.

The above suggests that this market is continuing to tend towards being competitive. However, CITC is aware of issues specific to this market, which were raised by stakeholders to CITC. In particular, some stakeholders have expressed concerns that STC is the only provider who could, in the absence of restrictions, offer bundles of fixed call, broadband and mobile services as a result of the current licences of each provider. Nevertheless, CITC recognises that it has a duty to support competition in the national mobile market and ensure that STC is not able to leverage its position in other markets into the national mobile market.

(c) Impact of ex-post controls

There are no obvious bottlenecks constraining competition in this market and the three mobile service providers self-provide their own infrastructures. As such, remedies (e.g. price controls or access remedies) would not be necessary in this market to prevent anti-competitive behaviour. Further, it is unlikely that an instance of anti-competitive behaviour would lead to damages that cannot be resolved through ex-post regulation.

(d) Conclusion

While STC's revenue share in this market is non-trivial, there is strong infrastructure-based competition due to the existence of three mobile networks with national coverage. As such, CITC concludes that the market for retail mobile national voice and broadband services is not susceptible to ex-ante regulation.

Markets 4b, 4c, and 4d: Retail national mobile services in areas where STC, Mobily and Zain are, respectively, the Universal Service Providers

(a) High and non-transitory entry barriers

Similarly to Market 4a above, there are high and non-transitory barriers to entry in these markets. Further, the low density of population in the Universal Service areas means it is difficult to recover the high infrastructure costs through customer revenue only. As such, further network entry in these areas is unlikely.

(b) Tendency to competition

Market shares. Within the areas in which service providers are the Universal Service Providers, they own and operate the only mobile network available and therefore service most if not all customers in these areas either directly or via the MVNO hosted in their network.

Control of bottleneck infrastructure. Each service provider is in control of the only infrastructure in the areas in which it is the Universal Service Provider.

Barriers to expansion. There are no legal barriers to prevent a second MNO (i.e., who is already licensed to provide service) entering each of these markets. However, the fixed costs of entry, combined with the limited demand for services in these areas makes them, by definition, uneconomic to serve. For this reason, it is not likely that other providers would enter these markets.

Based on the above evidence, CITC concludes that these markets do not tend towards competition in the timeframe considered in this MDDD update.

(c) Insufficiency of ex-post remedies

CITC does not believe that ex-post remedies will be sufficient to resolve any anti-competitive behaviour that arises in these markets.

(d) Conclusion

CITC concludes that the markets for retail national mobile services in Universal Service areas are susceptible to ex-ante regulation.

2.2.5 Market 5 - Retail international call services

Market definition

(a) Services considered

Outgoing international call (IDD) services are offered by service providers with a fixed or mobile licence. This includes both "traditional" voice calls and mobile video calls. OTT VoIP service providers offer a means of making outgoing international calls. International mobile messaging services (SMS and MMS) are also considered in this market.

(b) Whether fixed and mobile IDD call services are in the same market

(b.1) Demand-side substitutability

Mobile devices allow users to make IDD calls from a non-fixed location. However, this may be less important for international calls as they are more likely to be scheduled due to time-zone differences and customers wanting to ensure that the recipient is available to take the call.

The price is likely to be relatively more important when evaluating whether fixed and mobile IDD calls form part of the same market. Table 8, below, shows that call prices for fixed and mobile originated IDD calls are often relatively similar. For example, for calls to GCC countries, fixed and mobile calls are offered at a similar price per minute. For calls to the rest of the Middle East and to South East Asia, mobile (using a pre-paid contract) may be cheaper than using a fixed line. For calls to Europe and the US, however, mobile calls appear to be charged at a premium to fixed calls.

Table 8. Price per minute for international calls (residential plans)[9]

Call destination:	Fixed (and calling cards)	Mobile
GCC	SAR 0.8-1.1	SAR 0.9-1.3
Other Middle East	SAR 1.2-2.0	SAR 0.6-2.2
South East Asia	SAR 1.2-2.6	SAR 0.6-2.7
Europe	SAR 1.6-2.4	SAR 2.4-2.6
US	SAR 1.2-1.8	SAR 1.8-2.0

Source: Service providers' websites

Note: Price ranges for fixed calls are based on STC and Atheeb. For Mobile the ranges are based on Pre-paid and post-paid tariffs for STC, Mobily and Zain.

Therefore, mobile call services may be less of a demand-side substitute for calls to Europe and the US. However, these make up a relatively small proportion of total IDD calls. As such, for the bulk of IDD calls, it is possible that a SSNIP in the price of fixed IDD calls could cause sufficient customers to switch to mobile IDD calls for these to be part of the same market. Therefore, CITC considers that these services are likely to be demand-side substitutes.

(b.2) Supply-side substitutability

Different networks are required for mobile and fixed service providers to supply international calls, meaning supply-side substitution is not possible.

However, despite the lack of supply-side substitution, CITC finds these services to be in the same market, as a result of demand-side substitution.

(c) Whether OTT VoIP services should be included in the same market

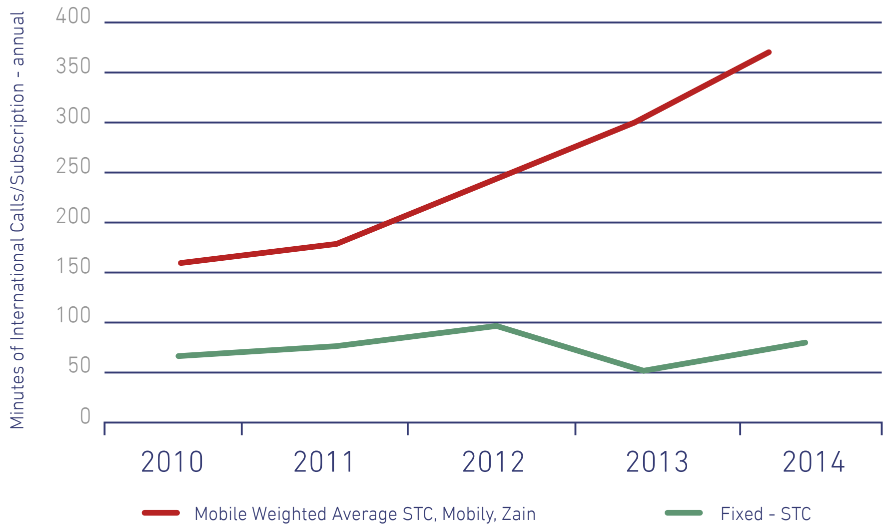
(c.1) Demand-side substitutability

OTT VoIP services have some relatively similar characteristics to fixed and mobile services. However, OTT VoIP services require that the user has an Internet connection. Further, OTT VoIP services are often not interoperable (i.e., a user of OTT VoIP platform A cannot place a call to a user of OTT VoIP Platform B) and so do not offer any-to-any connectivity, are heavily affected by Internet speeds, quality and capacity, and may typically be of a lower quality than "traditional" IDD services. OTT VoIP services also have additional features, such as the potential to make video calls, but this may mean the services are often viewed as complements rather than substitutes.

This is evidenced in recent demand trends for mobile and fixed IDD call services. As shown below, the average volume of IDD traffic per fixed and mobile connection has remained above or in line with that observed in 2011.[20]

20 Average mobile traffic per subscriber has been increasing across all years, while average fixed traffic per subscriber has dropped only in 2014 but to the levels similar to 2012 and above those in 2011.

Figure 7 . Average annual international traffic per subscription (fixed and mobile), 2011-15



Source: CITC

Therefore, there appears to be insufficient evidence of customers substituting away from fixed and mobile IDD calls to justify including OTT VoIP services in the market for international calls. However, OTT VoIP services may have some ability to constrain pricing of international IDD calls and this may increase in future.

(c.2) Supply-side substitutability

OTT VoIP providers operate without a licence or a network, unlike mobile and fixed service providers who require both. This implies that supply-side substitution between these two services is unlikely to occur.

Overall, therefore, CITC concludes that OTT VoIP services do not form part of the same market as IDD fixed and mobile call service

(d) Whether residential and business IDD services are in the same market

(d.1) Demand-side substitutability

Business customers may have less inelastic demand, and hence be less sensitive to price changes than residential customers. However, the services offered to business and residential customers are not sufficiently different to prevent demand-side substitution

(d.2) Supply-side substitutability

As with national voice services, CITC considers there is likely to be supply-side substitutability, as business and residential international call services are offered through the same network infrastructure.

Given this, CITC concludes that residential and business IDD retail services remain part of a single market.

(e) The relevant geographic market

In line with its geographic market definitions for mobile services discussed in Section 3.2.4 above, CITCs concludes that separate markets should be defined for areas where there are competing service providers and for areas in which only a single service provider is present (under the Universal Service Policy license).

Market definition:

The retail market for international call services captures all international outgoing calls originating on a fixed or mobile network for both business and residential customers. It also includes international messaging, but excludes OTT VoIP international call services.

There are four geographic submarkets:

- Market 5a: Retail international call services originating in areas outside the Universal Service Policy (with competing service providers);
- Market 5b: Retail international call services originating in areas where STC is the Universal Service Provider;
- Market 5c: Retail international call services originating in areas where Mobily is the Universal Service Provider;
- Market 5d: Retail international call services originating in areas where Zain is the Universal Service Provider.

Market designation

Market 5a: Retail international call services originating in areas outside the Universal Service Policy

(a) High and non-transitory entry barriers

There are high and non-transitory barriers that limit the potential for new service providers (besides MNVOs) to enter the market to provide retail international fixed and mobile call services.

Market entry is dependent on access to national infrastructure and international capacity. For fixed services, a potential entrant needs to incur the high costs of building a competing fixed network or it needs to gain wholesale access to existing infrastructure. For mobile services a potential entrant needs to either incur the high costs of building a competing network and gaining access to spectrum, or enter the market as a MVNO, which requires it to gain access to the network of another service provider. Despite this, two MVNOs have entered the market since the 2010 MDDD, as a result of a specific licensing initiative undertaken by CITC.

(b) Tendency to competition

Market shares[21]. Although STC has a large share of international call traffic, other mobile service providers have grown their share over time, with STC's share now below its level in 2011. Furthermore, there is significant year-on-year variation in market shares.

Barriers to expansion and control of essential infrastructure. All service providers who currently provide retail international call services have their own infrastructure in place or, in the case of MVNOs, access to the required infrastructure. This includes national network infrastructure[22] as well as access to international capacity.[23] Given that each supplier in the market is able to supply via its own proprietary infrastructure, and does not rely on the other market participants to a significant degree, the barriers for any of these providers to expand appear to be low. Each could expand capacity to cater for demand currently being met by their rivals with minimal incremental investment.

21 Data on revenue for international calls was available for STC only, thus it was not possible to calculate revenue market shares.

22 In particular, all service providers own and operate their own international gateway facilities.

23 Access to international capacity can either be achieved via affiliates and/or associates in major overseas markets or by purchasing capacity from aggregators.

(c) Impact of ex-post remedies

CITC concludes that there are no obvious bottlenecks constraining competition in this market, and therefore ex-post remedies will be sufficient to deal with any anti-competitive behaviour that arise.

(d) Conclusion

CITC concludes that this market is not susceptible for ex-ante regulation.

Markets 5b, 5c, and 5d: Retail international call services in areas where STC, Mobily and Zain are, respectively, the Universal Service Providers

(a) High and non-transitory entry barriers

Similarly to Market 5a above, there are high and non-transitory barriers to entry in these markets. Further, the low density of population in the Universal Service areas means it is difficult to recover the high infrastructure costs through customer revenue only. As such, further network entry in these areas is unlikely.

(b) Tendency to competition

Market shares. Within the areas in which service providers are the Universal Service Providers, they own and operate the only mobile network available and therefore service customers in these areas either directly or via the MNVO hosted in their network.

Control of bottleneck infrastructure. Each service provider is in control of the only infrastructure in the areas in which it is the Universal Service Provider.

Barriers to expansion. There are no legal barriers to prevent a second service provider (i.e., who is already licensed to provide services) entering each of these markets. However, the fixed costs of entry, combined with the limited demand for services in these areas makes them, by definition, uneconomic to serve. CITC

Based on the above evidence, CITC concludes that these markets do not tend towards competition in the timeframe considered as part of this MDDD update.

(c) Insufficiency of ex-post remedies

Ex-post remedies are not likely to be sufficient to resolve any anti-competitive behaviour that arises in these markets.

(d) Conclusion

CITC concludes that the markets for retail international call services in Universal Service areas are susceptible to ex-ante regulation.

2.3 Wholesale markets

This section analyses demand and supply side substitution and sets out proposed market definitions for wholesale services. These are services that form the inputs for delivering retail services.

In assessing wholesale markets, CITC has considered external services provided to other parties and those supplied to a service provider's own downstream operations (i.e. self-supply). This is because market power at the wholesale level is linked to the level of competition in the relevant retail markets. Thus to take into account any direct and indirect constraints to vertically integrated service providers, it is important to consider the total available volumes of that wholesale service, not just the volumes supplied to other parties.

Including self-supply also provides an indication of the scope that service providers may have to provide the wholesale service to third parties. This is particularly relevant in markets where there are limited third party buyers and the incumbent service provider is the only party that can provide a potential wholesale service.[24]

2.3.1 Market 6 - Wholesale fixed broadband access services

Market definition

(a) Services considered

Wholesale (fixed) broadband access (WBA) services form an input to retail fixed broadband access services. These services cover bitstream access over copper loops, allowing the transmission of broadband data in both directions, as well as access provided over other infrastructures that support services equivalent to bitstream access. This includes, for example line sharing services, virtual unbundling (VULA) and self-supply of broadband services over fibre, DSL, WiMAX or (fixed) LTE technology.

Under WBA, traffic handed over by the access provider to the alternative service provider is aggregated at a limited number of points. This means a service provider using the WBA service requires only a limited number of interconnection points to provide nationwide coverage. WBA services can therefore be used by new providers entering the market, or by providers wishing to offer services in exchange areas where they have not deployed their own infrastructure. However, customer access is controlled by the WBA service provider, so the access seeker has little scope to differentiate its retail service from that of the WBA service provider.

(b) Demand-side substitutability

A provider wishing to use passive access services, particularly to provide extensive coverage of broadband services, would need significant investment (for example, deploying its own network equipment in local exchanges or equivalent points of presence), which would limit its ability to react to a SSNIP on bitstream services. CITC therefore concludes that passive access services do not constitute demand side substitutes for WBA bitstream/VULA services.

CITC does believe, however, that wholesale broadband resale services could provide a suitable demand-side substitute. A customer of bitstream services should be able to switch to a resale service and continue to offer its retail customer the same level of network quality of service and would not need to undertake additional network investment.

(c) Supply-side substitutability

WBA services and passive access services are likely to be complements, not substitutes. That is, a service provider who purchased an unbundled local loop service (for example) would still implicitly be using a bitstream service, albeit via self-supply. This is because the services are vertically related (i.e. they form different parts of the supply chain). Given this, both services should be considered as part of separate wholesale markets.

24 For example the European Commission refers to third party "merchant market" and concludes that "where there is no merchant market and where there is consumer harm at retail level, it is justifiable to construct a notional market when potential demand exists. Here the implicit self-supply of this input by the incumbent to itself should be taken into account".

(d) Geographic market definition

In areas where there is more than one fixed access network infrastructure in place, access seekers could have a choice of network provider, which may in principle call for an application of sub-national geographic markets. However, this is not warranted at this point due to the ongoing roll-out of fibre networks in Saudi Arabia, which means it is not possible to define stable sub-national markets. A national market is further in line with the proposed scope of the retail market for fixed broadband access services. CITC will, however, continue to monitor the roll out of networks following the completion of this MDDD.

Market definition for wholesale fixed broadband access services

The market for wholesale fixed broadband access at a fixed location covers the access link and backhaul link to the point of interconnection (see Figure 8 below) and covers all bitstream services, including ancillary and collocation services and broadband resale. The market is national in scope and includes self-supply.

Market designation

(a) High and non-transitory entry barriers

Wholesale broadband access services at a fixed location are supplied by STC to Atheeb and also to STC's own downstream retail business on a self-supply basis. Other retail providers (i.e. Bayanat and ITC) rely on self-supply to compete in the downstream market.

A fundamental entry barrier in this market is the high cost of building an alternative national fixed network infrastructure. In particular, the sunk costs that STC and Bayanat have already invested in their networks represent a significant barrier for new entrants to overcome. However, CITC notes that these barriers may be lessened due to the regulated passive infrastructure access products.

(b) Tendency to competition

Market shares and concentration. As this market is predominantly characterised by self-supply, the market share of each service provider is similar to that in the downstream retail market for fixed broadband access services. As such, the market remains highly concentrated, with STC having retained a large majority of the revenue share.

Control of bottleneck infrastructure. There are two network infrastructures in Saudi Arabia with national coverage: STC's fixed network and Bayanat's wireless broadband network. ITC and Atheeb also operate fibre networks but with more limited geographic coverage. Whilst Bayanat also has a national network infrastructure, STC retains a very high share of total revenues in this market, which suggests that Bayanat's service and network may not be considered to be fully equivalent to that offered by STC..

Barriers to expansion. Given the limited existing alternative fixed network infrastructure and the high costs of deploying such infrastructure, CITC considers there are significant barriers to expansion in this market.

Given the above factors, CITC concludes that there is not sufficient evidence of this market tending towards competition.

(c) Insufficiency of ex-post remedies

CITC concludes that ex-post remedies are unlikely to be sufficient to remedy anti-competitive behaviour in this market. To promote effective competition in related downstream markets, it is crucial that other licensees have access to bottleneck infrastructure on fair and reasonable terms. This is best promoted through ex-ante regulation.

(d) Conclusion

CITC concludes that the market for wholesale broadband access services is susceptible to ex-ante regulation.

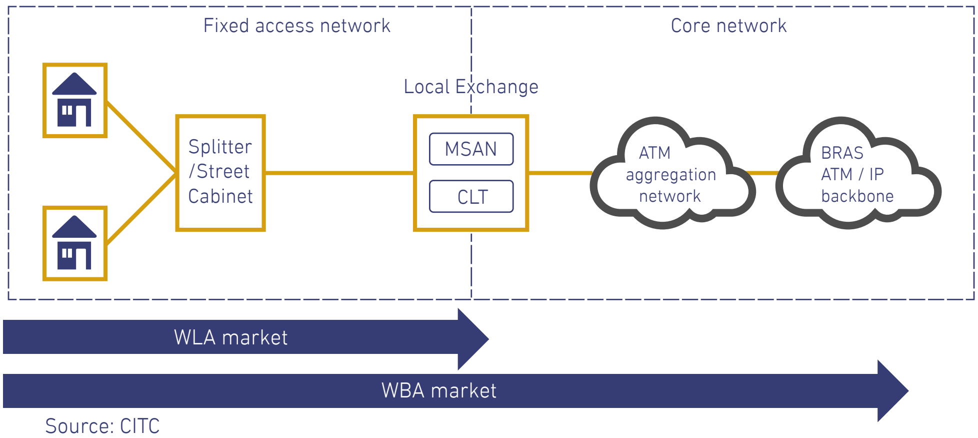
2.3.2 Market 7 - Wholesale physical local fixed access services

Market definition

(a) Services considered

Wholesale physical local fixed access (WLA) services from a fixed location are an input to retail fixed call, fixed broadband and business data connectivity services at a fixed location. This market covers wholesale local loop access services which include unbundled local loop (LLU), sub-loop unbundling (SLU), dark fibre and duct access from the network termination point to the local exchange, collocation, and access to other associated facilities and services, such as, ducts and manholes, cable landing point, buildings and sites, power and air conditioning. Compared to WBA, a WLA service excludes additional core network components, so a service provider purchasing a WLA service requires network equipment in each exchange area where it wishes to offer retail services.

Figure 8 . Schematic overview uf WBA/WLA markets



Source: CITC
*BRAS: Broadband Remote Access Server

(b) Factors considered

In defining the market, CITC has analysed if WBA services provide a competitive constraint to WLA services and hence should be included in the market for WLA services. In line with the relevant retail fixed service markets, mobile-based access services are not considered effective substitutes to WLA services.Aslocal exchange. ing (SLU), line sharing, virtual bundling, dark fibre and duct access from the network termination point to th

(b.1) Demand-side substitutability

There appears to be limited scope for demand-side substitution away from a WLA service. Due to the significant investments required, it appears unlikely that alternative service providers would switch to their own access network infrastructure in the event of a SSNIP on WLA. A service provider would also be unlikely to switch to using a WBA service in the event of a SSNIP in the WLA service, given the scale of investment it had undertaken in order to offer retail services via a WLA service (and which in effect, would be stranded if the service provider switched to using a WBA service).[25] Furthermore, a WBA service does not give an access seeker the same degree of control over the retail service as a WLA service and therefore an access seeker may not be able to provide its full retail service if it relied on WBA.

(b.2) Supply-side substitutability

As set out in Market 6, CITC does not consider that supply side substitution between WLA and WBA is relevant in defining the market for WLA services and WBA services.

(c) Geographic market definition

In line with the treatment of Market 6 in Section 2.3.1, CITC considers this market to be national in scope.

25 The exact nature of the investment would depend on the exact WLA service that the access seeker took. For example, in the case of unbundled local loop, an access seeker would need to invest in DSLAMs at every local exchange from which it wished to offer service. In the case of duct rental service, an access seeker would need to invest in fibre from the local exchange to the end customer.

Market definition for wholesale physical local fixed access services

A market for wholesale physical local fixed access services, independent of the technology used to deliver these services. This market is national in scope.

This includes LLU, SLU, dark fibre and duct access from the network termination point to the local exchange, collocation, and access to other associated facilities and services, such as, manholes, cable landing points, buildings and sites, power and air conditioning.

Market designation

(a) High and non-transitory entry barriers

STC owns and controls the key physical network necessary to deliver WLA services in Saudi Arabia. There are high and non-transitory barriers for other providers to enter this market. These are linked to the high costs of building a competing local access network, especially considering the sunk costs STC has already invested in its network.

(b) Tendency to competition

Market share and concentration. This market is characterised by self-supply. The market share of each service provider is therefore similar to those in related downstream retail markets. This implies that STC has retained a large majority of the market share.

Control over essential facilities – Whilst STC and Bayanat own and operate a national network infrastructure, CITC notes that STC retains a very high share of total revenues in this market, which suggests that Bayanat's service and network may not be considered to be fully equivalent to that offered by STC.

Barriers to expansion - Given the limited existing alternative fixed network infrastructure and the high costs of deploying such infrastructure, CITC considers there are significant barriers to expansion in this market.

Based on the above evidence, CITC concludes that this market will not tend towards competition in the timeframe of this MDDD update.

(c) Insufficiency of ex-post remedies

CITC does not believe that ex-post remedies will be sufficient to resolve anti-competitive behaviour in this market. To promote effective competition in related downstream markets, CITC considers that it is crucial that other licensees have access to bottleneck infrastructure on fair and reasonable terms. It considers that this is best promoted through ex-ante regulation.

(d) Conclusion

CITC concludes that the WLA market is susceptible to ex-ante regulation.

2.3.3 Market 8 - Wholesale fixed call origination services

Market definition

(a) Services considered

The Wholesale fixed call origination services cover the origination of voice calls from fixed location where the calling customer selects the network on which the call will be conveyed. This market includes fixed call origination services for carrier-select (CS), carrier pre-select (CPS) and wholesale fixed intelligent call origination.

Wholesale fixed call origination services from a fixed location are an input to retail fixed call services, irrespective of the destination of the call (i.e., on-net and off-net calls terminating nationally or internationally, including calls to all non-geographic numbers).

(b) Demand-side substitutability

There are no demand-side substitutes in this market. A service provider which wants to offer retail fixed call services needs access to wholesale fixed call origination services and cannot substitute them with any other services, for example mobile call origination.

(c) Supply-side substitutability

There is a degree of supply-side substitutability to offer fixed call origination services if a service provider is in control of a fixed core network infrastructure used to deliver other services (e.g. wholesale broadband access). However, this is constrained by license requirements necessary to offer wholesale fixed call origination services.

(d) Geographic market definition

In line with the retail fixed access and local/national fixed call services market definitions and international practice, CITC considers this market includes all call origination services from a fixed location, independent of technology used to deliver these services. The market is also national in scope. It does not include calls originated on mobile networks, because at the retail level, calls from mobile networks are not in the same market as local and national voice calls originating on fixed networks.

Market definition for wholesale fixed call origination services

A market for wholesale call origination services, including intelligent call origination, independent of the technology used to deliver these services.

Market designation

(a) High and non-transitory entry barriers

Wholesale fixed call origination services are provided by both STC and Atheeb to their own downstream business units, on a self-supply basis only.

STC owns and controls the key physical network necessary to deliver these services as it has the only ubiquitous network across Saudi Arabia. Atheeb also self-supplies this service in parts of the country. There are high and non-transitory barriers for other providers to enter this market.

One entry barrier arises from the high cost of building an alternative network infrastructure, especially considering the sunk costs STC has already invested in its ubiquitous fixed network.

Licensing requirements may constitute a further barrier to entry. Any party wishing to offer telecommunications services must have a valid licence to do so, with the number of licences being dependent on the class of the licence and the completion of the required statutory procedures.

(b) Tendency to competition

Market share and concentration. This market is characterised entirely by self-supply. Therefore, the market share of each service provider in the wholesale market is linked to its share in the related downstream markets (i.e., for outgoing retail fixed call services). This suggests that STC has retained a market share close to 100% in this market.[26]

26 Due to data limitations, CITC is not in a position to derive market shares for national and international fixed call origination traffic. However, it does not expect these to differ significantly from the fixed access market shares, given that no call origination service is used by a third party service provider.

Control over essential facilities. STC remains in control of the key infrastructure used to deliver wholesale fixed call origination services across Saudi Arabia. Whilst there are alternative fibre and wireless broadband networks that have in part been rolled out, their coverage is only limited. This limits their role in the development of effective competition in this market.

Barriers to expansion. Besides STC, other service providers face non-trivial barriers to expansion due to costs of deploying their own network infrastructure.

Based on the above evidence, CITC concludes that this market will not tend towards competition in the timeframe considered as part of this MDDD update.

(c) Insufficiency of ex-post remedies

CITC does not believe that ex-post remedies will be sufficient to resolve any anti-competitive behaviour in this market.

STC's dominance is related to its control of the only ubiquitous national fixed infrastructure. Given its position in downstream retail markets, STC may have the incentive to limit supply or set prices above the competitive level, thus creating the potential for competitive harm in downstream markets.

(d) Conclusion

CITC concludes that the wholesale market for fixed call origination services is susceptible to ex-ante regulation.

2.3.4 Market 9 - Wholesale fixed call termination services

Market definition

(a) Services considered

Wholesale fixed call termination services cover the termination of all calls on a service provider's fixed network that have been conveyed by another licenced service provider's network in Saudi Arabia, irrespective of the origin of the call, and also cover calls to special or non-geographic numbers. The market further includes interconnection links (including in-span and customer sited links, and colocation).

(b) Demand-side substitutability

Given the definition of retail markets, there are no effective demand-side substitutes for call termination on an individual fixed network. Given the requirement for "any to any" connectivity, a service provider faced with a SSNIP in the price for terminating calls on a given network would have no choice but to continue to send calls to that network for termination. Although there may be some demand side response in downstream markets, customers typically do not give significant weight, when selecting a network service provider, to the charges others may face to call them. As such, any demand-side response is likely to be limited.

(c) Supply-side substitutability

There is no supply-side substitution for call termination services on an individual network. A service provider who has originated a call has no technical alternative but to terminate the call on the network of the service provider to which the called party is a customer. This means that an alternative provider cannot enter that market to also offer termination services to the particular downstream customer, without taking over the customer relationship.

Market definition for wholesale fixed call termination services[11]

CITC defines separate markets for wholesale call termination services on individual service providers' fixed networks that have been conveyed by another licenced service provider' networks in Saudi Arabia irrespective of the origin of the call. These cover termination of calls from geographic and non-geographic numbers (including calls to directory enquiries and emergency services) as well as interconnection links (including in-span and customer sited links, and colocation).

Market designation

(a) High and non-transitory entry barriers

Given the scope of this market (i.e., termination on individual fixed networks), the concept of barriers to entry does not apply in the same way as it does in other markets. This is because further entry is technically not possible.

(b) Tendency to competition.

Market shares. Each provider has a 100% market share for termination on their own network. This situation is not expected to change as each service provider will continue to be responsible for providing termination services to its own customers.

Control of bottleneck infrastructure. Call termination is a bottleneck service on each service provider's network. That is, it is not possible to terminate a call to a given number other than by sending it to the network on which the customer using that number resides.

Based on the above evidence CITC concludes that this market will not tend towards competition in the timeframe considered as part of this MDDD update.

(c) Impact of ex-post remedies

Ex-post remedies will not be sufficient to address potential anti-competitive behaviour in this market. Given that each service provider controls termination access to its own customers, ex-ante remedies are likely to be required to ensure that each provider offers termination services at reasonable price and non-price conditions.

(d) Conclusion

CITC concludes that the wholesale markets for fixed call termination services are susceptible to ex-ante regulation.

2.3.5 Market 10 - Wholesale transit services

Market definition

(a) Services considered

This market covers wholesale transit services. Combined with wholesale call origination and termination services, the transit service allows a service provider to offer retail national and international fixed and mobile call services to any downstream customer of any other licensed service provider, even where these service providers do not interconnect directly. However, CITC is not aware of any demand to date for this service (beyond self-supply).

(b) Demand-side substitutability

There is no demand-side substitute for these services, as a service provider that uses the call transit service has no alternative option, beyond self-supply, to convey its call traffic over long distance and/or to another service provider's network.

(c) Supply-side substitutability

There are no supply-side substitutes for wholesale call transit services. A provider of national leased lines and managed network capacity could potentially choose to offer wholesale call transit, following a SSNIP in the transit service. However, this is unlikely. This is because the transit service requires switching capability and a voice service licence, both of which a provider of national leased lines and managed network capacity may not have.

(d) Geographic market definition

In line with the retail market definitions for fixed national call services this market is national in scope.

Market definition for wholesale transit services

A single market for wholesale transit services, covering fixed core network infrastructure. This market encompasses transit services for both national and international call services and is national in scope.

Market designation

(a) High and non-transitory entry barriers

There are competing fixed core network infrastructures in Saudi Arabia, with STC and Bayanat/ITC having deployed national fibre-optic backbone networks.

There are, though, barriers to other providers entering this market, due to the need to deploy core network infrastructure. These barriers may be lower than those seen in other markets, because investment to build an extensive core network is less than that required to build an extensive access network.

However, licensing requirements to deliver voice call services over the core network constitute an additional barrier to entry in this market. At present, only STC is in possession of both a national transit network and such a license.

(b) Tendency to competition

Market shares. There is currently no demand for these services aside from self-supply. This is because all service providers directly interconnect with each other. Market shares in this market will therefore be tied to the market share for each service provider for the provision of national calls.[27]

Control of bottleneck infrastructure. Whilst there are two national backbone networks (STC and Bayanat/ITC) available in Saudi Arabia, only STC is licenced to offer fixed voice services. Therefore, whilst STC does not control bottleneck infrastructure, licensing restrictions do limit the use of these other infrastructures.

Barriers to expansion. Whilst the barriers to other providers expanding their core networks may be relatively limited, licensing restrictions placed on service providers other than STC and Atheeb do prevent these other providers from operating (or expanding) in this market.

Therefore, as STC is the only service provider in possession of both the network and license necessary to offer a transit service, CITC concludes that this market will not tend towards competition in the time frame considered as part of this MDDD update.

27 As mentioned in footnote 53, CITC does not hold traffic data for GO Telecom and thus is not in a position to derive market shares for this market.

(c) Impact of ex-post remedies

In the absence of further market entry, ex-post remedies are unlikely to be sufficient to remedy any anti-competitive behaviour that may arise.

Ex-ante remedies are required to prevent anti-competitive behaviour, because in the absence of these, there is a significant risk of STC refusing to supply transit services, or only providing them on unreasonable terms, thus creating the potential for competitive harm in downstream markets.

(d) Conclusion

CITC concludes this market is susceptible to ex-ante regulation.

2.3.6 Markets 11 & 12 - Wholesale leased line services and managed network transmission services

Market definition

(a) Services considered

Wholesale leased line services and managed network transmission services (dedicated capacity services) provide fixed dedicated transmission capacity between two points over the access and core transport network of any Service Provider B, to any other requesting Service Provider A. This includes all relevant ancillary facilities/services, collocation space and access to dark fibre and duct in the core network.

These form an input to retail leased line services. They may further be used to provide backhaul services (i.e., a mobile service provider may purchase a wholesale leased line to connect a mobile site to its switching network).

These markets consider only fixed (wired) network infrastructure. While alternative fixed wireless networks exist, they cannot be used to deliver leased line services and national managed network transmission services.

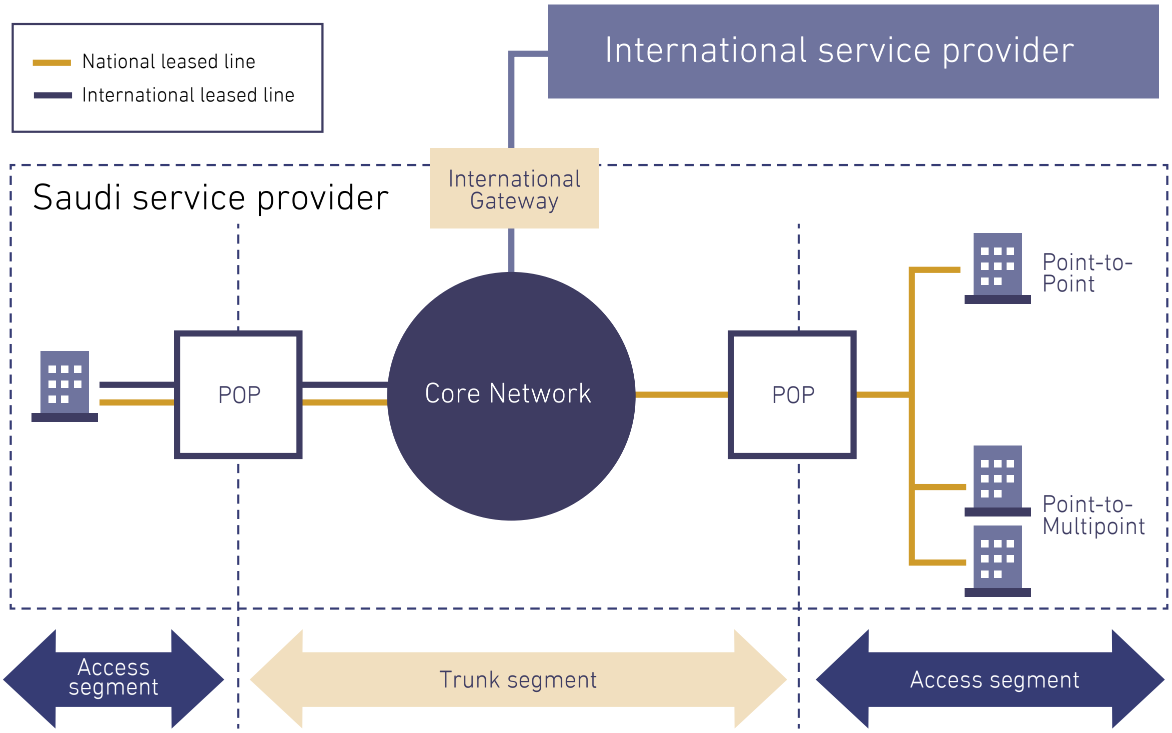
CITC has reviewed two key elements of wholesale dedicated capacity services to determine if a separate market should be defined for each.

- The access segment of a wholesale dedicated capacity service refers to the part of the service from the customer location to the point of presence (PoP) of alternative service providers. It corresponds to the local access part of the network.

- The trunk segment of a dedicated capacity service refers to the core network infrastructure part of the service (i.e., for the transit between PoPs or between the PoP and the international gateway). Private peering and IP transit are also covered. This market includes international dedicated capacity services.

These segments are illustrated below in **Figure 9**.

Figure 9. Schematic overview of access and trunk segments of dedicated capacity services



(b) Are access and trunk segments in a single market?

CITC has concluded that there is limited scope for effective substitution between the trunk and access segments. As such, it proposes to define a separate market for each segment.

(b.1) Demand-side substitutability

Demand-side substitution is limited because trunk and access segments fulfil different functions and both are needed for a service provider to offer an end-to-end retail leased line service. This means the services are complementary.

(b.2) Supply-side substitutability

There is limited scope for supply-side substitution, given the high level of sunk costs required to deploy an access network. That is, a service provider offering the trunk segments of dedicated capacity services would need to undertake significant investment if it wished to also provide the access segments.

(c) Relevant geographic scope

In line with the relevant retail market and other wholesale markets discussed above, all wholesale dedicated capacity related service markets are national in scope.

Market definition for wholesale leased line services and national managed network transmission services

Market 11 - Wholesale access segment of leased line services and managed network transmission services. This covers wholesale access from a customer location to the point of presence (PoP) of the access seeker, irrespective of the technology used; together with all relevant ancillary facilities/services and collocation space.

Market 12 – Wholesale trunk segment of leased line services and managed network transmission services. This covers wholesale access between two points of presence (PoP) of the access provider, irrespective of the technology used; together with all relevant ancillary facilities/services and collocation space. This market also includes international capacity, private peering and IP transit services.

Market designation

Market 11 - Wholesale access segment of leased line services and managed network transmission services

(a) High and non-transitory entry barriers

STC operates the only nationwide fixed access network in Saudi Arabia. This network is used to deliver the access segments of dedicated capacity services.

In line with other wholesale access markets, there are high and non-transitory barriers to other providers entering this market, driven by the high costs required to build a competing national fixed access network infrastructure. However, these barriers may be lessened if certain passive infrastructure access products are available.

Furthermore, as set out above in relation to other markets, licensing requirements may constitute a further barrier to entry.

(b) Tendency to competition

Market shares. CITC does not hold information on the volume of wholesale leased line services and managed network transmission services supplied by each service provider. However, STC's market share in the relevant retail market for business data connectivity services at a fixed location will provide a reasonable approximation for the lower bound of STC's share in this wholesale market. This implies that STC has retained a very high market share. As such, the market remains highly concentrated.

Control of bottleneck infrastructure. STC is in control of the only national fixed access network required to provide these services. Given the level of barriers to entry and expansion (see below), this constitutes a bottleneck asset.

Barriers to expansion. Given the limited existing alternative fixed network infrastructure to that of STC, and the high costs of deploying such infrastructure, there are significant barriers to expansion into this market for all other service providers.

Therefore, CITC concludes that this market will not tend towards competition in the time frame considered as part of this MDDD update.

(c) Impact of ex-post remedies

Given that STC currently controls the only national fixed access infrastructure whilst also being active in the downstream retail market, regulation is necessary to ensure that retail leased line providers have access to the required wholesale dedicated capacity services. In absence of ex-ante regulation, there is a significant risk that STC could refuse to supply such access, or only provide such access on anti-competitive terms. As such, competition law is not sufficient to investigate and remedy anti-competitive behaviour in this market.

(d) Conclusion

CITC concludes that the market for the access segment of wholesale leased line and managed network transmission services is susceptible to ex-ante regulation.

Market 12 - Wholesale trunk segment of leased line services and managed network transmission services

(a) High and non-transitory entry barriers

To provide services in this market, service providers must have a fixed core network infrastructure in Saudi Arabia. To date, two such networks have been deployed, by STC and Bayanat/ITC. In order to provide international capacity, service providers require access to existing international cable capacity or need to deploy their own international cables. Whilst other service providers have access to international capacity, STC has the largest share of the landing points in Saudi Arabia and has access to the majority of international capacity available at these points. As such, most of the international traffic from/to Saudi Arabia is handled by STC.

There are high and non-transitory barriers to other service providers entering this market. These barriers are associated with the high costs of deploying a core network infrastructure and the license requirements necessary to access or deploy sub-sea cables for international capacity. However, given the relative costs of deploying a core network this barrier is potentially lower than for other markets, including the market for access segments described above.

(b) Tendency to competition

Market shares. As mentioned in the context of Market 11 above, CITC does not hold information on the volume of wholesale leased line services and managed network transmission services supplied by each service provider. However, it understands that Bayanat and ITC only self-supply national services. Given this, STC's market share in the relevant retail market for business data connectivity services at a fixed location will provide a reasonable approximation for STC's share in this wholesale market. This implies that STC has a very high market share of this wholesale market. As such, the market remains highly concentrated. This is particularly the case given that the scope of the market also includes international capacity on sub-sea cables and STC controls a high share of this total available capacity.

Control of bottleneck infrastructure. As STC and Bayanat/ITC own and control infrastructure used to deliver the Trunk segment of leased line services in Saudi Arabia, none of these service providers is dependent on gaining access to another service provider's network infrastructure to deliver retail leased line services. However, STC is in control of a significant share of the infrastructure for the provision of international capacity services in Saudi Arabia.

Barriers to entry and/or expansion – Deploying a national core network requires significant investment although significantly less than required for a fixed access network (since it requires less ducts and cables to be deployed). As such, core network infrastructure appears more replicable than a fixed access network. This is reflected in ITC/Bayanat having deployed their own core network infrastructure for national services. However, these providers only directly own limited international capacity. Gaining direct access to international capacity on sub-sea cables is dependent on licence requirements and building permits to access or deploy sub-sea cable capacity.

In conclusion, this market remains highly concentrated. Although there are competing infrastructures at the national level, STC is unique in its offering of international capacity. This leads CITC to conclude that this market does not tend towards competition over the time period considered as part of this MDDD update.

(c) Insufficiency of ex-post remedies

CITC's view is that ex-post remedies are not sufficient to intervene in this market should any anti-competitive behaviour arise.

The fact that STC remains the key provider of international capacity services means that ex-ante access remedies are needed to enable the long term development of competition in the market, whilst STC's continuing high share in the retail market for leased lines also indicates that recurring competition concerns could arise in this market, in the absence of ex-ante regulation.

(d) Conclusion

CITC concludes that the market for the wholesale trunk segment of leased line services and managed network transmission is susceptible to ex-ante regulation.

2.3.7 Market 13 - Wholesale mobile access and origination services

Market definition

(a) Services considered

Wholesale mobile access and origination services form an input to providing retail mobile services, including voice calls, SMS, MMS, video calls and packet data. This includes self-supply and supply to other service providers of wholesale mobile intelligent call origination, MVNO hosting services, wholesale national roaming, access to towers and masts and signalling for international roaming services.

(b) Demand side substitution

CITC proposes to define mobile access and mobile call origination in the same market. This is most consistent with the retail market definition and the bundled offering of these services at the retail level.

(c) Supply side substitutability

It is appropriate to include wholesale national roaming and wholesale MVNO services in the same market. This is because both services rely on the same network architecture and underlying mobile network capacity. Therefore, if there was a SSNIP for wholesale national roaming, it is very likely that a provider of wholesale MVNO access services could switch to providing wholesale national roaming services.

(d) Relevant geographic scope

Consistent with the retail market definition, there are geographic sub-markets for this market. This is due to the differences between the competitive dynamics in areas within and outside the Universal Service areas, as discussed in Section 2.2.4, and which apply equally at the retail and wholesale level.

Market definition for wholesale mobile access and origination services

CITC defines a market for wholesale mobile access and origination services, which covers access to towers and masts, wholesale national roaming and MVNO access and origination hosting services for voice and video calls (including intelligent call origination), messaging, internet, and signalling for international roaming services, irrespective of technology. There are four geographic submarkets:

Market 13a: Wholesale mobile access and origination services outside Universal Service areas (with competing service providers);

Market 13b: Wholesale mobile access and origination services in areas where STC is the Universal Service Provider;

Market 13c: Wholesale mobile access and origination services in areas where Mobily is the Universal Service Provider;

Market 13d: Wholesale mobile access and origination services in areas where Zain is the Universal Service Provider.

Market designation

Market 13a: Wholesale mobile access and origination services in areas outside Universal Service areas

(a) High and non-transitory entry barriers

Two mobile network service providers (MNOs) in Saudi Arabia provide mobile access and origination services, both for self-supply and to MVNOs. A third MNO currently only self-supplies mobile access and origination services.[28] All three MNOs have achieved network coverage in line with their licence obligations, with no provider being reliant on national roaming services to meet their coverage obligation.

The biggest entry barrier for further providers entering this market is access to the spectrum required to offer mobile services. Given the scarcity of spectrum, only a limited number of MNOs can be licensed. This represents a significant barrier to further entry into this market, at least in the timeframe covered by this MDDD.

(b) Tendency to competition

Market shares. Given the limited retail market share of the MVNOs, self-supply remains the key driver of demand in this market. This means the market share of each MNO is similar to its share in downstream retail markets.

Control of bottleneck infrastructure. As three MNOs own and control infrastructure used to deliver mobile access and origination services in Saudi Arabia, none of these service providers is dependent on gaining access to another service provider's network infrastructure to deliver retail mobile services.

Barriers to entry and/or expansion. There may be barriers to expansion or duplication if some service providers are limited in terms of network capacity. However, the infrastructure to provide wholesale mobile access and origination services is already in place for existing MNOs. As such, each service provider could, to a certain point, expand capacity to cater for demand currently being met by their rivals with little incremental investment. However, in the absence of any regulation supporting site sharing, MNOs could find it increasingly difficult to increase capacity in congested areas (i.e., where new sites may be difficult to locate), whilst an absence of site sharing will also increase the costs of roll out in more rural areas.

In conclusion, this market is tending towards competition. This wholesale market is currently used predominantly for self-supply. This means that competition in the wholesale market reflects competition in the downstream retail mobile markets. Since the retail market is competitive, by extension, this market is also tending towards competition.

(c) Impact of ex-post remedies

Given the competing infrastructures and the lack of apparent bottlenecks constraining competition, CITC considers that ex-post remedies are likely to be sufficient to resolve any anti-competitive concerns in this market.

(d) Conclusion

Market 13a is not susceptible to ex-ante regulation.

28 A third MVNO is not yet licensed.

Markets 13b, 13c, and 13d: Wholesale mobile access and origination services in areas where STC, Mobily and Zain are the Universal Service Providers

(a) High and non-transitory entry barriers

Similarly to Market 13a above, the biggest entry barrier in this market is access to spectrum required to offer mobile services.

In addition, the low density of population in the Universal Service areas makes it difficult to recover the high costs of setting up network infrastructure in these areas through customer revenue only. As such, without government subsidy, a new provider is unlikely to deploy infrastructure in a Universal Service area.

(b) Tendency to competition

Market shares. Each service provider has a monopoly in the area in which it is the Universal Service Provider.

Control of bottleneck infrastructure. Each service provider is in control of the only infrastructure in the areas in which it is the Universal Service Provider.

Barriers to expansion. There are no legal barriers to prevent a second MNO (i.e., who is already licensed to provide services elsewhere) entering each of these markets. However, the fixed costs of entry, combined with the limited demand for services in these areas makes them uneconomic to serve.

Based on the above evidence, CITC concludes that these markets do not tend towards competition in the timeframe considered in this MDDD update.

(c) Impact of ex-post remedies

Given the control of bottleneck infrastructure, ex-post remedies will not be sufficient to resolve any anti-competitive behaviour that arises in these markets.

(d) Conclusion

The markets for wholesale mobile access and origination services in Universal Service areas are susceptible to ex-ante regulation.

2.3.8 Market 14 - Wholesale mobile termination services

Market definition

(a) Services considered

Wholesale mobile termination services cover the termination of voice calls on mobile networks from other licensed service providers, along with the termination of video calls, MMS and SMS messages, and interconnection links. These services form an important input to retail mobile services.

Since the 2010 MDDD, two MVNOs have begun offering services. Neither MNVO owns or operates its own network infrastructure. This means that any terminating traffic relating to each MVNO will form part of the mobile termination market of the hosting mobile service provider.

(b) Demand-side substitutability

There are unlikely to be any effective demand-side substitutes for termination on an individual mobile network. For example, neither termination on a fixed network would constitute an effective substitute for termination on a given service provider's mobile network. Given the requirement for "any to any" connectivity, a service provider faced with a SSNIP in the price for terminating calls or messaging services on a given network would have no choice but to continue to send calls to that network for termination. Although there may be some demand side response in downstream markets, customers typically do not give significant weight, when selecting a network service provider, to the charges others may face to call them. As such, any demand-side response is likely to be limited. Customers could purchase multiple SIMs and swap SIMs to receive given calls. However, this would likely require a significant degree of coordination between end users.

(c) Supply-side substitutability

There is no supply-side substitution for termination services on an individual network. A service provider who has originated a call has no technical alternative but to terminate the call on the network of the service provider to which the called party is a customer. This means an alternative provider cannot enter that market to also offer termination services to the particular downstream customer, without taking over the customer relationship.

Wholesale fixed call termination services cover the termination of all calls on a service provider's network that have been conveyed by another licenced service provider in Saudi Arabia, irrespective of the origin of the call.

Market definition for wholesale termination services on individual mobile networks

CITC defines separate markets[12] for wholesale termination services on each mobile service providers' network, covering all voice and video call, MMS and SMS message termination services on a service provider's network that have been conveyed by another licenced service provider in Saudi Arabia, irrespective of where the terminating service originates from and the technology used to deliver this service. This includes wholesale termination services relating to MVNOs hosted on the service provider's network, along with interconnection link services.

Market designation

(a) High and non-transitory entry barriers

As with the markets for wholesale termination services on fixed networks, entry barriers to the market are high and non-transitory. In effect each network is a separate market with a monopoly provider.

(b) Tendency to competition

Market shares. Given the market definition, each provider has 100% market share for termination on their own network.

Barriers to expansion and duplication of infrastructure. It is not possible for another provider to offer termination services to the customers of a particular network other than through that customer having multiple SIM cards and arranging in advance on which network its contacts should call. This would require a significant degree of coordination which is not realistic. This means that each MNO service provider controls a bottleneck infrastructure over which its termination services are delivered.

Given this, CITC concludes that the market will not tend to competition over the course of the MDDD. This is because each provider has a monopoly for termination on their own network.

(c) Impact of ex-post remedies

In the absence of ex-ante remedies, service providers may restrict access to their termination service by setting prices above the competitive level. In turn, this could affect competition and pricing in retail markets and cause customer harm. Typically, this issue is dealt with through ex-ante remedies, as the structure of the market means that frequent intervention may otherwise be required.

(d) Conclusion

CITC concludes that the markets for wholesale mobile termination services are susceptible to ex-ante regulation.

2.3.9 Market 15 - Wholesale international voice call services

Market definition

(a) Services considered

Wholesale international voice call services cover wholesale international voice connectivity, including self-supply (i.e., resale of international call minutes). In line with the retail market, this does not distinguish between calls originated on fixed and mobile networks.

(b) Demand-side substitutability

To provide an international call in the retail market, a service provider must have access to international capacity. As there are no effective substitutes to fixed or mobile international calls in the retail market, a SSNIP in the price of the equivalent wholesale resale service is unlikely to lead to customers switching away to other services.[29]

There are no effective substitutes to this service which would require defining a broader market.

(c) Supply-side substitutability

On the supply-side, market entry would require the development of international switching and transport capability and the development of a set of correspondent relationships to enable call conveyance and termination in other countries. Therefore, suppliers currently not in the market are unlikely to enter the market in response to a SSNIP as any one element of this service may be time consuming to add to an existing service portfolio.

(d) Geographic market

Consistent with the retail market definition, CITC defines geographic sub-markets for this market. This is due to the differences between the competitive dynamics in areas within and outside the Universal Service areas, as discussed in Section 3.2.5, and which apply equally at the retail and wholesale level.

Market definition for wholesale international call services

CITC defines a market for wholesale international call services (i.e., resale services), independent of the network technology used to deliver the service and the destination of the calls. This market includes self-supply.

There are four geographic submarkets:

- Market 15a: Wholesale international call services originating outside Universal Service areas (with competing service providers);
- Market 15b: Wholesale international call services originating in areas where STC is the Universal Service Provider;
- Market 15c: Wholesale international call services originating in areas where Mobily is the Universal Service Provider;
- Market 15d: Wholesale international call services originating in areas where Zain is the Universal Service Provider.

29 CITC is aware that a service provider could also offer an international outgoing call by adding together "building block" wholesale services from other markets. As such, CITC does not consider in its analysis of market 15 whether these "building block" services are a demand or supply-side substitute for the international call resale service.

Market designation

Market 15a: Wholesale international call services originating outside Universal Service areas

(a) High and non-transitory entry barriers

All fixed and mobile voice providers in Saudi Arabia offer wholesale international voice call services. However, the market is characterised entirely by self-supply.

The entry barriers in this market are lower than in other markets. A potential entrant requires a contract with an international aggregator and interconnection with an international switch of another service provider in Saudi Arabia. Alternatively, it could establish its own international gateway.

(b) Tendency to competition

Market shares. As this wholesale market is used for self-supply only, the market shares reflect those of service providers in the relevant retail market, which was tending to competition.

Control of essential infrastructure. There are multiple competing infrastructures available in Saudi Arabia capable of offering wholesale international call services.

Barriers to expansion or duplication of infrastructure. There are no known barriers to expansion for existing service providers.

Given the above, CITC concludes that this market is tending towards competition.

(c) Impact of ex-post remedies

Considering the existence of competing infrastructure, CITC concludes that ex-post remedies to deal with any anti-competitive behaviour are likely to be sufficient.

(d) Conclusion

CITC concludes that Market 15a is not susceptible to ex-ante regulation.

Markets 15b, 15c, and 15d: Wholesale international call services originating in areas where STC, Mobily and Zain are the Universal Service Providers

(a) High and non-transitory entry barriers

Similarly to Market 15a above, the entry barriers in this market are lower than in other markets. However, the low density of population in the Universal Service areas makes it difficult to recover the high costs of setting up network infrastructure in these areas through customer revenue only. As such, without government subsidy, a new provider is unlikely to deploy infrastructure in a Universal Service area.

(b) Tendency to competition

Market shares. Each service provider has a monopoly in the area in which it is the Universal Service Provider.

Control of bottleneck infrastructure. Each service provider is in control of the only infrastructure in the areas in which it is the Universal Service Provider.

Barriers to expansion. There are no legal barriers to prevent a second service provider (i.e., who is already licensed to provide services elsewhere) entering each of these markets. However, the fixed costs of entry, combined with the limited demand for services in these areas makes them, by definition, uneconomic to serve.

Based on the above evidence, CITC concludes that these markets do not tend towards competition in the timeframe considered as part of this MDDD update.

(c) Impact of ex-post remedies

Given the control of bottleneck infrastructure, CITC does not believe that ex-post remedies will be sufficient to resolve any anti-competitive behaviour that arises in these markets.

(d) Conclusion

CITC concludes that the markets for wholesale international call services originating in Universal Service areas are susceptible to ex-ante regulation.

2.4 Summary findings on market designations

Table 9 lists the markets which CITC has concluded pass the TCT and therefore are considered further in the dominance assessments.

Table 19 in Annexe I sets out the scope of services covered in each of the Candidate Markets.

Table 9. Summary of markets which are susceptible to ex-ante regulation

Markets which passed TCT and are considered in the dominance assessment
Market 1 - Retail fixed access and local and national fixed call services
Market 2 - Retail fixed broadband access services
Market 3 - Retail business data connectivity services at fixed location
Market 4b - Retail national mobile services in areas where STC is the Universal Service Provider
Market 4c - Retail national mobile services in areas where Mobily is the Universal Service Provider
Market 4d - Retail national mobile services in areas where / Zain is the Universal Service Provider
Market 5b - Retail international call services originating in areas where STC is the Universal Service Provider
Market 5c - Retail international call services originating in areas where Mobily is the Universal Service Provider
Market 5d - Retail international call services originating in areas where Zain is the Universal Service Provider
Market 6 - Wholesale fixed broadband access services
Market 7 - Wholesale physical local fixed access services
Market 8 - Wholesale fixed call origination services
Market 9a - Wholesale fixed call termination services on STC's network
Market 9b - Wholesale fixed call termination services on Atheeb's network
Market 10 - Wholesale transit services
Market 11- Wholesale access segment of leased line services and managed network transmission services
Market 12 – Wholesale trunk segment of leased line services and managed network transmission services
Market 13b - Wholesale mobile access and origination services in areas where STC is the Universal Service Provider
Market 13c - Wholesale mobile access and origination services in areas where Mobily is the Universal Service Provider
Market 13d - Wholesale mobile access and origination services in areas where Zain is the Universal Service Provider
Market 14a - Wholesale mobile termination services on STC's network
Market 14b - Wholesale mobile termination services on Mobily's network
Market 14c - Wholesale mobile termination services on Zain's network
Market 15b - Wholesale international call services originating in areas where STC is the Universal Service Provider
Market 15c - Wholesale international call services originating in areas where Mobily is the Universal Service Provider
Market 15d - Wholesale international call services originating in areas where Zain is the Universal Service Provider

Markets which have not passed the TCT and therefore are not considered further as part of this MDDD update are:

- Market 4a - Retail national mobile services in areas outside of Universal Service areas
- Market 5a - Retail international call services originating in in areas outside of Universal Service areas
- Market 13a - Wholesale mobile access and origination services in areas outside the Universal Service areas
- Market 15a - Wholesale international call services originating in in areas outside of Universal Service area

3 - Dominance assessment in each relevant market

In this section CITC assesses competition in each Relevant Market.

3.1 Assessment criteria

CITC's assessment is in line with the principles set out in The Telecommunications Act (2001) and Bylaw (2002) and the approach set out in the Regulatory Framework. Of particular note, the Bylaw states that:

- every service provider that earns 40% or more of the gross revenues in a specific telecommunications market shall be designated a dominant service provider in that market, until and unless CITC specifies otherwise in a Decision; and

- CITC may designate a service provider with more or less than 40% of the gross revenues in a specific telecommunications market as a dominant service provider if, either individually or acting together with others, it enjoys a position of economic strength affording it the power to behave independently of competitors or user.

The Bylaw and the Regulatory Framework further provide additional criteria that should be considered when determining whether to designate a service provider as a dominant provider. These are summarised in the Table 10 below. However, some of these criteria might not be significant for some of the Relevant Markets, either because of the markets' characteristics or the available information. As such, in its examination below CITC focussed only on the criteria most applicable to each market. In most cases the focus is on the following criteria:

- market structures;
- market shares and concentration;
- control over essential facilities;
- barriers to entry and/or expansion; and
- pricing behaviour.

Table 10. Dominance assessment criteria

Criteria according to the Bylaw:
1) Market share: The service provider's market share and whether it gives the service provider a position of economic strength affording it the power to act to an appreciable extent independently of competitors or users, taking into account the other factors set out below.
2) Market structure: The number of other service providers and their market shares.
3) Pricing behaviour and the ability of any service provider to take the lead in setting prices.
4) Control over essential facilities: Whether the service provider has exclusive or dominant control over essential facilities for the provision of services and/or telecommunications facilities that provide access to users.
5) The availability of reasonably substitutable services.
6) Barriers to entry: The nature and extent of barriers to entry.
Supplementary criteria set out in the Regulatory Framework:
7) Market concentration: The degree of market concentration as determined by reference to revenues, numbers of subscribers or other relevant statistics.

8)	Evolution of market share over time: The evolution of telecommunications service providers' market share over time.
9)	Tariffs variations over time: The degree to which a telecommunications service provider's tariffs have varied over time.
10)	Ability to earn above normal profits: The ability of the telecommunications service provider to earn higher than normal profits.
11)	Financial resources and access to capital: The telecommunications service provider's financial resources and access to funding.
12)	Vertical integration and distribution networks: The telecommunications service provider's vertical integration and the existence of a highly developed distribution network.
13)	Preferential access to superior technology: The ability of the telecommunications service provider to benefit from preferential or limited access to superior technology.
14)	The ability of the telecommunications service provider to obtain preferential or long-term contracts for the supply of relevant services to large users.

Source: CITC Regulatory Framework

3.2 Retail markets

3.2.1 Market 1 - Retail fixed access and local and national fixed call services

- **Market structure**. There are two service providers active in this market: STC and Atheeb.
    - STC provides retail access and national fixed call services to residential and business customers via its nationwide copper (PSTN) and fibre-optic based networks.
    - Atheeb offers fixed call services via its own limited WiMAX access network and based on wholesale access to STC's fibre access network.
- **Market shares and concentration.** Market shares have remained stable since 2010, with STC retaining by far the largest share of total fixed access lines.1
- **Control over essential facilities.** As set out when considering the three criteria test for this market, STC controls a range of essential facilities that are needed for the provision of the fixed access services, but which in most locations are not economic to replicate. Thus STC has scope to set excessive prices, considering its market share. There is no evidence that the presence of wholesale ex-ante remedies is sufficient on its own to support the development of a competitive market.
- **Barriers to entry and/or expansion.** As discussed in section 2.2.1, there are potentially high and non-transitory barriers in this market which both limit the potential for new providers to enter, and the scope for existing competitors to STC to expand. In turn, these constrain the likelihood of the market becoming competitive.
- **Pricing behaviour.** STC's prices in this market are currently regulated, which constrains it from pricing excessively for these services. However, the stability of prices over the last few years suggests the providers did not lower their prices in response to competitive pressure.

CITC therefore concludes that STC is dominant in the market for retail fixed access and local and national fixed call services.

1 As stated earlier, issues with quality and availability of data did not allow for the analysis of revenue market shares.

3.2.2 Market 2 - Retail fixed broadband access services

- **Market structure.** Retail fixed broadband access services are provided by ITC, Atheeb, Bayanat and STC. There are two networks with national coverage: STC's fixed network and Bayanat's wireless network. Additional infrastructure based competition is emerging in those geographic areas, typically urban areas, where also ITC and/or Atheeb have network coverage.

- **Market share and concentration.** STC has revenue market share that is significantly higher than the share of all its competitors combined. As such, CITC considers that this is evidence that the market remains highly concentrated, despite the additional deployment of infrastructure.

- **Control over essential facilities.** Whilst both STC and Bayanat have a national network infrastructure, CITC notes that STC retains a very high share of total revenues in this market, which suggests that Bayanat's service and network may not be considered to be fully equivalent to that offered by STC.

  Current and prospective wholesale access remedies may reduce barriers to entry in this market. However, competition is unlikely to emerge sufficiently quickly to reduce STC's market power.

- **Barriers to entry and/or expansion.** As set out in the preceding section, existing and potential new service providers face significant barriers to expansion and entry in this market, which together serve to reduce the scope for competition to emerge. Again, regulated wholesale access services will reduce these barriers, though international experience shows this is unlikely to lead quickly to competitive retail markets emerging.

Given the above evidence, CITC concludes that STC is dominant in the market for retail fixed broadband access services.

3.2.3 Market 3 - Retail business data connectivity services at a fixed location

- **Market structure.** Services in this market are provided by ITC, Bayanat and STC, with all three service providers using their own network infrastructure (where available), with ITC and Bayanat also purchasing the relevant wholesale services from STC.

- **Market share and concentration.** The market remains highly concentrated, with STC retaining very high share of total revenues from retail business connectivity services.

- **Control over essential facilities.** STC has control over the key infrastructure used to deliver business data connectivity services at a fixed location across all of Saudi Arabia. Whilst there are alternative national fibre networks that have been – and are being - rolled out, their coverage is not national, with customer access links (i.e., the access network) being limited to some urban areas. This limits their role in the development of effective competition in this market.

  Current and prospective wholesale access remedies may reduce barriers to entry in this market. However, competition is unlikely to emerge sufficiently quickly to reduce STC's market power.

- **Barriers to entry and/or expansion.** As set out in the preceding section, existing and potential new service providers face significant barriers to expansion and entry in this market. Although the availability of regulated wholesale access services will reduce these barriers, international experience shows this is unlikely to lead quickly to competitive retail markets emerging.

Given the above evidence, CITC has concluded that STC is dominant in the market for retail business data connectivity services at a fixed location.

3.2.4 Markets 4b, 4c, and 4d: Retail national mobile services in areas where STC / Mobily / Zain is the Universal Service Provider

- **Market structure.** In Universal Service areas, only a single service provider has the infrastructure to provide services. As such, this limits competition in the retail market.
- **Market share and concentration.** Each of the service providers has 100% market share in the areas in which it operates as the Universal Service Provider.2
- **Control over essential facilities.** Each of the service providers has full control of the essential facilities in the areas in which it operates as the Universal Service Provider.
- **Barriers to entry and/or expansion.** As discussed in Section 2.2.4, there are no legal barriers to prevent a second MNO entering each of these markets. However, the fixed costs of entry, combined with the limited demand for services in these areas, make them uneconomic to serve.
- **Pricing behaviour.** Without a national pricing policy constraint, it could be possible for the service provider to raise prices in the Universal Service areas, or to offer different tariff packages (i.e., less choice) with implicitly higher prices. However, at the moment, CITC acknowledges that this does not occur, due to the "de facto" national pricing policy.

Given the above evidence, CITC has concluded that STC, Mobily and Zain are dominant in the markets for retail national mobile services in the areas in which they operate as Universal Service Providers.

3.2.5 Markets 5b, 5c, and 5d: Retail international call services originating in areas where STC / Mobily / Zain is the Universal Service Provider

- **Market structure.** In Universal Service areas, only a single service provider has the infrastructure to provide services. As such, this limits competition in the retail market.
- **Market share and concentration.** Each of the service providers has 100% market share in the areas in which it operates as the Universal Service Provider.
- **Control over essential facilities.** Each of the service providers has full control of the essential facilities in the areas in which it operates as the Universal Service Provider.
- **Barriers to entry and/or expansion.** There are no legal barriers to prevent a second provider entering each of these markets. However, the fixed costs of entry, combined with the limited demand for services in these areas, make them uneconomic to serve, with the universal service providers having built the essential infrastructures with support of a government subsidy.
- **Pricing behaviour.** Without a national pricing policy constraint, it could be possible for the service provider to raise prices in the Universal Service areas, or to offer different tariff packages (i.e., less choice) with implicitly higher prices. However, at the moment, CITC acknowledges that this does not occur, due to the national pricing policy.

Given the above evidence, CITC has concluded that STC, Mobily and Zain are dominant in the markets for retail international call services in the areas in which they operate as Universal Service Providers.

2 The only exception to this may be where the MNVO hosted on the Universal Service Provider`s network is also present. However, given the prevailing low market shares of MNVOs this would have no bearing on the overall conclusion on the market concentration in these geographic markets.

3.3 Wholesale markets

3.3.1 Market 6 - Wholesale fixed broadband access services

- **Market structure.** Wholesale broadband access at a fixed location is currently predominantly used for self-supply, with Atheeb also purchasing this service from STC.
- **Market share and concentration.** The market share of each service provider is similar to that for each provider in the relevant downstream markets (i.e., the markets for fixed broadband and voice services). This implies STC has retained a market share that is significantly higher than the share of all its competitors combined
- **Control over essential facilities.** Whilst Bayanat also has a national network infrastructure, STC has retained a very high share of total revenues in this market, which suggests that Bayanat's service and network may not be considered to be fully equivalent to that offered by STC.
- **Barriers to entry and/or expansion.** As set out previously in Section 2.3.1, CITC has concluded there are significant barriers to further entry and expansion in this market.

These barriers may be lessened if certain passive infrastructure access services (i.e. WLA based services) are available. However, at this stage this would not be sufficient to find that this market is effectively competitive. Rather, CITC would expect to see a sustained record of alternative operators using the WLA service while investing in core infrastructure and so competing with STC in the WBA market, before making such a finding.

Given the above, CITC concludes that STC is dominant in the market for wholesale fixed broadband access services.

3.3.2 Market 7 - Wholesale physical local fixed access services

- **Market structure.** Wholesale physical local fixed access services are provided, on a self-supply basis only, by STC, Atheeb, ITC and Bayanat.
- **Market share and concentration.** As this market is entirely based on self-supply, the market share of each service provider is equal to that in the relevant downstream retail markets covering fixed broadband and voice services. Based on the retail fixed broadband market, this implies that STC has retained a market share that is significantly higher than the share of all its competitors combined
- **Control over essential facilities.** Similarly to Market 6 above, STC remains in control of the key infrastructure used to deliver WLA services in Saudi Arabia, through its copper and fibre access networks.
- **Barriers to entry and/or expansion.** As described in Section 2.3.2, there are high and non-transitory barriers for other providers to enter or expand in this market.

Given the above, CITC concludes that STC dominant in the market for wholesale physical local fixed access services.

3.3.3 Market 8 - Wholesale fixed call origination services

- **Market structure.** Wholesale fixed call origination services are provided by STC and Atheeb on a self-supply basis only.
- **Market share and concentration.** As this market is characterised solely by self-supply,

the market share of each service provider is driven by its market share in the equivalent downstream markets. This implies that STC has retained a market share of close to 100%.

- **Control over essential facilities.** STC owns and controls the key physical network necessary to deliver these services in Saudi Arabia, whereas Atheeb relies in part on third party access to STC's network infrastructure.

- **Barriers to entry and/or expansion.** As set out in Section 3.3.3, there are high and non-transitory barriers for other providers to enter or expand in this market.

CITC concludes that STC is dominant in the market for wholesale fixed call origination services.

3.3.4 Market 9a and 9b - Wholesale fixed call termination services on STC's / Atheeb's network

- **Market structure.** Wholesale call termination on public telecommunications networks at a fixed location is offered by STC and Atheeb for termination to customers on their own networks. Both service providers own and control the key physical network necessary to deliver termination services for calls that end on their network.

- **Market share and concentration.** Each service provider has a monopoly in its termination market.

- **Control over essential facilities.** Each service provider remains in control over the key infrastructure used to deliver call termination services on their own network.

- **Barriers to entry and/or expansion.** Given the scope of this market (i.e., termination on individual fixed networks) the concept of barriers to entry does not fully apply. This is because further entry is technically not possible at this time.[3]

CITC therefore concludes that STC and Atheeb are dominant in the market for wholesale call termination on their networks.

3.3.5 Market 10 - Wholesale transit services

- **Market structure.** The market is currently not operational. STC is currently the only service provider in Saudi Arabia who has the fixed core network infrastructure and licence required to deliver wholesale transit services.

- **Market share and concentration.** If the market becomes operational, STC would have 100% of the market for wholesale transit services.

- **Control over essential facilities.** There are two network infrastructures in Saudi Arabia over which wholesale transit services can be delivered; one is controlled by STC, and the other one by Bayanat/ITC. However, whilst the Bayanat/ITC network is technically capable of carrying wholesale transit services, it not licensed to do so.

- **Barriers to entry and/or expansion.** As set out above, licensing restrictions create a barrier for new entrants wishing to provide wholesale transit services. There are also "economic" barriers, based on the level of costs required to roll out a network, however, these appear lower in this market than in those which require also an access network infrastructure.

CITC therefore concludes that STC is dominant in the market for wholesale transit services.

3 CITC further notes that whilst OTT-based call services could theoretically act as a substitute for these services, this is not relevant in this context as OTT-based call services were excluded from the relevant retail market definitions (since not being considered to be adequate substitutes for "traditional" national fixed call services on a retail level). Given this, OTT-based services also do not form part of the call termination market.

3.3.6 Market 11 – Wholesale access segment of leased line services and managed network transmission services

- **Market structure**. STC operates the only nationwide fixed access network in Saudi Arabia. Such a network is essential to deliver the access segments of leased lines services. As such, STC is the only provider who can reasonably provide this service on a nationwide basis.

- **Market share and concentration**. STC is the only provider of the access segment of wholesale leased line services to third parties. ITC and Bayanat also supply these services to their own downstream retail businesses.

- **Control over essential facilities**. STC owns and controls the key infrastructure used to deliver the access segment of leased line services across Saudi Arabia. Whilst alternative fibre access networks have been rolled out, their coverage is focused on the main urban centres. This limits their role in the development of effective competition in this market.

- **Barriers to entry and/or expansion**. Deploying a national fixed access network requires significant investment, time and administrative effort. It appears unlikely that a second national fixed access network could feasibly be deployed within the timeframe considered in this MDDD analysis. Given this, there are high barriers to entry in this market. These barriers may be lessened if certain passive infrastructure access products were available. However, at this stage just having these products available would not be sufficient to find that this market is effectively competitive.

CITC therefore concludes that STC has a dominant position in the market for the wholesale access segment of (national and international) leased and dedicated capacity services.

3.3.7 Market 12 – Wholesale trunk segment of leased line services and managed network transmission services

- **Market structure**. STC, Bayanat and ITC operate fixed core networks to deliver national services in this market, but STC is the only operator offering international capacity.

- **Market share and concentration**. The Trunk segment of wholesale leased line services is currently entirely a self-supply market, with no wholesale services sold to third parties. This means that market shares in the wholesale market mirror those in the retail market. As shown in section 2.3.6 above, STC has retained a very high market share in the national component of services in this market. Furthermore, it is the only service provider with direct access to international capacity via sub-sea cables. As such, the market remains highly concentrated.

- **Control over essential facilities**. As discussed in section 2.3.6 above, no service provider is dependent on gaining access to another service provider's network infrastructure for national services. However, STC controls most of the infrastructure for the provision of international capacity services and remains the key provider of international capacity in Saudi Arabia.

- **Barriers to entry and/or expansion**. Deploying a national core network requires significant investment although much less than investment required for a fixed access network (since requiring less ducts and cables to be deployed). As such, core network infrastructure appears more replicable than a fixed access network. This is reflected in ITC/Bayanat having deployed their own core network infrastructure for national services, whilst only owning directly limited international capacity. There are high and non-transitory barriers to entry to the market for international capacity.

CITC therefore concludes that STC is dominant in the market for the wholesale trunk segment of (national and international) leased and dedicated capacity services.

3.3.8 Markets 13b, 13c, and 13d: Wholesale mobile access and origination services in areas where STC / Mobily / Zain is the Universal Service Provider

- **Market structure**. Only a single service provider is present in each Universal Service area.
- **Market share and concentration**. Each of the service providers has a 100% market share in the areas in which it operates as the Universal Service Provider.
- **Control over essential facilities**. Each of the service providers has full control of the essential facilities in the areas in which it operates as the Universal Service Provider.
- **Barriers to entry and/or expansion**. As discussed in Section 2.3.7, there are no legal barriers to prevent a second MNO entering each of these markets, but the fixed costs of entry, combined with the limited demand for services in these areas, make them uneconomic to serve.

Given the above evidence, CITC concludes that STC, Mobily and Zain are dominant in the wholesale markets for mobile access and origination services in the areas in which they operate as Universal Service Providers.

3.3.9 Market 14a, 14b and 14c - Wholesale mobile termination services on STC's / Mobily's / Zain's network

- **Market structure.** Wholesale termination services on mobile networks are provided by STC, Mobily and Zain for termination to their own networks. All three service providers own and control the physical network necessary to deliver these services to their subscribers.
- **Market share and concentration.** Each service provider has a 100% market share for termination on their own networks.
- **Control over essential facilities.** Termination services on each network represent a bottleneck, whereby each service provider has control over the provision of termination on its network.
- **Barriers to entry and/or expansion**. Given the scope of this market (i.e., termination on individual mobile networks) the concept of barriers to entry does not fully apply. This is because further entry is technically not possible.

CITC therefore concludes that STC, Mobily and Zain are all dominant in the respective markets for wholesale termination on their networks.

3.3.10 Markets 15b, 15c, and 15d: Wholesale international call services originating in areas where STC / Mobily / Zain is the Universal Service Providers

- **Market structure.** Only a single service provider is present in each Universal Service area.
- **Market share and concentration**. Each of the service providers has a 100% market share in the areas in which it operates as the Universal Service Provider.
- **Control over essential facilities**. Each of the service providers has full control of the essential facilities in the areas in which it operates as the Universal Service Provider.
- **Barriers to entry and/or expansion**. As discussed in Section 3.3.9, there are no legal barriers to prevent a second service provider entering each of these markets, but the fixed costs of

entry, combined with the limited demand for services in these areas, make them uneconomic to serve.

Given the above evidence, CITC concludes that STC, Mobily and Zain are dominant in the wholesale markets for international call services originating in the areas in which they operate as Universal Service Providers.

3.4 Dominance findings

The table below sets out the conclusions of CITC's dominance assessment within each Relevant Market.

Table 11. Dominance findings in each relevant market for retail and wholesale services

Relevant Market	Dominant service provider
Retail service markets	
Market 1 - Retail fixed access and local and national fixed call services	STC
Market 2 - Retail fixed broadband access services	STC
Market 3 - Retail business data connectivity services at fixed location	STC
Market 4b - Retail national mobile services in areas where STC is the Universal Service Provider	STC
Market 4c - Retail national mobile services in areas where Mobily is the Universal Service Provider	Mobily
Market 4d - Retail national mobile services in areas where / Zain is the Universal Service Provider	Zain
Market 5b - Retail international call services originating in areas where STC is the Universal Service Provider	STC
Market 5c - Retail international call services originating in areas where Mobily is the Universal Service Provider	Mobily
Market 5d - Retail international call services originating in areas where Zain is the Universal Service Provider	Zain

Wholesale service markets	
Market 6 – Wholesale fixed broadband access services	STC
Market 7 - Wholesale physical local fixed access services	STC
Market 8 - Wholesale fixed call origination services	STC
Market 9a - Wholesale fixed call termination services on STC's network	STC
Market 9b - Wholesale fixed call termination services on Atheeb's network	Atheeb
Market 10 - Wholesale transit services	STC
Market 11 – Wholesale access segment of leased line services and managed network transmission services	STC
Market 12 – Wholesale trunk segment of leased line services and managed network transmission services	STC
Market 13b - Wholesale mobile access and origination services in areas where STC is the Universal Service Provider	STC
Market 13c - Wholesale mobile access and origination services in areas where Mobily is the Universal Service Provider	Mobily
Market 13d - Wholesale mobile access and origination services in areas where Zain is the Universal Service Provider	Zain
Market 14a - Wholesale mobile termination services on STC's network	STC
Market 14b - Wholesale mobile termination services on Mobily's network	Mobily
Market 14c - Wholesale mobile termination services on Zain's network	Zain
Market 15b - Wholesale international call services originating in areas where STC is the Universal Service Provider	STC
Market 15c - Wholesale international call services originating in areas where Mobily is the Universal Service Provider	Mobily
Market 15d - Wholesale international call services originating in areas where Zain is the Universal Service Provider	Zain

4 - Proposed ex-ante regulatory remedies

This section sets out the ex-ante regulatory remedies that CITC has concluded are necessary address the competition concerns arising in each Relevant Market.

4.1 Overview of available regulatory remedies

Ex-ante remedies should address the market failures and sources of potential harm identified in each Relevant Market. They should further adhere to the following three principles:

- Proportionality. Regulation should be kept to a minimum, so that where two remedies can be expected to have the same effect, the less costly of the two should be preferred. This should take into account both the direct implementation costs and any indirect costs that could arise from a remedy affecting normal incentives in the market.
- Effectiveness. Remedies should be designed to address the problem identified in an efficient manner and be targeted at specific issues, to avoid an unnecessary regulatory burden on providers.
- Transparency. Remedies must be clear and in line with the guidelines of the legal and regulatory framework.

The Bylaw and Regulatory Framework set out the available set of ex-ante regulatory remedies that CITC can apply to dominant service providers. These are set out in Table 12 below.

Table 12. Regulatory remedies available to CITC

Potential remedies applied to dominant service providers according to the Bylaw:
Prepare and publish reference interconnection offers (once approved by CITC)
Publish the interconnection agreements with other service providers approved by CITC
Compliance with CITC Interconnection Rules and regulations
Tariff approval by CITC
Prepare and submit cost studies to CITC
Ex-ante price regulation (such as price caps), including specific requirements for interconnection charges
Apply the obligations stated within a Terms of Service document approved by CITC
Requirements on customer billing as set out in the Bylaws
Quality of service requirements as set out in the Bylaws
Accounting separation requirements
Supplementary remedies set out in the Regulatory Framework:
Tariff notification requirements (to both CITC and customers)
To offer leased lines on a wholesale basis on fair and reasonable terms and conditions, and at appropriate prices
To offer wholesale international voice service on fair and reasonable terms and conditions, and at appropriate prices
To offer national roaming for mobile service on a wholesale basis on fair and reasonable terms and conditions, and at appropriate prices
To provide access to certain essential facilities, subject to technical feasibility, on fair and reasonable terms and conditions, and at appropriate prices
To publish a reference offer for data access
To comply with any other appropriate remedies as determined by them CITC

Source: Regulatory Framework

4.2 Potential market failures and abuse of market power

Ex-ante regulatory remedies should prevent a dominant service provider abusing its market power to the detriment of Customers and the Saudi economy more widely.

Below, CITC identifies the specific market failures that could arise in the relevant markets considered as part of this MDDD report.

Table 13. Overview of potential anti-competitive behaviour and relevant ex-ante regulatory remedies

Anti-competitive behaviour	Definition	Circumstances in which it occurs	Possible remedies
Excessive pricing	Charging a price which has no reasonable relation to the economic value or underlying cost of the product supplied. A price can be excessive relative to the underlying efficient cost of providing this service or by comparison to competitor's products.	When a service provider is dominant in that Relevant Market.	▪ Tariff filing and approval (including predation and margin squeeze test) ▪ Cost studies ▪ User information requirements ▪ Accounting separation
Predatory pricing	Pricing below costs with the intention of driving competitors out of the market or creating barriers to entry for potential competitors (with the intention of excessive pricing in the future).	When a service provider is dominant in that Relevant Market.	
Margin squeeze	Setting a margin between the wholesale and retail price which does not allow an efficient competitor utilising the dominant service provider's wholesale service to compete effectively in the relevant downstream market.	When a vertically integrated service provider is dominant in an upstream market and it supplies an important input to its downstream rivals.	
Refusal to supply	Restricting supply of an objectively necessary product or service. This can be done explicitly by or implicitly by offering unreasonable trading conditions.	When a vertically integrated service provider is dominant in an upstream market for the supply of an essential input to a downstream market, and it also operates in the downstream market.	▪ Requirement to offer service on non-discriminatory basis ▪ Submission of interconnection agreements to CITC ▪ User information requirements

Undue discrimination	Price discrimination: when different customers are charged different prices for the same product or service, or they are charged the same price even though the costs of supplying the product vary. Non-price discrimination: when different customers are offered different terms and conditions on the product or service, without any objective justification, or the same terms and conditions on different products.	When a service provider is dominant in that Relevant Market.	▪ Requirement to offer service/ access on non-discriminatory basis ▪ Tariff filing and approval ▪ Prepare & publish reference offer ▪ Cost-based charges ▪ User information requirements
Undue bundling/ discounting	• Offering a lower price as consumption of a product increases, or bundling together more than one product with the aim to weaken competition: ▪ Bundling products to leverage market power into another market where the service provider is not dominant. ▪ Discounts (loyalty schemes, volume discounts) that discourage customers from switching providers.	When a service provider with a dominant position in that market who is horizontally integrated, also offering services in other markets.	▪ Replicability test for bundles ▪ User information requirements ▪ Accounting separation

4.3 Proposed ex-ante regulatory remedies

The remedies proposed by CITC for each Relevant Market are set out below. In this discussion, CITC has grouped together Relevant Markets where the competition concerns and proposed remedies are the same.

4.3.1 Relevant Retail Markets

Market 1 / 2 - Markets for retail fixed access and local and national fixed call services and retail fixed broadband access services

- Given its position in these markets, STC has the ability to engage in:
- excessive pricing,
- predatory pricing;
- margin squeeze;
- undue price discrimination; and undue bundling.

The following ex-ante regulatory remedies will therefore be imposed on STC in these Relevant Markets.

- **Tariff filing and approval,** including predation and margin squeeze test. Consistent with Article 47 of the Bylaw, STC will continue to be required to submit all proposed tariffs (or changes to existing tariffs) for services in these markets to CITC prior to putting them into effect. The proposed tariffs will be subject to CITC's review and approval. This reflects a continuation of an existing remedy.
- **Cost studies.** Consistent with Article 52 of the Bylaw, STC will continue to be required to undertake costs studies, subject to directions provided by CITC, to support proposed tariff changes. On the basis of such cost studies CITC may also direct tariff changes to be filed to ensure that tariffs better reflect costs. Again, this is the continuation of an existing remedy.
- **Accounting separation.** STC will be required to prepare and submit to CITC on an annual basis, accounting information for its retail fixed access and local and national fixed call services, and retail fixed broadband access services, providing a breakdown of its financial and operational performance for these services, consistent with CITC's Guidelines on Accounting Separation in place at the time.
- **Replicability test for bundles**. STC will not be allowed to introduce any new tariff bundles which cannot be replicated by its competitors. Thus before launching any bundled offer, STC must demonstrate to CITC's satisfaction that the bundle can be replicated by competitors, from the perspective of:

- <u>A technical dimension</u>: STC must demonstrate that at least one other service provider has the technical capacity (i.e. based on their own network infrastructure or based on regulated access to STC's network) to provide a similar bundle.
- <u>An economic dimension:</u> STC must also demonstrate that at least one other service provider can profitably match STC's price for the bundle and implied prices for individual services within the bundle, taking into account also STC's prevailing wholesale access prices.

In addition, all service providers active in these markets will continue to be required to provide customers with information related to price and non-price terms and conditions of their service offerings, in line with Article 63 of the Bylaw and CITC decision No. (195/1429H) dated of 11-03-1429H.

Market 3 - Retail business data connectivity services at a fixed location

Given its position in this market, in the absence of any ex-ante intervention, STC could engage in:

- excessive pricing, or
- predation; and
- margin squeeze.

The following ex-ante regulatory remedies will therefore be imposed on STC in this Relevant Market.[4]

- **Tariff filing and approval,** including predation and margin squeeze test. STC will continue to be required to submit all proposed tariffs (or changes to existing tariffs) for services in this market to CITC prior to putting them into effect. The tariffs will then be subject to CITC's review and approval (see Article 47 of the Bylaw). This is the continuation of an existing remedy.
- **Cost studies.** STC will continue to be required to undertake cost studies, subject to directions provided by CITC, to facilitate the assessment of prices in this market. Again, this is the continuation of an existing remedy and in line with Article 52 of the Bylaw.
- **Accounting separation.** STC will be required to prepare and submit to CITC on an annual basis accounting information for its retail business connectivity service market, containing a breakdown of its financial and operational performance for these services, consistent with CITC's Guidelines on Accounting Separation in place at the time.

Furthermore, all service providers active in this market will continue to be required to provide customers with information related to price and non-price terms and conditions of their service offerings, in line with Article 63 of the Bylaw and CITC decision No. (195/1429H) dated of 11-03-1429H.

Markets 4b, 4c, and 4d - Retail national mobile services in areas where STC / Mobily / Zain is the Universal Service Provider and Markets 5b, 5c, and 5d - Retail international call services originating in areas where STC / Mobily / Zain is the Universal Service Provider

STC, Mobily and Zain are dominant in these Relevant Markets.

The USF agreement includes a requirement to offer all services at a uniform price within and outside of Universal Service areas. CITC considers that this is sufficient to ensure that all tariffs offered by a licensee outside its Universal Service areas will also be offered to consumers in those areas. However, to further protect consumers, **STC, Mobily and Zain will be required to seek CITC's approval before offering any retail prices in Universal Service areas which are not available nationally.**

4 All of the potential remedies for this market are discussed in detail above for the retail fixed access and national voice services and retail fixed broadband access services markets (and thus, not repeated here).

4.3.2 Relevant Wholesale Markets[46]

Market 6 / 7 / 8 / 10 - Wholesale fixed broadband access services, wholesale physical local fixed access services, wholesale fixed call origination services & wholesale call transit services

Given its dominant position in these markets STC could engage in:

- excessive pricing;
- refusal to supply; and
- undue discrimination.

The following ex-ante regulatory remedies will therefore be imposed on STC in these Relevant Markets:

- **Requirement to offer service/access on non-discriminatory basis.** STC will be obliged to offer services and access in these markets on a non-discriminatory basis to all licensed access seekers. A list of services that STC will be required to offer in these markets is set out in Table 14 below.
- **Prepare and publish reference offer.** STC must disclose the price and non-price related terms and conditions on which it will offer all the wholesale services set out in in Table 14 for these relevant markets and then offer the same terms to all access seekers, including its own downstream business, on a non-discriminatory basis. The terms and conditions shall be subject to CITC's review and approval and must subsequently be published, in line with Article 41 of the Bylaw.
- **Submit access agreements to CITC.** All bilateral access and interconnection agreements between STC and another service provider for the provision of services in these markets, shall be based on the contents of STC's reference offer, with these submitted to CITC for review and approval in line with Article 41 of the Bylaw.
- **Cost-based charges.** STC is required to set the charges for the wholesale services it must offer in these markets according to the underlying cost of providing these services, as determined by cost studies undertaken or approved by CITC.
- **Accounting separation.** STC is required to prepare and submit to CITC on an annual basis, accounting information for these relevant markets and the individual services offered within each market, including a breakdown of its financial and operational performance for these services, consistent with CITC's Guidelines on Accounting Separation in place at the time.

Table 14. Interconnection and Access Services STC must include in its Reference Offers in relation to Markets 6, 7, 8 and 10

Market	Required services
Market 6 - Wholesale fixed broadband access services	• Bitstream services, which may be used to provide broadband and / or voice services, including all relevant ancillary facilities/services • Line sharing access service • Virtual unbundling (VULA)
Market 7 - Wholesale physical local fixed access services	• Wholesale local loop access services (i.e. copper and fibre based access from customer location to the local exchange, which may be used to provide broadband and / or voice services, in line with licence conditions): ▪ Unbundled local loop ▪ Sub loop unbundling • Access to passive network infrastructure in the local fixed access network, incl. all relevant ancillary facilities/services and collocation space: ▪ Duct and cable vaults access ▪ Dark fibre ▪ Cable landing points ▪ Buildings and sites
Market 8 - Wholesale fixed call origination services	• Fixed call origination services for CS and CPS • Wholesale fixed intelligent call origination
Market 10 – Wholesale transit services	• Wholesale transit interconnection service to deliver national and international call services

Market 9a-b / 14a-c - Wholesale fixed call termination services & wholesale termination services on mobile networks

In the absence of ex-ante regulatory remedies the dominant service providers in these markets will have the ability and incentive to engage in:

- excessive pricing;
- refusal to supply; and
- undue discrimination.

As a result, all dominant service providers in these markets must comply with the following requirements.

- Requirement to offer service on non-discriminatory basis. All dominant service providers will be obliged to offer termination services on their networks to other licensed service providers on a non-discriminatory basis (in line with Article 39 of the Bylaw). This is the continuation of an existing remedy. A list of services that all dominant service providers must offer in these markets is set out in Table 15 below.
- Prepare and publish reference offer. STC will be required to disclose the price and non-price related terms and conditions on which it offers termination services, as part of its reference interconnection offer. The terms and conditions are then subject to CITC's review and approval and must be published, in line with Article 41 of the Bylaw. This remedy does not apply to other dominant service providers in the termination markets due to the principle of proportionality

(i.e., as these service providers are not dominant in national markets other than those for termination services and CITC believes that imposing an obligation on these providers to publish a reference offer will not generate significant benefits for the market). However, these service providers will be required to offer termination services on a reciprocal basis to STC, unless there are clear and objective reasons why reciprocity is not possible.

- Submit interconnection agreements to CITC. All dominant service providers are required to prepare bilateral interconnection agreements, based on the contents of their reference offer (where applicable), and submit these to CITC for review and approval in line with Article 41 of the Bylaw. This is the continuation of an existing remedy.

- Fixed and mobile termination rates for all dominant service providers shall be determined by cost studies or benchmarking studies undertaken or approved by CITC, and mandated by Commission decision.

- Accounting separation. STC is required to prepare and submit to CITC on an annual basis, accounting information for its wholesale fixed and mobile termination services. This remedy does not apply to other dominant service providers in the termination markets, again as these service providers are not dominant in markets other than those for termination services.

Table 15. Interconnection and Access Services STC must include in its Reference Offers in relation to Markets 9a,b and 14a-c, and which other Dominant Service Providers must offer

Market	Required services
Market 9a,b - Wholesale fixed call termination services on STC's / Atheeb's network	• Fixed call termination services • Call termination to directory enquiries • Call termination to emergency services • Call termination to non-geographic number • Interconnection links (In Span Interconnection and Customer Sited Interconnection links) • Collocation space for interconnection equipment
Market 14a-c - Wholesale termination services on STC's / Mobily's / Zain's mobile networks	• Mobile call termination services • Mobile data termination services (covering SMS, MMS and video calls) • Interconnection links (In Span Interconnection and Customer Sited Interconnection links) • Collocation space for interconnection equipment

Market 11 and 12 National access and trunk segments of wholesale leased line services and managed network transmission services

Given its dominant position in this market, in the absence of regulatory intervention, STC may engage in:

- excessive pricing;
- refusal to supply;
- margin squeeze; and
- undue discrimination.

Therefore, the following ex-ante regulatory remedies will be imposed on STC in this Relevant Market:

- Requirement to offer service on non-discriminatory basis. STC will be obliged to offer services in this market to other licensed service providers on a non-discriminatory basis (in line with Article 39 of the Bylaw). This is the continuation of an existing remedy. A list of services STC must offer within this market is set out in Table 16 below.

- Prepare and publish reference offer. STC will be required to disclose the price and non-price related terms and conditions of these services as part of its reference offer. The terms and conditions on which it makes this offer will be subject to CITC's review and approval and must be published, in line with Article 41 of the Bylaw.

- Submit access agreements to CITC. All bilateral access agreements between STC and another service provider for the provision of services in this market shall be based on the contents of STC's reference offer, with these submitted to CITC for review and approval in line with Article 41 of the Bylaw. This is the continuation of an existing remedy.

- Cost-based charges. Prices for wholesale access services which STC is required to offer in this relevant market (as per table below) shall be cost-based, based on cost studies undertaken or approved by CITC.

- Accounting separation. STC is required to prepare and submit to CITC on an annual basis, accounting information for this market and the individual services offered within the market, including a breakdown of its financial and operational performance for these services, consistent with CITC's Guidelines on Accounting Separation in place at the time.

Table 16. Interconnection and Access Services STC must include in its Reference Offers in relation to Markets 11 and 12

Market	Required services
Market 11 – Wholesale access segment of leased line services and managed network transmission services	• Access (terminating) segments of wholesale leased lines and managed network transmission services • All relevant ancillary facilities/services and collocation space
Market 12 – Wholesale trunk segment of leased and managed network transmission services	• Trunk (i.e., core network) segments of wholesale leased lines and managed network transmission services • Access to dark fibre and duct in the core network • International capacity services • IP transit • Private peering

Markets 13b, 13c, and 13d: Wholesale mobile access and origination services in areas where STC / Mobily / Zain is the Universal Service Provider and Markets 15b, 15c, and 15d: Wholesale international call services originating in areas where STC / Mobily / Zain is the Universal Service Provider

CITC has found that STC, Mobily and Zain have a dominant position in these markets. As such, in the absence of ex-ante regulatory intervention, CITC is concerned that STC may engage in:

- excessive pricing;
- refusal to supply; and
- undue discrimination.

Given this, CITC intends to impose the following ex-ante regulatory remedies on the service providers in these Relevant Markets:

- Requirement to offer service on non-discriminatory basis. STC, Mobily and Zain will be obliged to offer services in these markets to other licensed service providers on a non-discriminatory basis (in line with Article 39 of the Bylaw). These are set out in Table 17 below.

- Prepare and publish reference offer. All dominant service providers in these markets will be required to disclose the price and non-price related terms and conditions of these services as part of their reference offers. The terms and conditions on which they make these offers will be subject to CITC's review and approval and must be published, in line with Article 41 of the Bylaw. However, this requirement only comes into play, if no commercial agreement can be reached between the access seeker and the relevant access provider (i.e., upon a request for access, the access seeker and access provider should enter into commercial negotiation. Only if these negotiations fail, CITC will intervene and request the reference offer to be prepared, which will then form the basis for the regulated access).

Table 17. Interconnection and Access Services dominant service providers must include in its Reference Offers in relation to Markets 13b-d and 15b-d

Market	Required services
Markets 13b-d – Wholesale mobile access and origination services where STC / Mobily / Zain is the Universal Service Provider Market 15b-d – Wholesale international call services where STC / Mobily / Zain is the Universal Service Provider	• Wholesale mobile intelligent call origination • Wholesale national roaming • Access to towers and masts • Signalling for international roaming

4.3.3 Summary overview of proposed remedies

Table 18 summarises the dominance findings and the proposed ex-ante regulatory remedies in each Relevant Market considered as part of this MDDD report.

Table 18. Overview of proposed remedies for each of the Relevant Market s

Market	Dominant Service Provider	Proposed remedies
Retail service markets		
Market 1 - Retail fixed access and local and national fixed call services	STC	▪ Tariff filing and approval (incl. predation and margin squeeze test) ▪ Cost studies ▪ User information requirements ▪ Accounting separation ▪ Replicability test for bundles
Market 2 - Retail fixed broadband access services	STC	
Market 3 - Retail business data connectivity services at fixed location	STC	▪ Tariff filing and approval (incl. predation and margin squeeze test) ▪ Cost studies ▪ User information requirements ▪ Accounting separation
Market 4b - Retail national mobile services in areas where STC is the Universal Service Provider	STC	▪ Requirement for tariff approval
Market 4c - Retail national mobile services in areas where Mobily is the Universal Service Provider	Mobily	
Market 4d - Retail national mobile services in areas where Zain is the Universal Service Provider	Zain	
Market 5b - Retail international call services originating in areas where STC is the Universal Service Provider	STC	▪ Requirement for tariff approval
Market 5c - Retail international call services originating in areas where Mobily is the Universal Service Provider	Mobily	
Market 5d - Retail international call services originating in areas where Zain is the Universal Service Provider	Zain	
Wholesale service markets		
Market 6 - Wholesale fixed broadband access services	STC	▪ Requirement to offer service/access on non-discriminatory basis ▪ Prepare (& publish) reference offer ▪ Submit access agreements to CITC ▪ Cost-based charges ▪ Accounting separation
Market 7 - Wholesale physical local fixed access services	STC	
Market 8 - Wholesale fixed call origination services	STC	

Market 9a - Wholesale fixed call termination services on STC's network	STC	▪ Requirement to offer service on non-discriminatory basis ▪ Prepare (& publish) reference offer ▪ Submit interconnection agreements to CITC ▪ Cost-based charges ▪ Accounting separation
Market 9b - Wholesale fixed call termination services on Atheeb's network	Atheeb	▪ Requirement to offer service on non-discriminatory basis ▪ Submit interconnection agreements to CITC ▪ Cost-based charges ▪ Accounting separation
Market 10 - Wholesale transit services	STC	▪ Requirement to offer service/access on non-discriminatory basis ▪ Prepare (& publish) reference offer ▪ Submit access agreements to CITC ▪ Cost-based charges ▪ Accounting separation
Market 11 – Wholesale access segment of leased line services and managed network transmission services	STC	▪ Requirement to offer service on non-discriminatory basis ▪ Prepare (& publish) reference offer ▪ Cost-based charges ▪ Accounting separation
Market 12 – Wholesale trunk segment of leased line services and managed network transmission services	STC	▪ Requirement to offer service on non-discriminatory basis ▪ Prepare (& publish) reference offer ▪ Cost-based charges ▪ Accounting separation ▪ Access to the passive infrastructure
Market 13b - Wholesale mobile access and origination services in areas where STC is the Universal Service Provider Market 13c - Wholesale mobile access and origination services in areas where Mobily is the Universal Service Provider Market 13d - Wholesale mobile access and origination services in areas where Zain is the Universal Service Provider	STC Mobily Zain	▪ Requirement to offer service/access on non-discriminatory basis ▪ [Prepare (& publish) reference offer]
Market 14a - Wholesale mobile termination services on STC's network	STC, Mobily, Zain	▪ Requirement to offer service on non-discriminatory basis ▪ Prepare (& publish) reference offer ▪ Submit interconnection agreements to CITC ▪ Cost-based charges ▪ Accounting separation

Market 14b - Wholesale mobile termination services on Mobily's network Market 14c - Wholesale mobile termination services on Zain's network		▪ Requirement to offer service on non-discriminatory basis ▪ Submit interconnection agreements to CITC ▪ Cost-based charges ▪ Accounting separation
Market 15b - Wholesale international call services originating in areas where STC is the Universal Service Provider **Market 15c - Wholesale international call services originating in areas where Mobily is the Universal Service Provider** **Market 15d - Wholesale international call services originating in areas where Zain is the Universal Service Provider**	STC Mobily Zain	▪ Requirement to offer service/access on non-discriminatory basis ▪ [Prepare (& publish) reference offer]

Annexe I – Scope of services covered in each Candidate Market

Table 19 below provides an overview of the scope of services covered in each Candidate Market. Please note this is provided for convenience only and should not be taken to be an exhaustive list of services.

Table 19. Scope of services covered in each Candidate Market

Market	Scope of services provided
Retail service markets	
Market 1 - Retail fixed access and local and national fixed call services	• Fixed access / line rental service • Fixed calls to special numbers • Fixed to mobile call services • Local and national fixed calls
Market 2 - Retail fixed broadband access services	• Fixed broadband access services including DSL, Fibre, and Wireless access
Market 3 - Retail business data connectivity services at fixed location	• National connectivity and international connectivity services (including point-to-point or point-to-multipoint, using physical or virtual capacity)
Markets 4a-d - Retail national mobile services (in areas within and outside (of Universal Service Policy	• Access to a mobile network to make and receive calls • National mobile voice and video calls • Mobile messaging services (SMS and MMS) • Mobile voice and broadband plans and dedicated mobile broadband
Market 5a-d - Retail international call services (in areas within and outside (of Universal Service Policy	• Outgoing international call services (including video calls) • International mobile messaging services (SMS and MMS)
Wholesale service markets	
Market 6 - Wholesale fixed broadband access services	• Bitstream services, which may be used to provide broadband and / or voice services, including all relevant ancillary facilities/services • Line sharing service • Virtual unbundling (VULA) • Broadband resale service
Market 7 - Wholesale physical local fixed access services	• Wholesale physical local loop access services (i.e. copper and fibre based access from customer location to the local exchange, which may be used to provide broadband and / or voice services, in line with licence conditions): ▪ Unbundled local loop ▪ Sub loop unbundling • Access to passive network infrastructure in the local fixed access network, incl. all relevant ancillary facilities/services and collocation space: ▪ Duct and cable vaults access ▪ Dark fibre ▪ Cable landing points ▪ Buildings and sites
Market 8 - Wholesale fixed call origination services	• Fixed call origination services for CS and CPS • Wholesale fixed intelligent call origination

Market 9a,b - Wholesale fixed call termination services	• Fixed call termination services • Call termination to directory enquiries • Call termination to emergency services • Call termination to non-geographic number • Interconnection links (In-Span Interconnection and Customer Sited Interconnection links) • Collocation space for interconnection equipment
Market 10 – Wholesale transit services	• Wholesale transit interconnection service to deliver national and international call services
Market 11 –Wholesale access segment of leased line services and managed network transmission services	• Access (terminating) segments of wholesale leased lines and managed network transmission services • All relevant ancillary facilities/services and collocation space
Market 12 – Wholesale Trunk segment of leased and managed network transmission services	• Trunk (i.e., core network) segments of wholesale leased lines and managed network transmission services • Access to dark fibre and duct in the core network • International transmission capacity services • IP transit • Private peering
Markets 13a-d – Wholesale mobile access and origination services (in areas within and outside of Universal (Service Policy	• Wholesale mobile intelligent call origination • MVNO hosting services • Wholesale national roaming • Access to towers and masts • Signalling for international roaming
Market 14a-c - Wholesale termination services on mobile networks	• Mobile call termination services • Mobile data termination services (covering SMS, MMS and video calls) • Interconnection links (In Span Interconnection and Customer Sited Interconnection links) • Collocation space for interconnection equipment
Market 15a-d – Wholesale international call services (in areas within and (outside of Universal Service Policy	• Wholesale international call services (i.e., resale services)

(Footnotes)

1. All candidate markets were defined to be national in scope.
2. No data for 2015 is available at the time of drafting this report as the underlying data submission from the service provider did not include data for 2015.
3. For the avoidance of doubt, the market definition does not include international call originating from a fixed location which form part of a separate market.
4. No data for 2015 is available at the time of drafting this report.
5. Based on its website, Mobily currently offers three types of broadband service: (i) Connect 4G services, (ii) eLife connect and (iii) Mobily Connect. The first two services are offered through Bayanat and are covered in Table 5 above. Mobily Connect appears to offer mobile data add-ons to Mobily's mobile voice packages and are therefore captured in the Markets for national mobile services.
6. Lebara's services are marketed as mobile voice and broadband, but in practice they can be used as dedicated mobile broadband connection as well.
7. Virgin Mobile's package also includes voice calls.
8. CITC does not hold information on out-off bundle call prices for post-paid mobile services.
9. For consistency, all prices have been rounded up to one decimal place.
10. No data for Zain was available for 2015. Therefore the average in this year is based on STC and Mobily only.
11. For the avoidance of doubt, these markets cover call termination services provided to other licenced service providers in Saudi Arabia only.
12. For the avoidance of doubt, these markets cover all termination services (i.e., this includes, but is not limited to voice calls, SMS, MMS and video calls) provided to other licenced service providers in Saudi Arabia only.

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