MALTA COMMUNICATIONS AUTHORITY

High-quality access and connectivity services provided at a fixed location in Malta

Market definition, assessment of competition and proposed regulatory approach

Consultation Document

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EXECUTIVE SUMMARY

The Malta Communications Authority (MCA) is hereby presenting, for national consultation, its preliminary decision on the definition and competitive assessment of the retail and wholesale markets for the provision of high-quality access and connectivity services provided at a fixed location in Malta.

This is in accordance with Article 9 of the Electronic Communications (Regulation) Act, which obliges the MCA to carry out regular reviews of competition in electronic communications markets to ensure that regulation remains appropriate in the light of changing market conditions.

The consultation period, which is being extended from 4 to 7 weeks due to the summer period, shall run from the 16th August 2016 till the 30th September 2016.

Following the closure of the consultation period and in line with the requirements set out in Article 7(3) of the Framework Directive, the MCA would then notify its response to consultation and draft decision to the EU Commission and the body of European Regulators for Electronic Communications (BEREC).

SUMMARY OF PRELIMINARY CONCLUSIONS

Leased line products are deemed to have the necessary characteristics over which high-quality access and connectivity services are supplied by local service providers to end-users (at the retail level). High-quality access and connectivity services are also supplied via leased lines to alternative service providers (including resellers) and potential market entrants (at the wholesale level), as a wholesale input intended to enhance network connectivity and for the supply of various electronic communications services to end-users. Indeed, alternative service providers and potential market entrants may require high-quality access and connectivity services over leased lines to connect their multiple sites and to be able to meet the demand of retail business customers for high-quality access and connectivity services. In turn, retail customers purchase high-quality access and connectivity services over leased lines to satisfy their own internal communications requirements.

Leased lines use traditional interfaces (analogue, semi-digital and digital SDH) and alternative interfaces (Ethernet and WDM) and fulfil the following quality characteristics:

- dedicated connectivity with no contention;
- scalable and/or symmetric bandwidth; and
- resiliency and security - SLAs guaranteeing high level of quality and low resolution times should a fault in the service occur.

i. Identification of Markets

The MCA identifies a retail market for the provision of high-quality access and connectivity services over national leased lines.

It also identifies a wholesale market for the provision of high-quality access and connectivity services over national leased lines.

On the basis of a substitutability assessment and in line with the EU Commission's Recommendation, the relevant retail and wholesale product markets include the following products:

- analogue leased lines;
- semi-digital leased lines;
- SDH leased lines;
- Ethernet leased lines; and
- WDM-based solutions.

All authorised operators providing retail and wholesale high-quality access and connectivity services over the above-mentioned products in Malta are doing so without actually differentiating - in terms of pricing and availability - on the basis of geographic location. The relevant geographic markets are therefore national in scope.

Full details of the MCA's market definition exercise are contained in Section 3 of this document.

ii. Assessment of competition and market power

Wholesale level

Based on the findings and discussion presented in the assessment of competition and market power, the MCA concludes that the identified wholesale market is not competitive and that GO has SMP in the provision of wholesale high-quality access and connectivity over leased lines. The competitive situation in this market is not expected to change within the timeframe of this review.

This preliminary conclusion is supported by the following findings:

- GO enjoys a high and stable market share that is not readily available to competitors.

- GO may abuse of its position as a vertically integrated and a horizontally integrated service provider by leveraging power from upstream to downstream leased line markets, particularly in the provision of TI leased line products.

- The wholesale provision of high-quality access and connectivity services over national leased lines in Malta is subject to the existence of barriers to entry, in part explained by GO's ubiquitous wholesale offering, including TI-based products that are not offered by alternative operators, and the small size of the customer base and the apparent lack of switching at wholesale level. This makes it difficult for other market players to attract a sufficient number of customers during the timeframe of this review and thus it would be very unlikely for these to compete effectively with GO.

Retail level

The MCA considers that the identified retail market does not require ex ante regulatory intervention.

The MCA is therefore proposing to deregulate the retail market concerning the provision of high-quality access and connectivity services over national leased lines in Malta as no operator is deemed to hold SMP in the provision of these services.

The reasons behind this conclusion are the following:

- The market in question features various operators and service providers involved in the provision of high-quality access and connectivity services over national leased lines in Malta.

- Melita has a nationwide hybrid HFC/fibre network and Vodafone has deployed its own fibre network infrastructure (in selected parts of the island), over which both are providing a diversified retail product portfolio.

- GO's market share has fallen consistently over the past five years, in contrast to the increasing market share of other service providers.

- Space Hellas is also purchasing wholesale leased line access (currently regulated) to provide high-quality access and connectivity services via national leased lines at the retail level.

- The presence of alternative service providers to GO, namely Vodafone and Melita, and the arrival of Space Hellas have had a material impact on the behaviour of the incumbent, given that end-users can exercise countervailing buyer power.

The MCA also notes that the current regulatory regime in the provision of retail national leased lines market is restricted to a light touch approach which features the transparency and non-discrimination obligations. The MCA believes that the removal of these two measures would not impact the drive towards a more competitive retail market, especially given the transition to Ethernet and the presence of four market players providing Ethernet-based products. The MCA further explains that the competitive situation at the retail level is linked to the wholesale market which will continue to be subject to *ex ante* regulation as outlined below.

Full details of the MCA’s preliminary decision and reasoning on the assessment of competition and market power at the retail level are contained in Section 4 of this document.

iii. Proposed regulatory approach at the wholesale level

With reference to the evidence presented in the assessment of competition and market power and after having identified the potential competition problems that may arise in the wholesale market for the provision of high-quality access and connectivity services over national leased lines in Malta, the MCA considers that ex ante regulatory intervention is required in this market.

To this effect, the MCA is mandating a number of ex ante regulatory obligations on GO, which is the operator being mandated with SMP in this wholesale market.

The relevant ex ante regulatory obligations are listed below:

- an obligation to provide access to/and use of specific network facilities;
- a transparency obligation;
- an obligation of non-discrimination;
- price control & cost accounting; and
- accounting separation.

These conditions apply for the wholesale provision of high-quality access and connectivity services over national leased lines served on different interfaces, namely traditional interfaces and alternative interfaces.

iv. Proposed regulatory approach at the retail level

The MCA considers that no operator enjoys a position of SMP in the identified retail market for the provision of high-quality access and connectivity services over national leased lines in Malta. This means that this market no longer warrants the imposition of ex ante regulatory obligations on GO. In this regard, the MCA notes that the current regulatory regime is restricted to a light touch approach which features the transparency and non-discrimination obligations. The MCA believes that the removal of these two measures would not impact the drive towards competition in this retail market, especially given the observed transition to Ethernet. The MCA further explains that the competitive situation at the retail level is linked to the respective wholesale market for the provision of high-quality access and connectivity services over national leased lines, for which the MCA is proposing ex ante regulatory intervention.

Pursuant to Regulation 5(3) of the Electronic Communications Networks and Services (General) Regulations of 2011 ('ECNSR'), the MCA shall withdraw the specific regulatory obligations, as per the 2012 decision, currently in force on GO in this market.

This withdrawal shall however be implemented without prejudice to any other general obligations at law or remedies emanating from any other MCA decision.

In order to have a smooth transition from a regulated to a non-regulated market environment, the MCA shall withdraw the relevant existing obligations at the expiry of 90 calendar days following the publication of this decision. Current obligations shall continue in effect during these 90 calendar days.

Full details on the regulatory approach proposed by the MCA are contained in Section 5 of this document.

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1.0 INTRODUCTION

1.1 SCOPE

The purpose of this market review is to identify the market(s) for the provision of high-quality access and connectivity services supplied at a fixed location in Malta. Each identified market is defined in terms of its product and geographic scope.

The market definition exercise is followed by a review of the key factors affecting competition in the identified market(s).

The findings concerning the state of competition would then determine the MCA's regulatory approach to the market(s) in question.

In carrying out this market review, the MCA shall take utmost account of the European Commission's (EC) Recommendation on relevant markets[1] and the guidelines on market analysis and the assessment of SMP (hereafter referred to as the SMP Guidelines)[2].

1.1 CONTEXT

The Explanatory Note to the EU Commission Recommendation on relevant markets describes retail high-quality access and connectivity services provided at a fixed location as being advanced and reliable services used by business customers to link their business units and locations and allow for internal communications. The Explanatory Note explains that these services are characterised by a high quality of service level, guaranteed availability, sufficiently high upload and download rates, and limited contention.

These services are geared towards business customers seeking a high-quality and a high-bandwidth connection to the Internet with limited contention, additional desk support, short repair times, mobile connections for employees, IP telephony, data centres and back-up, and in case of multi-site companies, dedicated, uncontended data connections between a number of sites. Due to these high-end demands, a high-quality access and connectivity service typically comes with Service Level Agreements (SLAs) that carry superior terms and conditions than those associated with standard data connections, specifying also resolution times should a fault occur.

In line with this description, the Explanatory Note suggests that retail high-quality connectivity services are typically supplied via the following products:

- traditional interface (TI) leased lines and alternative interface (AI) leased lines; and/or

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[1] Commission Recommendation of 09.10.2014 on relevant product and service markets susceptible to ex ante regulation C(2014) 7171. The relevant documentation is available at: http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2014.295.01.0079.01.ENG

[2] Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services (2002/C 165/03).

The relevant documentation is available at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2002:165:0006:0031:EN:PDF

- copper-based / fibre-based / cable-based connections, such as, for example, the standard fixed broadband connections (symmetric and asymmetric) and Virtual Private Networks (VPNs).

The extent of substitutability of these products would depend on whether they are in the so-called 'chain of substitution' dynamic, with the underlying consideration being that some end-users may make some concessions on certain quality characteristics when seeking a high-quality connectivity service and therefore opt for a standard fixed broadband connection rather than a leased line connection.

The Explanatory Note underscores that an alternative service provider or potential market entrant may not have the necessary network infrastructure in place to meet the demand of retail business customers seeking high-quality connectivity services. In such circumstances, the alternative service provider or potential market entrant would use a number of wholesale access inputs, which are acquired from other service providers and/or operators, to supply retail services that fulfil the '*high-quality connectivity*' characteristics being sought at the retail level.

These wholesale inputs range from leased lines supplied via traditional and/or alternative interfaces, independently of the underlying network infrastructure enabling the provision of these wholesale products, to other wholesale access products that fulfil certain quality characteristics.

The MCA considers that, in Malta's case, leased lines using analogue, semi digital and SDH interfaces are collectively referred to as TI leased lines. The reason is that these types of leased lines use legacy equipment that is no longer manufactured. Leased lines supplied via contemporary interfaces, using Ethernet and wavelength-division multiplex (WDM) technologies, are collectively referred to as AI leased lines.

TI and AI leased lines are point-to-point connections, with the following distinguishing product characteristics:

- dedicated and uncontended connectivity;
- symmetrical upload and download speeds; and
- resiliency and security - SLAs guaranteeing high level of quality and low resolution times should a fault in the service occur.

As for other wholesale access products, the Explanatory Note says that '*contended and asymmetric*' alternatives can be regarded as substitutes to leased lines when displaying '*certain advanced quality characteristics*', highlighted below:

- guaranteed availability and high quality of service in all circumstances including SLAs, 24/7 customer support, short repair times and redundancy, typically found in a services environment geared to the needs of business customers;
- high-quality network management, including of backhaul, resulting in upload speeds appropriate for business use and very low contention; and
- the possibility to access the network at points which have been defined according to the geographic density and distribution of business rather than mass-market users.

On the basis of the above-mentioned qualitative characteristics and in the light of offers currently available on the Maltese market, the alternative wholesale access products that may be of relevance to this market review are listed below:

- wholesale broadband access; and
- dark fibre.

To this effect, the MCA's wholesale market definition exercise shall take into account the qualitative characteristics of each of the above-mentioned products to determine whether or not they are considered by customers, namely wholesale access seekers, as substitutes to TI and AI leased lines. Whether these wholesale access products form part of the same market would ultimately depend on whether they fall in the same 'chain-of-substitution' pricing dynamic. It is however relevant to underline at this very early stage that the significance of symmetric and asymmetric fixed broadband services in this market review is in the indirect constraint that these services would place on the provision of leased line services. No assessment is made of whether leased line services constrain fixed broadband products, as this factor has already been addressed in the MCA's Wholesale Broadband Access review.

1.2 INFRASTRUCTURES ENABLING THE PROVISION OF HIGH-QUALITY ACCESS AND CONNECTIVITY SERVICES

The architectural options for the access part of the network are either based on a copper connection and / or a fibre connection or hybrid fibre-coax cable between the end-user and the operator's network. Any such connection is deployed from the network termination point ('NTP') at the client's premises back to aggregation nodes of the network.

- Copper

Access network infrastructure based on copper is mainly used to connect the end-user access line to the first aggregation point in the network. There are considerable restrictions on capacity when access is offered over copper when compared to access offered over optical fibre. Fibre-based access services are indeed capable of delivering much higher bandwidths than access services based on copper.

GO is the only operator that uses copper-based technology in the access network, mainly to cater for leased line connections supporting very low capacity.

- Fibre (FTTP)

GO has upgraded its copper network to 'fibre to the cabinet' (FTTC) covering more than 75% of premises in Malta and is now progressing with the roll-out of 'fibre to the home' (FTTH) between the street cabinet and the end-user premises in selected locations. GO's street cabinets and aggregation nodes serve an important role in the provision of leased line services as these host the active transmission equipment supporting the provision of such services.

- Hybrid fibre-coax (HFC) cable

Another operator that owns a nationwide access network infrastructure is Melita. Melita's nationwide access network infrastructure is based on coax cables, deployed back to a hierarchy of fibre and metro aggregation nodes up to the headend. In respect of the supply of dedicated and uncontended connectivity over the cable network, the connection between the end-user and the operator's network is provided via a hybrid coaxial/fibre cable utilising Data Over Cable Service Interface Specification ('DOCSIS') technology, which supports the active transmission equipment deployed at the aggregation nodes of the said operator.

Melita's access network infrastructure has been fully upgraded to DOCSIS 3.0 cable broadband standard, involving the deployment of fibre up to street cabinets and the roll-out of additional aggregation nodes, i.e. the points where the conversion between optical fibre and coaxial cable occurs.

- The use of hybrid technologies in the access network

A third operator, Vodafone (Malta), has invested in deploying a hybrid access network infrastructure using fibre and microwave links over which it can supply high-quality connectivity services. Vodafone's physical infrastructure is however limited, which means that the coverage of this operators' high-quality services is effectively restricted to a small number of business clients.

1.3 LEGAL BACKGROUND

The legal basis concerning the conduct of market reviews is provided in the EU Regulatory Framework, the Electronic Communications (Regulation) Act (Cap. 399) (hereinafter referred to as 'the ECRA'); and the Electronic Communications Networks and Services (General) Regulations of 2011 (hereinafter referred to as 'the ECNSR'). These are briefly discussed below.

1.3.1 THE EU REGULATORY FRAMEWORK

The regulatory framework for electronic communications networks and services in the European Union (EU) is designed to create harmonised regulation across Europe and aims at reducing barriers to market entry, while fostering effective competition to the benefit of industry and consumers.

The EU Regulatory Framework for Electronic Communications consists of a set of five directives, which were first implemented in the EU in 2002 and later amended in 2009. These directives are listed hereunder:

- Directive 2002/21/EC on a common regulatory framework for electronic communications networks and services ('the Framework Directive');
- Directive 2002/19/EC on access to, and interconnection of, electronic communications networks and associated facilities ('the Access Directive');
- Directive 2002/20/EC on the authorisation of electronic communications networks and services ('the Authorisation Directive');
- Directive 2002/22/EC on universal service and users' rights relating to electronic communications networks and services ('the Universal Service Directive'); and
- Directive 2002/58/EC concerning the processing of personal data and the protection of privacy in the electronic communications sector ('the ePrivacy Directive').

The Framework Directive, which provides the overall structure for the local regulatory regime and sets out fundamental rules and objectives reading across all the directives. Article 8 of the Framework Directive stipulates the key policy objectives of NRAs in their regulatory approach, namely:

- the promotion of competition;
- the development of the internal market; and
- the promotion of the interests of citizens of the European Union.

The Authorisation Directive establishes a system whereby any person will be generally authorised to provide electronic communications services and/or networks without prior approval. The general authorisation replaces the former licensing regime.

The Universal Service Directive defines a basic set of services that must be provided to end-users.

The Access and Interconnection Directive sets out the terms on which providers may access each others' networks and services with a view to providing publicly available electronic communications services.

The fifth Directive on Privacy establishing users' rights with regard to the privacy of their communications was transposed on 10th January 2003 (Legal Notice 16 of 2003 under the Data Protection Act).

1.3.2 THE LOCAL LEGISLATIVE FRAMEWORK

The Directives comprising the EU Regulatory Framework were first transposed into Maltese legislation on the 14th of September 2004 and further amended on the 12th of July 2011.

The relevant national legislation are the Malta Communications Authority Act (Cap 418), the Electronic Communications (Regulation) Act (Cap. 399) (hereinafter referred to as 'the ECRA'); and the Electronic Communications Networks and Services (General) Regulations of 2011 (hereinafter referred to as 'the ECNSR').

The local regulations guiding each stage of the market review process are described below.

- Regulation 5 of the ECNSR stipulates that the MCA tailors its market definition on national circumstances, taking utmost account of all applicable guidelines issued by the European Commission in accordance with Article 15 of the Framework Directive and taking into account the revised EU Recommendation on relevant markets and other recommendations issued by the European Commission.

- Regulation 6(2) of the ECNSR states that 'an undertaking shall be deemed to have significant market power if, either individually or jointly with others, it enjoys a position equivalent to dominance, that is to say a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers'.

- Regulation 6(4) of the ECNSR states that 'where an undertaking has significant market power on a specific market, it may also be deemed to have significant market power on a closely related market, where the links between the two markets are such as to allow the market power held in one market to be leveraged into the other market, thereby strengthening the market power of the undertaking'.

- Regulation (6) of the ECNSR underlines that the MCA is obliged to impose regulatory obligations if an operator is designated as having SMP on a relevant market, either individually or jointly with others, as referred to in sub regulation (2) of regulation 5 of the ECNSR.

- Where such obligations already exist in the market(s) under investigation, a new finding of SMP would lead the MCA to maintain or amend the existing regulatory conditions accordingly. If, on the other hand, the finding of SMP cannot be ascertained, the MCA would have to withdraw such regulation, in accordance with Regulation (5) of the ECNSR, subject to an appropriate period of notice given to all parties affected by such withdrawal.

- Regulation 4 of the ECNSR states that the MCA carries out its market reviews in accordance, where appropriate, with an agreement with the National Competition Authority ('the NCA') under article 4 of the MCA Act.

- Regulation 7 of the ECNSR stipulates that the MCA is to notify the results of its market reviews and the corresponding draft measures to the Commission and to other NRAs in Europe following the closure of the national consultation exercise.

1.4 METHODOLOGY AND GUIDELINES

The MCA takes utmost account of the EU Recommendation when carrying out its market reviews. This Recommendation aims to identify, on a forward-looking basis, those markets that will continue to require the imposition of ex ante regulatory obligations. The EU Recommendation on relevant markets provides a common platform to NRAs when these are carrying out their market reviews. In this sense, the Recommendation promotes harmonisation across the European Community by ensuring that the same product and service markets are subject to a market analysis in all Member States.

The first EU Recommendation on relevant markets was published in 2003, listing 18 markets in which ex ante regulation was deemed to be warranted. This Recommendation was subsequently revised in 2007 and in 2014. The number of markets that national regulatory authorities (NRAs) are required to analyse for the purpose of ex ante regulatory intervention has gone down to 4.

The Recommendation however provides NRAs the flexibility to define and to regulate other markets where this is justified by national circumstances. Accordingly, NRAs are to define relevant markets appropriate to national circumstances, provided that the utmost account is taken of the product markets listed in the Recommendation (Regulation 6 of the ECNSR).

The EU Recommendation currently features the provision of high-quality access at a fixed location as a market that is susceptible to ex ante regulatory intervention. The MCA is carrying out a review of this market, taking utmost account of the European Commission's SMP Guidelines. These guidelines set out the principles for use by NRAs in the analysis of markets and effective competition under the regulatory framework for electronic communications networks and services.

The MCA has also published a document outlining the guidelines on the methodology to be used for assessing effective competition in the Maltese electronic communications markets[3]. The MCA shall therefore take these guidelines into account when assessing the competitive conditions in the market currently under investigation.

In line with the above-mentioned guidelines, the current market review is divided into three main stages:

- the definition of one or more relevant market(s);
- an assessment of the state of competition in identified market(s), specifically investigating whether any undertaking is deemed to have SMP in the provision of the service in question[4]; and
- a regulatory assessment, outlining whether to maintain, amend or withdraw regulatory obligations in order to ensure that ex ante regulatory intervention remains appropriate in the light of changing market conditions.

The market review is forward looking in nature, taking into account '*expected or foreseeable technological or economic developments over a reasonable horizon*'. In this regard, the timeframe of this analysis is notionally set at approximately three years, reflecting the characteristics of local retail and wholesale markets and the factors that are likely to influence their competitive development during this timeframe.

More detailed requirements and guidance on the market review process are provided in the Directives, the ECRA, the ECNSR and in additional documents issued by the European Commission and the MCA as highlighted above.

1.5 CONSULTATION

As required by Regulation 5(7) of the ECNSR, the MCA is publishing the results of this market review for comments by market players and interested parties, prior to the adoption of final proposals.

As already highlighted above, the national consultation period shall run from the 16th of August 2016 to the 30th of September 2016.

In line with the cooperation agreement signed on 20th May 2005 between the MCA and the Office of Fair Competition, succeeded by the Office for Competition forming part of the Malta Competition

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[3] Link to the MCA's market review methodology:
http://www.mca.org.mt/sites/default/files/articles/marketreviewmethod.04.pdf

[4] The assessment is undertaken against the background of a 'modified green-field approach', whereby it is assumed that none of the ex ante regulations affecting a given market are in place.

and Consumer Affairs Authority (‘the MCCAA’), the MCA shall also initiate a two-week consultation exercise with the MCCAA. The MCA will be publishing any comments forwarded by the MCCAA at a later stage in the response to this consultation document.

Furthermore, as required by Regulation 7 of the ECNSR, the MCA shall notify the results of this consultation exercise and its draft decision to the Commission and to other NRAs in Europe.

1.6 STRUCTURE OF THIS DOCUMENT

The remainder of this document is structured as follows:

- Section 2 highlights upon the MCA’s previous market review decisions concerning the provision of high-quality access and connectivity services, more specifically its decisions concerning the provision of leased line services in Malta. It also focuses on developments and market trends in the markets under investigation.

- Section 3 defines the relevant product and geographic markets concerning the provision of high-quality access and connectivity services at a fixed location in Malta.

- Section 4 analyses the state of competition in the identified retail and wholesale market(s) by considering a number of criteria for the assessment of competition.

- Section 5 explains the MCA's regulatory approach in the market(s) that are identified.

2.0 PREVIOUS MCA DECISIONS AND MARKET DEVELOPMENTS

This section briefly describes the previous MCA Decisions that are related to the market(s) under investigation, thus providing some background information for the purpose of better contextualising the analyses in this consultation document.

2.1 THE PROVISION OF DEDICATED CAPACITY OVER LEASED LINES (EX MARKETS 7/2003 AND 14/2003 AND EX MARKET 6/2007)

The MCA has already carried out two market reviews concerning the provision of dedicated capacity over leased lines in Malta. The main conclusions emanating from each market review are provided in the following sub-sections.

2.1.1 FIRST ROUND MARKET REVIEW

The MCA carried out its first-round analysis of the markets for the provision of leased line services in Malta in 2006. The notification of this review was registered by the Commission as Case MT/2006/0373-5 and the corresponding MCA Decision was published in August of 2006.

The MCA Decision designated GO with SMP in the provision of leased lines both at the retail and wholesale level and imposed the full set of remedies to regulate GO's provision of leased line services.

2.1.2 SECOND ROUND MARKET REVIEW

The MCA notified its second-round draft decision on the definition of relevant products and service markets and on the determination of SMP in the markets for leased line services in Malta in 2012. This notification was registered by the Commission as Case MT/2012/1386-1387-1388-1389-1390, pursuant to Article 7(3) of Directive 2002/21/EC.

The MCA published its final decision, entitled ‘The provision of dedicated capacity over leased lines in Malta’, in December of the same year. The main conclusions are highlighted below.

2.1.2.1 Identification of relevant markets

The MCA identified five relevant leased line markets, two at the retail level and three at the wholesale level.

The relevant retail markets were the following:

- a retail market for the provision of dedicated capacity over national leased lines; and
- a retail market for the provision of dedicated capacity over international leased lines.

The relevant wholesale markets were the following:

- a wholesale market for the provision of dedicated capacity over national trunk segments of leased lines;
- a wholesale market for the provision of dedicated capacity over international trunk segments of leased lines in Malta; and
- a wholesale market for the provision of dedicated capacity over terminating segments of leased lines.

The distinction between national and international markets stood on the reasoning that Malta is an island state. This is because international leased line markets were found to feature appreciably different conditions of demand and supply than those observed for national leased line markets.

On the basis of a substitutability assessment from the demand-side and supply-side, the MCA concluded that the relevant retail and wholesale product markets encompass the following range of products:

- analogue leased lines;
- digital SDH leased lines; and
- Ethernet leased lines.

Furthermore, using the so-called 'chain of substitution' analysis, the MCA demonstrated that all leased line products that were on offer in 2012 belonged to the same relevant market. This meant that the bandwidth break identified at 2Mbit/s in 2006 was dropped.

The relevant geographic markets were determined to be national in scope on the consideration that all authorized operators providing leased line services in Malta were doing so without actually differentiating - in terms of pricing and availability - on the basis of geographic location.

2.1.2.2 The state of competition

The MCA assessed the competitive situation in the retail and wholesale leased line markets using a number of criteria, including market share developments, conditions to market entry and expansion, and the presence of scale economies.

The MCA findings demonstrated that GO held an SMP position in the following markets:

- the retail market for the provision of dedicated capacity over national leased lines;
- the wholesale market for the provision of dedicated capacity over national trunk segments of leased lines; and
- the wholesale market for the provision of dedicated capacity over terminating segments of leased lines in Malta.

The MCA considered that no operator had at the time fully replicated GO's access network infrastructure and offers in the above-mentioned markets. This meant that GO had an inherent ability to charge excessive wholesale leased line prices if left unregulated and was therefore in a position to implement price leveraging strategies at the retail level.

GO was also found to retain high market shares and to benefit from scale economies that were not readily available to other operators and thus acted as a barrier to entry to potential market entrants.

The MCA ultimately considered that GO's SMP position in the markets in question was likely to persist within the timeframe of the second-round market review.

Meanwhile, the MCA also determined that GO no longer held an SMP position in the following leased line markets:

- the retail market for the provision of dedicated capacity over international leased lines; and
- the wholesale market for the provision of dedicated capacity over international trunk segments of leased lines.

This is because Melita and Vodafone have managed to fully replicate GO's international infrastructure and offers in these two markets.

GO's market shares in the markets in question were on the decline, with Melita and Vodafone penetrating the market and building market share on high net worth customers. These customers were deemed to be in a position to exert sufficient countervailing buyer power ('CBP') as to constrain GO from behaving in an uncompetitive manner.

To this effect, newer market entrants were considered to be in a position to pose a direct competitive constraint on the pricing behaviour of GO in the provision of retail international leased lines and the provision of wholesale international trunk segments of leased lines.

2.1.2.3 Regulatory approach

In view of the identified competition problems and the finding of market dominance in the retail national leased lines market, the MCA imposed the following obligations on GO:

- a transparency obligation with respect to the provision of dedicated capacity over analogue leased lines;

- a transparency obligation with respect to the provision of dedicated capacity over SDH-based leased lines and Ethernet circuits; and

- an obligation of non-discrimination for the provision of dedicated capacity over digital SDH-based leased lines and Ethernet circuits.

Given the presence of alternative operators in the provision of retail national leased line services over Ethernet-based leased lines and subject to the imposition of wholesale regulatory obligations, the MCA withdrew the price control, cost accounting, and accounting separation obligations that were in force on GO at the retail level since 2006.

Meanwhile, at the wholesale level, the MCA imposed regulatory obligations on GO with respect to the provision of services over national trunk segments of leased lines and the provision of terminating segments of leased lines.

The wholesale regulatory conditions in respect of GO's provision of these services include:

- access to/and use of specific network facilities;
- transparency;
- non-discrimination;
- price control & cost accounting; and
- accounting separation.

These conditions apply for the provision of wholesale leased line services over analogue, semi-digital, digital SDH and Ethernet interfaces.

2.1.3 MARKET DEVELOPMENTS

There is a diverse range of high-quality access and connectivity services over leased lines that are currently supplied and demanded in Malta. The main developments with respect to this range of products are outlined below.

2.1.3.1 National leased lines

A breakdown of the volumes of national leased line connections in Malta by type of interface shows that there have been changes in the composition of demand at the retail level since 2012.

Of note is the strong shift away from leased line services based on traditional interfaces (i.e. TI leased lines) to Ethernet-based leased lines. The arrival of WDM-based solutions is another important development.

At the retail level, the number of TI leased lines at the end of March 2016 stood at 173, which is down by 66.8% when compared to the number recorded at the end of March 2012. Around 70% of all active TI connections recorded at the end of last March were either on analogue, semi-digital, and SDH interfaces supporting transmission speeds up to 1984kbps. Nevertheless, despite this high ratio, the number of such TI leased line connections dropped down by 73% since 2012, from 493 at the end of March 2012 to 133 at the end of the current reporting period.

Only GO currently supplies analogue, semi-digital, and SDH leased lines supporting transmission speeds up to 1984kbps. GO's supply of such leased line services is however restricted to existent customers, as this operator stopped offering these products commercially to new customers, even as from the last market review carried out in 2012.

The remaining share of TI leased lines is accounted for by SDH connections supporting transmission speeds of 2Mbps or higher. Take-up for this type of leased line connections has also declined during the period under consideration, from 95 at the end of March 2012 to 58 at the end of last March.

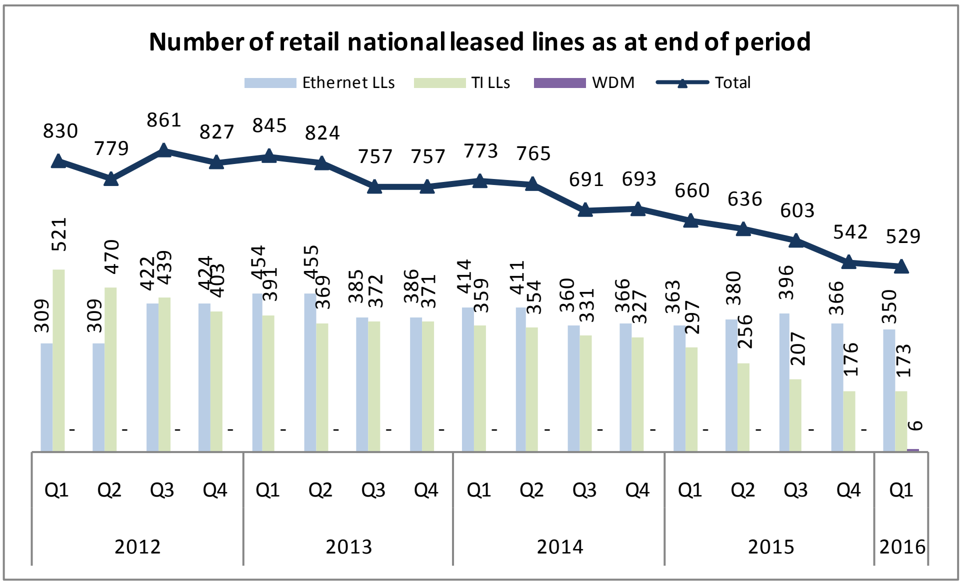

Chart 1: Number of national leased lines, at the retail level

Meanwhile, the take-up of national Ethernet leased line connections increased. The number of Ethernet leased line connections was up by 56.1%, from 309 at the end of March 2012 to 350 at the end of last March. The underlying outcome is that national Ethernet leased line connections now account for the majority of installed leased lines in Malta, at 66.2% (up from 37.2% in 2012), whilst TI leased lines account for 32.7% of the local subscriber base.

Retail demand for national Ethernet leased lines over the last three years has also shifted towards connections that support higher bandwidths. For example, the share of the total number of national Ethernet leased line connections supporting bandwidths of 20Mbps or more increased from 13.6% at the end of March 2012 to 29.1% at the end of last March.

It is also of note that, currently, only a handful of end-users make use of WDM-based solutions.

The overall picture that emerges at the retail level is that demand for national leased lines is now seeking higher bandwidths over Ethernet and WDM, despite the high (but declining) ratio of end-users that are still using analogue, semi-digital and SDH leased lines.

Developments at the wholesale level are somewhat different to those at the retail level. In fact, the number of wholesale national Ethernet connections was down between March 2012 and March 2016, from 15 to 4. Meanwhile the number of wholesale TI connections was practically unchanged, as seen in the chart below. There was also one wholesale national WDM connection reported at the end of the current reporting period.

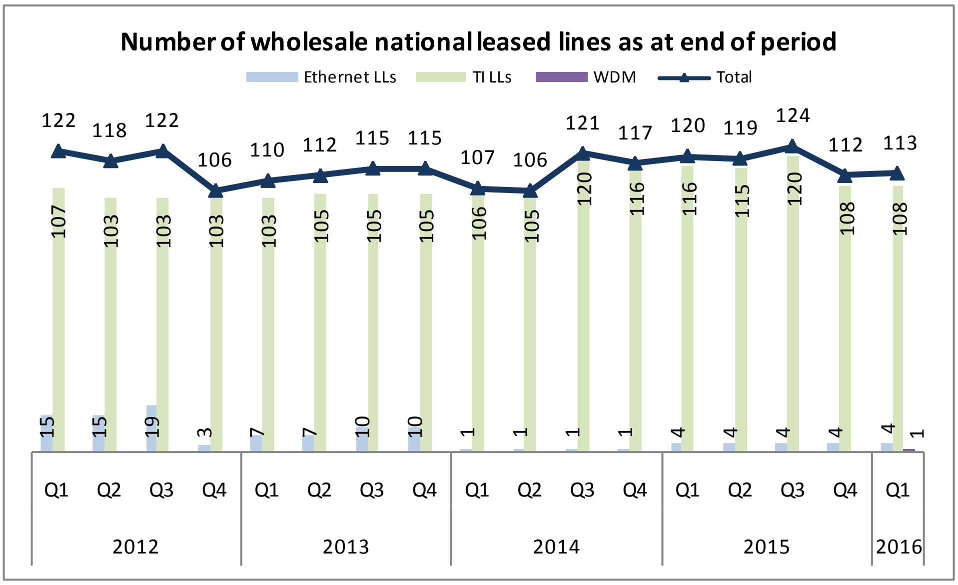

Chart 2: Number of national leased lines, at the wholesale level

Overall, the number of wholesale national TI leased line connections totalled 108 at the end of last March, equivalent to 95.6% of the total number of wholesale national leased line connections. Ethernet-based and WDM-based connections added together accounted for just 4.4% of the total.

2.1.3.2 International leased lines

An important distinction made by the MCA in previous market reviews on the provision of leased line services in Malta relates to the demand and supply of national and international leased lines, whereby each segment is deemed to correspond to a relevant market both at the retail and wholesale level.

It is recalled that Malta is an island state lacking direct geographical connectivity with mainland Europe and North Africa. Hence, an important consideration here is what constitutes a national service versus an international service when it comes to the provision of high-quality access and connectivity in Malta.

The MCA notes that the wholesale and retail provision of a high-quality access and connectivity service over international leased lines entails the use of the international trunk segment of a leased line i.e. the use of the submarine cable. Significantly, in this regard, the MCA observes that there are three different operators currently supplying international trunk segments of leased lines in direct competition to each other. These operators are GO, Melita, and Vodafone, with each of these having deployed its own international media gateway and submarine link (two in the case of GO) to mainland Europe[5]. All submarine links terminate in Sicily, as depicted in Diagram 2 below.

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[5] It is relevant to underline that the national utilities service provider, Enemalta plc., has deployed an international fibre link that is laid integrally with the interconnector cable. This link provides additional capacity that may be availed of in the future for the provision of international leased line services.

Diagram 1: International links to Sicily

International trunk segments of leased lines therefore allow for a direct and dedicated link between one aggregation point located in Malta and another aggregation point located outside Malta's national territory.

The MCA recalls its conclusion in the 2012 leased lines market review, which identifies the international media gateway as the boundary that allows for the distinction between national and international leased line services. This is because those end-users and service providers seeking to acquire dedicated access and connectivity from a site located in Malta to a site located on any foreign jurisdiction must first acquire access to (or deploy) an 'international leased line' via an international media gateway.

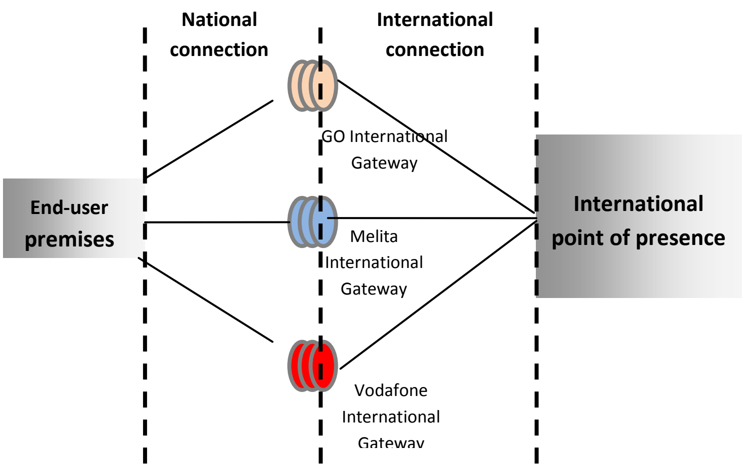

Diagram 2: International connectivity

Diagram 2 depicts the relevant configuration for the provision of international high-quality access and connectivity services via international leased lines. It shows that the provision of such services would encompass the physical connections between a core node located in Malta and the international submarine links. The core node located in Malta combines one terminating segment between the end-user's site and the nearest local exchange and a half-circuit link (the notional 'trunk segment') from there to the international core node / international point of presence.

It is in this context that the MCA distinguishes between national and international leased line services supplied in Malta, according to the following definitions:

- An international leased line service allows the end-user or service provider to establish a direct and dedicated high-quality link, via the international gateway, from its site located in Malta to another site located in a foreign jurisdiction[6].

- A national leased line service allows the end-user or service provider to establish a direct and dedicated high-quality link between two points of presence (or two sites) located on the Maltese national territory (i.e. within the island's perimeter).

In this regard, the MCA Decision published in 2012 concludes that the provision of wholesale and retail international leased lines in Malta is competitive given that these markets display the following characteristics:

- No barriers to entry inhibiting effective market competition. This is because the presence of high sunk costs did not stop Melita and Vodafone from investing to replicate GO's infrastructure and deploying a new access network to offer relevant services.

- A continued improvement in the state of competition as a result of an increasing number of end-users making use of leased line products supplied by alternative service providers to GO.

- No market player could afford to engage in anti-competitive behaviour by increasing the price of its services above the competitive level or decrease the level of its service quality without losing customers to competitors. This effectively means that no supplier could actually behave independently of competitors in the absence of regulation.

- The MCCAA could effectively deal with any potential issues that may arise in the markets in question, through vested ex post powers.

The MCA considers that competition has continued to evolve in a similar direction over the last few years and is of the opinion that deregulation of these markets was and continues to be the best approach in the circumstances.

The main reasons for this approach are the following:

- Existing alternative service providers, namely Melita and Vodafone, continue building retail market share and are in a position to exercise competitive pressures on each other and on GO. In this regard, GO's retail market share of the international leased line subscriber base declined steadily over the last three years and as at March 2016 stood at around 51.7%,

[6] The closest point of presence to mainland for Malta is located in Sicily.

down from 92% in 2012. Meanwhile, GO's retail market share of international leased line revenues was down to less than 50% by the end of March 2016.

- This goes to show that Melita and Vodafone are competing successfully with GO in the provision of these services and gaining market share over time. This continues to constrain GO’s pricing behaviour in the provision of high-quality access and connectivity services supplied over international leased lines.

- Furthermore, competition is concentrated on a limited number of end-users. This means that service providers continue to have every incentive to maintain and even possibly enhance their customer base by providing services that meet the quality and price requirements of these end-users. To this effect, the MCA argues that end-users are in a position to exert countervailing buyer power (CBP) on all service providers.

- New market entry has materialised since 2012, this time in the form of a new service provider, Space Hellas, purchasing wholesale international leased lines over which it could provide high-quality access and connectivity services and thus posing a constraint at the retail level. This outcome sustains the MCA’s view that, although potential barriers to entry may exist, these do not effectively restrain new market entry.

The relevant retail and wholesale markets for the provision of international leased lines, as defined in the MCA’s 2012 Decision, are in themselves structurally conducive to competition and therefore customers/consumers are protected through market forces. The MCA deems it very unlikely for these factors to change within the timeframe of this review, even more so if additional capacity over Enemalta’s international link is made available in the coming years, and therefore concludes that there is limited scope for competitive shortcomings in the wholesale and retail markets in question for the foreseeable future.

It therefore follows from the above that this market review will focus on national leased lines when seeking to define the relevant market(s) for the provision of high-quality access and connectivity services provided at a fixed location in Malta.

3.0 MARKET DEFINITION EXERCISE

The MCA is carrying out a demand-side and supply-side substitutability assessment to identify the relevant market(s) in the provision of high-quality access and connectivity services at a fixed location in Malta. The following factors will be considered throughout this exercise:

- from a demand-side perspective, the extent to which customers substitute between a range of TI and AI leased lines and the extent to which customers avail of alternative high-quality access and connectivity services, as much as to impose a competitive constraint on the provision of TI and AI leased lines;

- from a supply-side perspective, the extent of substitutability between the provision of high-quality connectivity services by different service providers; and

- the geographic scope of the relevant markets.

3.1 BACKGROUND

The MCA takes full account of the EU Regulatory Framework for Electronic Communications when defining the relevant market(s) concerning the provision of high-quality access and connectivity services in Malta. This would ensure that the relevant market(s) are defined appropriate to Malta's national circumstances, in particular the relevant geographic markets in our territory.

Consistent with the Commission's guidance, the MCA first defines the relevant retail market(s), and then goes on to define the relevant wholesale market(s).

The MCA assessment is forward looking in nature and seeks to determine the boundaries of the identified markets by assessing constraints on the price setting behaviour of firms.

Three main types of constraints are considered: demand-side substitution, supply-side substitution and the homogeneity of competitive conditions for the services under investigation.

As per the Commission's guidelines on market analysis and the assessment of SMP, demand-side substitutability is used to measure the extent to which consumers are prepared to substitute other services or products for the service or product under investigation. Supply-side substitutability, on the other hand, indicates whether suppliers other than those offering the product or service in question would switch in the immediate to short term their line of production to offer the relevant products or services without incurring considerable additional costs.

The substitutability assessment rests on the logic of the hypothetical monopolist test (HMT test) and follows the principle of technology neutrality. The test, used in competition analysis, seeks to define a market by establishing the closest substitute to the product being considered. The HMT test identifies products as being substitutes by evaluating what will happen if there was a small but significant, lasting increase in the price of a given product, assuming that the prices of all other products remain constant.

If and where the market definition deviates from the Recommendation, the difference is identified and justified in light of the national circumstances.

3.2 THE RELEVANT RETAIL MARKET(S)

The retail market definition exercise is to identify the set of substitutable high-quality access and connectivity products that are sought by consumers requiring the following service characteristics:

- dedicated connectivity with no contention;
- scalable and symmetric bandwidth; and
- guaranteed availability should a fault occur (resiliency and security offered through SLAs).

In view of the forthcoming demand-side and supply-side substitutability exercise, the MCA shall be reviewing all the platforms supporting the provision of high-quality access and connectivity services provided at a fixed location in Malta.

To this effect, the MCA will consider the extent of substitutability of the following leased line products:

- Traditional interface (TI) leased lines, including:
  - analogue leased lines;
  - semi-digital leased lines; and
  - SDH leased lines.

- Ethernet leased lines.

- WDM-based solutions.

The MCA will also assess whether xDSL products, VPN connections, satellite connectivity and microwave links could be substitutable to the above-mentioned leased line products, to such an extent as to justify their inclusion in the relevant product market(s).

Asynchronous Transfer Mode (ATM) solutions[7] are not being taken into account at market definition stage this time round given that these products have been phased out by GO, with end-users being transferred to Ethernet-based services.

The following factors shall be particularly relevant in the substitutability assessment:

- the type of technology and equipment supporting the product on offer;
- the technical specificities/characteristics of the product(s) concerned;
- market trends related to the evolution in the take-up of the different products under consideration;

[7] Asynchronous Transfer Mode ('ATM') is a channel-based transport layer, over which dedicated transmission is achieved by means of 'virtual' circuit switching. Technically, this solution seeks to optimise the overall utilisation and performance of the transport network by, for example, appropriating of unused bandwidth in ATM circuits. It also allows for traffic prioritisation for end-users by, for example, reducing the number of redundant cells in the network and thereby saving bandwidth for full frames.

- observed migration patterns; and
- the prices charged for the products under consideration.

The MCA notes that, given the diverse range of access and connectivity service requirements, local service providers offer access and connectivity products to support different bandwidths / transmission speeds.

The MCA will therefore assess whether the relevant retail high-quality access market(s) would incorporate all bandwidth speeds or whether separate markets are to be defined according to different bandwidth speeds.

3.2.1 TI LEASED LINES: ANALOGUE VS. DIGITAL

This sub-section provides an analysis of the degree of substitutability between analogue leased lines, semi-digital leased lines and digital leased lines supporting a bandwidth of up to 1984kbps. As already explained above, these types of leased lines compose the Traditional Interface (TI) segment of leased lines.

It is relevant to underline that the above-mentioned products (more specifically those leased line products supporting a transmission speed of less than 2Mbit/s) are no longer offered to new customers. Having said this, there is still a relatively large number of end-users that make use of these legacy products. This explains why these low bandwidth leased line products are being taken into account in the retail market substitutability assessment.

Demand-side substitutability

Qualitative assessment

Analogue leased lines are provided via analogue equipment deployed at the customer's premises. Capacity on the analogue network is typically used for the provision of voice and voice-band data connections. For data transmission using a modem, analogue leased lines can usually carry approximately 40-50kbit/s.

Meanwhile, digital SDH leased lines are provided using a modem designed to provide dedicated connectivity and data transfer. The basic building block of capacity in the digital network is 64kbit/s. A leased line product with this capacity is typically used for data, although it could also carry voice if the necessary equipment is installed at the end-user's premises.

The MCA also notes that, despite the differences in equipment supporting the leased line products under consideration, analogue, semi-digital and digital SDH leased lines are offered over the same legacy technologies in the core network. It is indeed possible to adapt an analogue leased line to transmit low-bandwidth digital data with the use of modems at either end of the transfer path. A digital leased line can also be converted to transmit analogue signals with the use of analogue to digital converters at either end of the transfer path.

More importantly, in terms of pure functionality, the MCA considers that it is generally possible to use multiples of lower bandwidth leased lines as substitutes for higher bandwidth leased lines. Higher bandwidth will also meet lower capacity requirements. From a purely functional perspective, therefore, it appears that a chain of substitution exists for various bandwidths available via analogue, semi-digital and digital SDH leased lines.

Pricing and migration trends

Upon observing the relative price differences between the various bandwidths of analogue, semi-digital and digital SDH leased lines, the MCA considers it likely for end-users to respond to a SSNIP for any of the above-mentioned products by substituting one to the other. For example, an increase in the price for a 2Mbit/s leased line would entice the end-user to buy multiple 1024kbit/s configurations. Similarly, a SSNIP implemented for a 1984kbit/s leased line connection would likely entice the end-user to buy a 2Mbit/s connection. A similar pattern of substitution may be observed further up the value chain, thereby suggesting that a chain of substitution exists in terms of pricing for analogue leased lines, semi-digital leased lines and digital SDH leased lines.

However, this chain of substitution is only being observed for existing connections. Firstly, legacy leased line products supporting bandwidth of less than 2Mbps are being phased out and are no longer offered to new customers. It is of note that between the end of March 2012 and the end of last March, the number of analogue leased lines went down by 84.2%, whilst the number of semi-digital leased lines and digital SDH leased lines supporting bandwidth of less than 2Mbps went down by 56.4% and 59.6% respectively. Meanwhile, a drop in the number of digital SDH connections supporting bandwidth of 2Mbps or higher was also noted during this period, which shows that disconnections from analogue leased lines, semi-digital leased lines and digital SDH leased lines supporting bandwidth of less than 2Mbps is not translating into new connections for SDH supporting bandwidth of 2Mbps or higher. Evidently, those customers that are disconnecting their analogue, semi-digital and digital SDH leased line are opting for an alternative high-quality access and connectivity service or some other service that may not guarantee the same quality of service level.

Supply-side substitutability

The MCA has already stated that GO is the only operator currently offering TI Leased lines to existing customers. None of the local operators is currently selling analogue leased lines, semi-digital leased lines and digital SDH leased lines of bandwidth up to 1984kbps to new customers. For example, GO has given notice that these products are no longer available to new customers as legacy technologies are no longer being developed and the market is exhibiting a clear trend towards Ethernet-based dedicated connectivity services.

It would therefore make no sense for any operator to consider market entry and to start providing these products in the event of a SSNIP implemented by a hypothetical monopolist. Any new operator would also have to incur high deployment and sunk costs to start providing a dying product. In addition, existing operators providing legacy leased line products have no incentive to increase the price of these products given that they want to retain their legacy customers and possibly switch them over to their Ethernet product range, rather than losing to competition.

Preliminary conclusion

The MCA considers that, from a functional point of view, analogue leased lines, semi-digital leased lines and SDH leased lines are substitutable to each other. Furthermore, the pricing of these products also follows a chain of substitution, whereby an increase in price by a hypothetical monopolist only at a particular bandwidth can be expected to induce customers to choose instead retail leased lines at other bandwidths, being either multiples of lower bandwidths or else the next highest bandwidth.

It is also relevant to underline here that although TI leased line connections of speeds of 1984kbps or lower are no longer being offered to new clients and their number has been diminishing over the last few years, the MCA will still consider them in the current analysis given that there are still a significant number of existing clients making use of these connections.

3.2.2 TI LEASED LINES VS ETHERNET LEASED LINES

The purpose of this section is to assess the extent of substitutability between TI leased lines and Ethernet leased lines.

It is recalled that the MCA's previous market review concluded that TI leased lines and Ethernet leased lines fell in the same relevant market, as no break in the chain of substitution for these products was identified, either on the demand side or on supply side. The MCA also noted that Ethernet connectivity is also supported by SLAs between the end-user and the service provider, thus guaranteeing security and resilience. The following assessment shall determine whether these findings are still valid in the current circumstances.

Demand-side substitutability

Qualitative assessment

Ethernet-based leased line products offer symmetric dedicated capacity at a range of bandwidths. Bandwidths of 10Mbps, 100Mbps, 1Gbps and 10Gbps are currently available on the market. Intermediate bandwidths can also be offered in steps of 1Mbps.

The availability of such a wide range of Ethernet-based bandwidths provides flexibility to the end-user in meeting its dedicated capacity service requirements. It may also provide end-users with the possibility to reduce the complexity and the overheads involved in the configuration of networks according to service demand.

If, for example, an end-user needs a capacity of 50Mbit/s, the traditional SDH solution would require the end-user either to purchase two 34Mbit/s connections or a 155Mbit/s connection. On the other hand, an Ethernet-based solution would allow the end-user to purchase the exact capacity required. This would suggest that, compared to a SDH-based leased line product, an Ethernet-based leased line product offers additional flexibility to the end-user as it can be configured more easily to address the various bandwidth requirements of the market.

As with SDH leased lines, Ethernet-based leased lines are supported by SLAs and therefore also offer a reliable and secure connectivity over the IP network.

Migration trends

An analysis of market data indicates that take-up of TI leased lines is in long-term decline as end-users shift demand towards Ethernet-based connections. The number of retail national TI leased lines at the end of March 2016 stood at 173, which is down by 66.8% when compared to the number recorded at the end of March 2012. Meanwhile, take-up of Ethernet leased line connections strengthened significantly. The number of retail national Ethernet leased line connections was up by 16.8%, from 309 at the end of March 2012 to 361 at the end of last March. The underlying outcome is that national Ethernet leased line connections now account for the majority of installed leased line connections in Malta, at 66.9% (up from 37.2% in 2012), whilst TI leased lines account for 33.1% of the local subscriber base.

Retail national leased lines	2012				2013				2014				2015				2016
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Total	830	779	861	827	845	824	757	757	773	765	691	693	660	636	603	542	523
Analogue	255	253	224	190	180	171	171	170	163	156	139	139	113	66	36	36	35
Semi-digital	78	56	56	58	57	49	49	49	48	48	46	45	43	34	34	34	34
SDH	188	161	159	155	154	149	152	152	148	150	146	143	141	156	137	106	104
Ethernet	309	309	422	424	454	455	385	386	414	411	360	366	363	380	396	366	350

Table 1: Traditional interface leased lines vs Ethernet leased lines

Retail demand for national Ethernet leased lines over the last three years has also slowly shifted towards connections that support higher bandwidths. For example, the share of the total number of Ethernet leased line connections supporting bandwidths of 20Mbps or more increased from just 13.6% at the end of March 2012 to 29.1% at the end of last March.

Overall, observed market trends confirm that Ethernet is now the most used technology when it comes to the provision of leased line services.

Pricing

The pricing analysis draws on reference prices outlined by local service providers in their responses to a questionnaire held prior to the conduct of this market review. It is relevant to underline that the current pricing structure of TI and Ethernet leased lines encompasses connection fees and an annual rental charge, apart from a refundable deposit that applies in the case of TI leased lines.

It is also recalled that the 2Mbit/s connection is now the entry TI leased line product that is commercially available to local end-users. This product is provided by GO on the local retail market. The MCA therefore relies on the reference price quoted by GO for this product in the forthcoming assessment. Meanwhile, the 10Mbps Ethernet connection, which is supplied by GO, Melita and Vodafone and Space Hellas, is the most common Ethernet product with end-users; hence its inclusion in the analysis below. The comparison between the two is made on the basis of the monthly fees applicable on a 24-month contract term. This is done to determine whether or not, in the event of a SSNIP, the price of one would constrain the price of the other.

	Reference retail monthly fees	
	Type of product	Average for the market
Leased line solutions	digital SDH - 2Mbit/s	€ 531
	Ethernet - 10Mbit/s	€ 582
	Ethernet - 30Mbit/s	€ 1,056
	Ethernet - 50Mbit/s	€ 1,419
	Ethernet - 100Mbit/s	€ 2,293
Note: Figures are based on prices supplied by the largest local service providers.		

Table 2: Reference monthly fees for retail national leased lines (based on a 2-site connection)

Table 2 shows that the price for the 2Mbit/s SDH connection stands below the price of a 10Mbps Ethernet connection, but at a margin that makes it possible for switching to occur towards Ethernet in the event of a hypothetical monopolist implementing a SSNIP for the 2Mbit/s SDH product. In such case, a 10% in the price of the 2Mbit/s SDH connection would result in the average reference price quoted for a 10Mbit/s Ethernet connection to be lower than that for a 2Mbit/s SDH product. Given that Ethernet-based solutions may be configured easily to the demands of the end-user, with bandwidth being offered in incremental steps of 1Mbit/s, the chain of substitution dynamic is considered to hold further up in the Ethernet product portfolio.

Supply-side substitutability

In this sub-section, the MCA considers the extent of supply-side substitution between the provision of high-quality access and connectivity services over Ethernet leased lines and TI leased lines.

Supply-side substitutability would exist if, in the absence of wholesale regulation, the suppliers of Ethernet-based solutions would be able to provide, for example, high-quality access and connectivity services via SDH leased lines, at low cost and within a relatively short period of time.

In this regard, the MCA considers that in the event of a SSNIP implemented by, say, GO for the provision of high-quality access and connectivity services over SDH leased lines, no other service provider is likely to invest in rolling out network infrastructure based TI technology. First, such roll-out cannot materialize sufficiently quickly and without the investment of significant amounts of money. Second, end-users are clearly demonstrating a clear preference for Ethernet-based products, thereby leaving no incentive for any service provider to invest in legacy technologies. It is in fact noted that GO’s customer base of TI leased lines shrank over the last few years. This development further dilutes the scope for a service provider (other than GO) to invest in the necessary network elements for the provision of TI leased line services[8].

If, on the other hand, a SSNIP is implemented by a hypothetical monopolist for the provision of high-quality access and connectivity services over Ethernet leased lines, an existent or new market player would seek to invest in the network elements necessary to start supplying Ethernet-based leased line services. Such investment has indeed materialised over the last few years, despite the fact that it entailed the absorption of significant sunk costs.

Preliminary conclusion

The MCA considers that, from a functional and pricing point of view, Ethernet leased lines are substitutable to TI leased lines and are therefore part of the same relevant market.

3.2.3 WDM-BASED CONNECTIONS

The purpose of this section is to assess the extent of substitutability between TI leased lines and Ethernet leased lines on one side and WDM-based connections on the other.

[8] Melita supplies SDH leased line connections, but has discontinued offering them on the retail market. It is not envisaged that Melita resumes offering SDH leased line products in the future.

The transmission equipment that uses WDM technology relies on optical fibre links supporting the supply of very high capacity over various interfaces, including TI and AI types. Hence, the term WDM leased lines, which is used to encompass the provision of dedicated and uncontended connectivity services for end-users with very high bandwidth requirements, particularly for data centre and data storage network applications.

WDM additionally offers protocol flexibility and independence from the service providers' core infrastructure.

Demand-side substitutability

Qualitative assessment

GO and Melita are currently supplying leased line services via transmission equipment based on WDM technology.

When end-users opt for a WDM leased line, they would effectively be renting part of a fibre pair by making use of a single wavelength from a multiplex which allows multiple wavelengths of laser light to operate simultaneously. The transmission rates supported by each wavelength of laser light varies according to the technology employed at the end points driven by the needs of the end-user, but technically could supports a symmetric transmission rate of up to 40Gbit/s. If the end-user rents two separate wavelengths, the transmission rate of its service connection has the potential to go up to 100Gbit/s.

Given that any wavelength that is rented out is fully reserved for the purpose of the end-user, the service connection in question would be classified as one that supports dedicated connectivity with symmetric transmission rates and no contention.

WDM leased lines also allow the end-user to increase the bandwidth capacity of its connection by upgrading their technology at the end-points or by renting additional wavelengths without disruption to existing wavelengths and without the need to rent additional optical fibres. This is possible because the end-user owns the active equipment (or network links) installed at the two ends of its connection.

Furthermore, WDM leased lines are also covered by SLAs, which typically underline that the wavelength being rented out is fully reserved for the purpose of the customer, over and above the typical guarantees associated with TI and AI leased line services.

Migration trends and pricing

An analysis of market data has shown that take-up of TI leased lines is in long-term decline as end-users shift demand towards Ethernet-based and WDM-based connections. However, only six retail national WDM-based connections were recorded at the end of the current reporting period. These connections are likely to be availed of by end-users requiring very high bandwidths intended for specialist applications, such as data centres and data storage applications.

The main reasons for end-users to opt for WDM leased lines would be (i) the need for control over the technology or associated protocols employed in the use of the dedicated connectivity service and (ii) the possibility to scale capacity as required in a relatively short period of time and without incurring any significant additional costs. In fact, purchasing a WDM leased line to support, for example, a 40Gbit/s connection would most likely be cheaper and less time consuming than purchasing multiple Ethernet connections each supporting a capacity of 1Gbit/s. Some end-users may also require large capacity at very high bandwidths from a very early stage of their operations. In such cases, WDM is also likely to be the preferred choice when compared to TI and Ethernet leased lines, both in terms of service characteristics and price.

Another issue that merits attention is the cost of WDM equipment when compared to the cost of equipment supporting traditional and alternative interfaces. It may indeed be argued that the costs of the former may be higher than the costs of the latter. Nevertheless, the cost of WDM equipment is not determined by the bandwidth of the service itself, but rather by the configuration (or complexity) of the network required and / or implemented by end-users. The relative cost of WDM equipment would effectively diminish with the complexity of the network and the more bandwidth is required by the end-user.

The MCA is therefore of the opinion that, in view of the above considerations, WDM-based connections are substitutable to Ethernet and TI leased lines where very high bandwidths are required. Although this may suggest that the chain of substitution may only apply at the very high end of bandwidth requirements, the increasing take-up of leased line connections supporting higher bandwidths support the argument that migration to WDM could happen within the timeframe of this review. This is also because, as observed above, WDM-based connections are functionally equivalent to TI and Ethernet leased line connections.

Supply-side substitutability

In this sub-section, the MCA considers the extent of supply-side substitution between the provision of WDM leased lines and the provision of TI and AI leased lines.

Supply-side substitutability would exist if, in the absence of wholesale regulation, the suppliers of Ethernet-based leased line connections would be able to provide, for example, WDM leased lines, at low cost and within a relatively short period of time.

It is considered that a SSNIP implemented for WDM by a hypothetical monopolist cannot translate into Vodafone or any other service provider of TI and Ethernet leased lines to readily switch to the supply of WDM products on a nationwide basis. It is indeed not possible for Vodafone to start supplying WDM, given its network configuration. Nor is it possible for Space Hellas to start providing WDM, as it does not own an access network infrastructure.

At the same time, it is considered possible for a supplier of high-quality access and connectivity over WDM to start offering such services Ethernet leased lines in the event of a SSNIP for the latter product. For example, GO is indeed supplying all of these leased line products to local end-users.

Preliminary conclusion

The MCA considers that the provision of high-quality access and connectivity services over WDM would exhibit the same qualitative characteristics of such services supplied over TI leased lines and Ethernet leased lines, with additional flexibility in terms of control of the network and the scalability of capacity.

Given, however, that WDM is more likely to be substitutable with TI leased lines and Ethernet leased lines in the case of end-users seeking higher bandwidths, take-up of WDM-based solutions is anticipated to increase as more end-users shift their demand towards higher bandwidths.

3.2.4 LEASED LINES VS POTENTIAL ALTERNATIVES

The MCA considers a number of other retail products and services that might act to constrain some or all of the TI and AI leased line solutions identified above. These are the following:

- VPNs;
- Fixed broadband offered over DSL/FTTH;
- Fixed broadband offered over cable; and
- Satellite connections and microwave links.

The MCA shall first take into account the qualitative characteristics of the retail products highlighted above and in the process determine whether or not these share the typical characteristics of a leased line and to what extent they could act to pose a competitive constraint in the provision of high-quality access and connectivity services over leased lines in Malta.

Should functional equivalence in delivering high-quality access and connectivity services to end-users be established, the MCA would propose to broaden the relevant market(s) accordingly.

Demand-side substitutability

The demand-side substitutability assessment is based on a qualitative evaluation of the products under investigation, an overview of relevant migration trends, and, were data is available, a comparison of relative prices.

Qualitative assessment

Virtual Private Networks (VPNs)

VPNs are products tailored for encryption and authentication purposes over an existing connection for the flow of data. In practical terms, this means that demand for these products rests on the security requirements of the end-user, rather than the type of bandwidth connectivity needed. Indeed, several end-users run a VPN over the top of their leased line service to secure (via encryption and firewalling) the flow/transmission of data between their sites.

Hence, the MCA considers that VPNs and leased lines are two different technologies with different characteristics aimed to offer a solution to two different problems, the former to security of data transmission and the latter to the speed of connectivity. This goes to suggest that the pricing parameters for the two services also differ, given the different demand-side and supply-side considerations for the two products.

Fixed broadband offered over DSL, FTTH and cable

DSL-based and FTTH technologies feature prominently in the provision of retail broadband services in Malta. In fact, around 49% of all fixed broadband connections at the end of September 2015 were accounted for by these two types of technologies.

It is considered that DSL-based and FTTH-based broadband services may either offer:

- asymmetric capacity - meaning that the service supports lower data rates for upstream traffic than for downstream traffic (e.g. ADSL), or
- symmetric capacity - meaning that the service supports the same data rates for upstream and downstream traffic (e.g. SDSL).

It is observed that the rates on which data could be downloaded and uploaded by the end-user have improved considerably since 2012. For example, a customer could receive data at a maximum speed of 20Mbps in March 2012, compared to a maximum speed of 75Mbps on DSL and 500Mbps on FTTH in March 2016. Meanwhile, the upload rates for the products in question have also improved significantly.

In the case of fixed broadband offered over cable, the MCA notes that these are offered by Melita on a nationwide level. Cable data services are offered via the cable service interface specification (DOCSIS) cable modem infrastructure using Multi Protocol Label Switching ('MPLS') technology, which converts the connectionless nature of IP traffic to a connection-oriented link. Melita has also invested gradually in its HFC network, which has been upgraded to DOCSIS 3. This upgrade enabled Melita to offer higher data connectivity rates over the years.

Melita's entry fixed broadband product is currently advertised with a potential download speed of up to 50Mbps and a potential upload speed of 3Mbps. Other broadband packages that are advertised support download speeds ranging from a potential of up to 100Mbps to a potential of up to 250Mbps. Meanwhile, upload speeds range from a potential of up to 5Mbit/s to a potential of up to 15Mbps.

Nevertheless, the MCA considers that despite the investment bringing about higher data throughputs via fixed broadband products, leased line products remain more reliable than broadband. First, fixed broadband entails the sharing of bandwidth between several end-users. Meanwhile, several business end-users seek connections that allow for dedicated connectivity, which is only enabled via a leased line product. The sharing of the broadband service effectively means that the speed purchased may not necessarily be available at different times of day, particularly when usage is at its peak. Indeed, fixed broadband products cannot satisfy the same contention ratio supported by leased lines, which is 1:1.

This may be a particularly important consideration for end-users seeking very high bandwidths, irrespective of the time of the day, which would in such instance opt for a leased line product that offers dedicated connectivity that is reliable and with no contention. Furthermore, the strict SLAs associated with leased lines offers the peace of mind of a more expedite and better customer service in case of a fault occurring. Even in those few instances where fixed broadband products exhibit symmetric upload and download data rates, which are not publicly available in Malta, such products would offer limited guaranteed availability of service.

Satellite connectivity and microwave links

Satellite connectivity and long distance microwave links are used in Malta as a backup service. The MCA considers that, on a forward looking basis, the technical limitations identified in 2012 with respect to the use of such technologies for dedicated connectivity services are still relevant and will persist within the timeframe of this review.

There are indeed limitations to satellite and microwave technology that cannot be easily overcome. For example, the deployment of the necessary infrastructure may be subject to planning restrictions. Microwave antennas are also exposed to weather and line of sight conditions and therefore present a higher risk of failure compared to TI and Ethernet leased lines.

Pricing

The MCA observes a large gap between prices currently charged for fixed broadband products available to businesses and the average (or reference) prices charged in the case of leased line solutions. The cost of equipment necessary to get the respective access and connectivity services also differs significantly, as do the one-time connections fees that would apply in each case.

Table 3 shows that the average monthly access fee of a 10Mbit/s Ethernet connection on average stands at €291. Meanwhile, the monthly access fee of a 250Mbps fixed broadband connection offered by Melita stood at €85 (including fixed telephony), whilst that of a 500Mbps fixed broadband connection currently supplied by GO stood at €240. The gap in pricing would be even greater if a 2Mbit/s SDH connection is taken into consideration.

	Reference retail monthly fees	
	Type of product	Average for the market
Leased line solutions	digital SDH - 2Mbit/s	€ 531
	Ethernet - 10Mbit/s	€ 582
	Ethernet - 30Mbit/s	€ 1,056
	Ethernet - 50Mbit/s	€ 1,419
	Ethernet - 100Mbit/s	€ 2,293
	Type of product	Price ranges
Fixed broadband	30Mbps but less than 50Mbps	€ 50
	50Mbps but less than 100Mbps	€45 - €55
	100Mbps but less than 250Mbps	€65 - €90
	250Mbps or more	€85 - €240
Note: Figures are based on prices supplied by the largest local service providers.		

Table 3: Pricing for a TI or AI leased line connection vs pricing for fixed broadband

It is therefore evident that there is a break in the pricing schedule applicable to leased line products supporting the provision of high-quality access and connectivity services compared to the pricing schedule applicable for fixed broadband products. The heftier price tags associated with leased lines is attributed to the main qualitative characteristics of these products, namely 1:1 contention ratios, reliability and the applicability of strict SLAs, which are not available with fixed broadband products.

Supply-side substitutability

In case of a SSNIP implemented by a hypothetical monopolist supplier of high-quality access and connectivity services over leased lines, a service provider of fixed broadband services and/or VPN services would not be able to switch to provide solely leased line solutions in the short term, especially if it lacks a nationwide access network infrastructure. The provision of high-quality access and connectivity services over leased lines requires significant additional investment in the transport network.

On the other hand, substitution may be possible if a SSNIP is implemented on fixed broadband products. In such case, a service provider of leased line services would be in a position to immediately start supplying fixed broadband services, by utilising all the necessary elements of its own network.

Preliminary conclusion

The MCA considers that, in view of the product descriptions highlighted above, VPN-based, satellite and microwave solutions, and DSL-based and cable-based fixed broadband services do not offer the same qualitative characteristics of a leased line that are required to support the provision of high-quality access and connectivity services in Malta.

The MCA's qualitative assessment has shown that, for example, VPNs cannot guarantee symmetric bandwidth. VPN solutions cannot also support the high levels of guaranteed service associated with leased lines products. Further to this, DSL and DOCSIS services offer limited ability to support dedicated and symmetric bandwidth and therefore do not offer the same level of security and resilience as leased lines. Satellite connectivity and microwave links are also not sufficiently resilient and cannot always guarantee the bandwidth required by the end-user. In addition, quality service requirements associated with products are generally not supported by the same level of SLAs characterizing services based on leased lines.

Data access and connectivity services delivered over VPN, DSL, cable, satellite and microwave connections are therefore not functionally equivalent to high-quality access and connectivity services supplied over Ethernet leased lines, SDH leased lines and WDM solutions. In addition, only one-way substitutability has been determined on the supply-side of the analysis. Hence, the MCA is proposing to exclude VPN, DSL, cable, satellite and microwave connections from the retail market(s) concerning the provision of high-quality access and connectivity services over leased lines.

3.2.5 SEGMENTING RETAIL LEASED LINES BY BANDWIDTH

Given the differing needs of end-users for dedicated and uncontended connectivity services, local service provides offer a range of leased line products and services supporting various bandwidths.

The MCA considers whether it is relevant to define the retail market for the provision of high-quality access and connectivity services over leased lines without segmentation on the basis of bandwidth. The main consideration at this stage would be whether different leased line products offered at varying bandwidths would be part of a chain of substitution dynamic.

If, for example, the end-user requires a bandwidth of 10Mbit/s, it may consider purchasing either a 10Mbps Ethernet connection or five 2Mbit/s SDH connections or any other solution offering dedicated capacity above 10Mbit/s. It is reasonable to assume that the end-user would choose the cheapest option meeting its service requirements.

In view of the above, the MCA has already determined that a 2Mbit/s SDH leased line connection is directly substitutable to Ethernet-based connections supporting bandwidths up to 50Mbit/s. This means that following a SSNIP, a 2Mbit/s digital SDH leased line connection would be constrained by Ethernet-based leased lines with bandwidths ranging from 10Mbps up to 50Mbps. This is because the prices quoted by the main local service providers for their 50Mbps Ethernet product are in some cases cheaper than those asked for SDH. Therefore, the implementation of a SSNIP on the 2Mbit/s SDH connection would likely incentivize end-users to switch to the Ethernet option, thereby constraining the said increase in price. It also appears that, if a SSNIP is implemented to the highest price quoted for a 50Mbps Ethernet connection, there would be no clear break in the chain of substitution with Ethernet-based connections supporting higher bandwidths.

It follows that, following a SSNIP on SDH, the end-user would most likely choose the 10Mbps Ethernet connection. Given that this product is directly substitutable to a 20Mbps Ethernet circuit following a SSNIP, and the 20Mbps Ethernet circuit is in turn substitutable to a 50Mbps Ethernet circuit following a SSNIP, the three products would be linked by a chain of substitution dynamic based on price and thus included in the same product market. This chain of substitution works further up the Ethernet bandwidth range, even in the case of dedicated and uncontended bandwidth supported by WDM-based leased lines.

Preliminary conclusion

The MCA therefore considers that there is no justification to segment the retail market for the provision of high-quality access and connectivity services over leased lines by bandwidth. This means that the identified retail market should encompass all TI, Ethernet and WDM leased line products supporting the provision of high-quality access and connectivity services at varying bandwidths.

3.2.6 PRELIMINARY CONCLUSION ON THE RETAIL MARKET DEFINITION

The MCA identifies the following retail market:

- the provision of high-quality access and connectivity services over national leased lines in Malta.

The MCA considers this market to encompass the following retail products:

- TI leased lines, including analogue leased lines, semi-digital leased lines and SDH leased lines; and
- Ethernet leased lines; and
- WDM leased lines.

3.2.7 RELEVANT RETAIL GEOGRAPHIC MARKET

A relevant geographical market comprises the area in which the undertakings concerned are involved in the demand and supply of a product / service in relation to which the conditions of competition are sufficiently similar or sufficiently homogeneous and which can be distinguished from neighbouring areas in which the prevailing conditions of competition are appreciably different to those areas.

The EU Guidelines refer to the use of two criteria in determining the geographical scope of a relevant market, namely the area covered by a network, and the existence of legal and other regulatory instruments.

The current conditions of competition are deemed to be geographically homogenous in the identified retail market. The market in question is indeed subject to a national pricing constraint, as GO, Melita, Vodafone (Malta) and Space Hellas offer services and determines prices at the national level without differentiating by reference to geographic location.

3.3 THE RELEVANT WHOLESALE MARKET(S)

This section sets out the product and geographic market definition in relation to the wholesale provision of high-quality access and connectivity services at a fixed location in Malta.

The wholesale market definition exercise shall be based on an analysis of demand-side and supply-side substitution between different products and services that could potentially form part of the same relevant market.

Other aspects shall also be considered, including the set-up of terminating segments of leased lines, the relevance of bandwidth in defining markets, the issue of self-supplied services and the possibility of these forming part of the relevant wholesale product market(s).

3.3.1 THE COMPOSITION OF THE WHOLESALE PRODUCT MARKET(S)

The composition of the wholesale product market(s) for the provision of high-quality access and connectivity services is to reflect developments at the retail level, since demand for the relevant wholesale services is, to a very large extent, derived from downstream demand. In itself this goes to suggest that the substitutability assessment undertaken at the retail level is to inform the definition of the relevant wholesale product market(s).

It is recalled that the identified retail markets encompass the provision of high-quality access and connectivity via TI leased lines (the legacy options), Ethernet leased lines and WDM solutions. In this respect, the MCA shall therefore consider whether the wholesale provision of high-quality access and connectivity services over the different leased line interfaces also forms part of the same relevant market(s).

The Explanatory Note to the Recommendation also states that '*it appears appropriate, on a forward-looking basis, to define a wholesale market for high-quality access, which includes a wider range of access products necessary to fulfil the needs of business service providers*' given that these products display certain advanced quality characteristics, such as guaranteed availability and high quality of service in all circumstances including SLAs And high quality network management resulting in upload speeds appropriate for business use and very low contention.

The MCA shall therefore consider whether a number of wholesale access products, such as wholesale broadband access and dark fibre, may allow for the supply of high-quality access and connectivity services to such an extent that these are functionally equivalent to those supplied over wholesale leased lines. On this aspect, the Explanatory Note underlines that although '*these access products are not necessarily all direct substitutes of each other*...*they may still form part of the same market, provided they are in a so-called chain of substitution*'.

Demand-side substitution

The retail market definition considers that the provision of high-quality access and connectivity services over TI leased lines, Ethernet leased lines and WDM solutions fall within the same relevant retail product markets. This is because they are functionally equivalent and form part of a chain of substitution dynamic. The MCA is of the opinion that, likewise, at the wholesale level, the relevant product market(s) should include the provision of high-quality access and connectivity services offered over these three different leased line platforms. This is because wholesale TI leased lines, Ethernet leased lines and WDM-based solutions share the same service characteristics and are therefore deemed to be functionally equivalent. The chain of substitution pricing dynamic for these three products at the retail level is also indicative that pricing at the wholesale level also follows a similar chain of substitution.

The MCA also observes that from the evidence it gathered on the monthly access fees prevailing at the retail level, contended and asymmetric broadband products are not found to be part of the chain of substitution identified in the case of the different leased line products highlighted above. There is indeed a break in the chain of substitution between TI leased lines, Ethernet leased lines and WDM on the one hand and contended and asymmetric broadband products on the other. Based on the same reasoning, VPNs, satellite-based and microwave-based connectivity services also fall out of this chain of substitution dynamic. It is also noted that the equipment costs associated with the currently available leased line products and WDM are structurally different than is the case with, for example, asymmetric broadband products and VPN applications.

Hence, the MCA considers that, likewise, at the wholesale level, the relevant product market for the provision of high-quality access and connectivity services encompasses TI leased lines, Ethernet leased lines and WDM–based solutions. This is because a price comparison at this level would yield results that are consistent with the finding of no break in the chain of substitution registered at the retail level.

Finally, it is observed that, in the event of a SSNIP for high-quality access and connectivity supplied over leased lines and WDM, service providers (access seekers) are unlikely to opt for, say, wholesale broadband access, particularly if what they require is a dedicated and uncontended service with symmetric data rates. Meanwhile, for service providers with rapidly expanding capacity requirements and in search of dedicated and uncontended connectivity and symmetrical upload and download speeds, Ethernet or WDM may very well serve as an adequate substitute for wholesale broadband access in the event of a SSNIP for the latter.

A relevant consideration at this stage is whether a dark fibre service is substitutable for a wholesale leased line when it comes to the provision of a high-quality access and connectivity service.

The MCA notes that dark fibre is not currently being offered in Malta. Hence no direct price comparisons can be made in this respect. Nevertheless, the MCA underlines that a service based on dark fibre cannot be deemed to be functionally equivalent to a service based on a wholesale leased line. This is because dark fibre is a passive service that allows the wholesale customer to connect its own active network equipment to raw network capacity, which would in turn be used upstream to support a range of active services. The wholesale customer can freely adjust capacity or else change the use of capacity according to service requirements. On the other hand, a wholesale customer opting for a leased line or WDM would effectively be purchasing a dedicated and uncontended connectivity service, supporting a level of capacity that is pre-determined upon the purchase of the service. The wholesale customer does not have the flexibility enjoyed in the case of dark fibre when it comes to the immediacy and cost of upgrading capacity. Furthermore, the availability and provision of dark fibre is dependent on different considerations compared to leased lines services, such as the availability, cost, security issues and expertise required to manage a dark fibre service.

Supply-side substitution

Supply-side substitution is technically feasible between the provision of wholesale high-quality access and connectivity via WDM and the provision of wholesale high-quality access and connectivity via Ethernet, particularly where investment has materialized with respect to the roll-out of the fibre access network infrastructure.

Supply-side substitution is not however likely to happen, for example, from wholesale broadband access to wholesale services based on Ethernet or WDM in the event of a SSNIP for the latter, given the significant investments required to construct the necessary infrastructure to provide such services.

Nor is supply-side substitution likely to happen between dark fibre and any of the wholesale leased line products identified above. This is because dark fibre entails the renting of passive infrastructure used to supply a range of services whilst a wholesale leased line and WDM entails the use of active transmission equipment to provide dedicated connectivity with no contention between two sites. Furthermore, the availability of dark fibre necessitates investment in fibre access network infrastructure, which is not the case for wholesale leased lines.

Preliminary conclusion

The MCA considers that the identified wholesale product market(s) should include the provision of high-quality access and connectivity services over TI leased lines, Ethernet leased lines and WDM.

Wholesale broadband access and dark fibre are not substitutable from either a demand-side or supply-side perspective. In the case of wholesale broadband access, the MCA took into consideration the qualitative and price differences between asymmetric broadband and leased lines at the retail level. These differences would suggest that wholesale broadband access would not exert a sufficiently strong constraint on wholesale leased lines and WDM as to be included in the product market definition. As for dark fibre, the MCA considers that these are functionally different to leased lines. Furthermore, the cost, security and the expertise necessary to maintain a dark fibre service is not the same as with a leased line. Therefore dark fibre does not pose a constraint on the prices charged by service providers for wholesale leased lines and WDM.

3.3.2 TERMINATING SEGMENTS AND TRUNK SEGMENTS OF LEASED LINES

The Explanatory Note states that '*what constitutes a terminating segment of a leased line will depend on the network topology specific to a particular Member State*' and that '*a clear distinction between the terminating and trunk segment is important as the market for wholesale trunk segments of leased lines has been removed from the list of markets susceptible to ex ante regulation in the 2007 Recommendation*'.

In view of the above, the MCA notes that although networks in larger countries are generally characterised by a hierarchical structure, where regional traffic is aggregated onto an inter-regional network, Malta's network topology is alien to this set-up given the small size of the national territory. Indeed, Malta's network hierarchies are relatively flat, with both retail and wholesale leased lines supplied and acquired on an end-to-end basis, essentially incorporating two terminating segments each based on a 'half-circuit' link.

The MCA however recalls that over the years it has notionally split a wholesale (and retail) end-to-end national leased line between trunk and terminating segments, with the boundary between these two segments occurring at that point on the core network that is closest to the location of the customer's premises i.e. at the operator's distribution point. This configuration is depicted in Diagram 2 below.

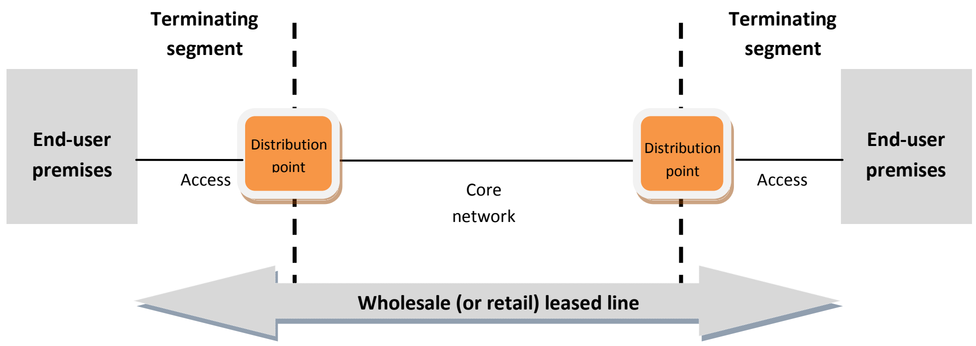

Diagram 2: Notional distinction between national trunk segments and terminating segments of leased lines

Diagram 3 below however depicts the actual configuration of a wholesale (and retail) end-to-end leased line in Malta.

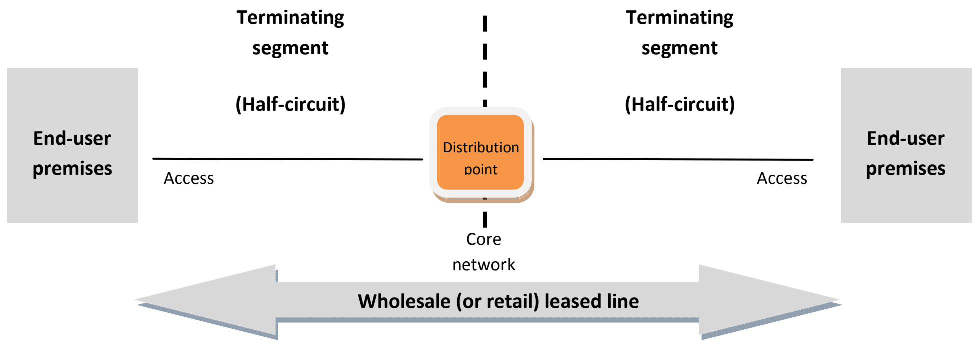

Diagram 3: A wholesale (and retail) end-to-end leased line

Diagram 3 clearly depicts the two half-circuit link scenario, whereby the end-to-end leased line comprises the connection from each customer's site to the operator's distribution point. More specifically, each direct link between the end-users' site to the network distribution point is referred to as a terminating segment.

Substitutability assessment

The forthcoming substitutability assessment is intended to determine whether or not to maintain the notional distinction between terminating and trunk segments of leased lines.

Demand-side substitution

A wholesale customer has the possibility to discretely purchase either terminating capacity or trunk capacity separately. However, this is rarely the case in Malta as wholesale customers typically purchase an end-to-end leased line service, from a single supplier. This is because each segment of the acquired leased line fulfils a specific function, without which the wholesale customer would not be in a position to itself avail of a dedicated and uncontended connectivity service.

The MCA therefore considers a wholesale leased line service as to comprise the totality of the different functionalities associated with national trunk and terminating segments of leased lines. This set of functionalities would, for example, allow for the provision of interconnection services, the enhancement of network infrastructures and the supply of services that can then be resold on the market.

This means that a hypothetical monopolist service provider of both trunk and terminating segments of leased lines would implement a SSNIP on the price of an end-to-end leased line service. Such an increase in price would then open up the possibility of wholesale customers seeking to purchase a functionally equivalent end-to-end leased line service from an alternative supplier.

Supply-side substitution

The MCA notes that local service providers typically supply end-to-end wholesale leased line services, encompassing terminating segments of leased lines, each on a half-circuit basis. It is recalled that GO and newer market entrants, namely Melita and Vodafone, have over the years invested significantly in their core access network infrastructure to enhance their network connectivity and capacity levels. These operators deployed fibre over which they could serve wholesale customers with leased lines products (access seekers).

This goes to suggest that the economic conditions underpinning the supply of what could notionally be referred to as trunk segments in Malta are no different to those underpinning the supply of terminating segments. In fact, the deployment of either the notional trunk and / or active terminating infrastructure would entail a significant financial investment, most of which would classify as sunk costs for the carrying out of trenching and ducting.

Furthermore, any investment decision in the access network infrastructure would have to be intrinsically linked to the economic considerations behind the intended commercial objectives, i.e. the objective of supplying wholesale customers with access to high-quality access and connectivity via leased lines.

It is again considered that, given the national circumstances, a hypothetical monopolist of high-quality access and connectivity services supplied over wholesale leased lines would most likely implement a SSNIP for the whole service i.e. the service supplied via the 'half-circuit' system of leased lines rather than on any of the wholesale leased line 'segments' supporting the service in question. This means that, in the event of the above-mentioned SSNIP occurring, an existing wholesale supplier of, say, 'trunk' infrastructure would have an incentive to switch production to supply an 'end-to-end' leased line service.

Preliminary conclusion

The MCA considers that, in light of the current economic and competitive conditions, the supply of trunk segments of leased lines and terminating segments of leased lines in Malta form part of the same relevant 'end-to-end' market, based on the fact that leased lines are sold on a 'half-circuit' billing system. The local access network infrastructure is indeed designed to ensure that the supply of wholesale leased line services is carried out on an end-to-end basis in order to accommodate wholesale (and retail) demand for high-quality access and connectivity services.

3.3.3 THE INCLUSION OF SELF-SUPPLY

The MCA considers whether self-supply of high-quality access and connectivity services over leased lines should be included within the relevant wholesale market.

Demand-side substitution

It is recalled that GO and Melita own a ubiquitous access network infrastructure and both supply their own retail arm with high-quality access and connectivity services over wholesale leased lines to cater for their various retail business segments. Both operators also have sufficient spare capacity to offer high-quality access and connectivity services over leased lines to wholesale customers at no significant additional cost. In fact, both GO and Melita are offering such a service to Space Hellas.

The MCA also considers that Vodafone is able to service wholesale clients on those routes that are already served by its access network infrastructure (i.e. where this operator has appropriate coverage). However, note is made of the fact that Vodafone's presence on the market under investigation is limited and not nationwide. Vodafone lacks the requisite infrastructure to supply ubiquitous wholesale offers. This means that, in the event of new demand for routes that are not currently served by Vodafone, this operator would have to absorb significant sunk costs to deploy the necessary access network infrastructure. This is however unlikely to materialise within the timeframe of this review given that such deployment takes substantial time to materialise.

Supply-side substitution

The assessment of supply-side substitution for the self-provision of high-quality access and connectivity services over leased lines is not much relevant in the case of GO and Melita, given that these operators already self-supply wholesale high-quality access and connectivity services over leased lines and are allocating spare capacity to supply third parties with these services.

Meanwhile, Vodafone is also self-supplying high-quality access and connectivity services over leased lines, although restricted. This means that the implementation of a SSNIP by hypothetical monopolist on leased lines may provide an incentive to Vodafone to invest in expanding its network and self-supply services on new routes. However such an expansion entails significant sunk costs and time to implement and the impact would therefore not be immediate.

Preliminary conclusion

The MCA considers that self-supply of high-quality access and connectivity services over leased lines should be considered part of the identified wholesale leased line market. This is because existent wholesale suppliers are already self-supplying these services and both Melita and GO have spare capacity to supply third parties whenever required.

3.3.4 THE POSSIBILITY OF SEGMENTING THE MARKET BY BANDWIDTH

The MCA considers whether the identified wholesale market should be broken down into smaller bandwidth-defined markets or capped to a defined bandwidth.

Demand-side substitution

Local suppliers of wholesale high-quality access and connectivity services over leased lines deliver a range of bandwidths over their core transmission network infrastructure. It is also recalled that relative wholesale prices asked for the various bandwidths have been found consistent with a ‘chain of substitution’ pricing dynamic.

To this effect, the MCA considers that wholesale customers of high-quality access and connectivity services over leased lines could easily switch between different bandwidths in response to a SSNIP and/or in response to their changing capacity requirements. It is also possible for these wholesale customers to switch between suppliers in response to SSNIP for a particular bandwidth option.

Supply-side substitution

Existent suppliers of wholesale high-quality access and connectivity services over leased lines have sufficient excess capacity to cater for the anticipated increase in the demand for bandwidth. In the case of Vodafone, the same reasoning holds were its trunk routes are currently deployed.

Preliminary conclusion

There is no justification to break down the relevant wholesale leased line markets into smaller bandwidth-defined markets or to cap the markets to a defined bandwidth.

3.3.5 PRELIMINARY CONCLUSION ON THE DEFINTION OF THE WHOLESALE MARKET

The MCA identifies a wholesale market for the provision of high-quality access and connectivity services over national leased lines in Malta.

On the basis of a substitutability assessment, the relevant wholesale product market encompasses the supply of high-quality access and connectivity services over the following products:

- TI leased lines, including analogue leased lines and SDH leased lines;
- Ethernet leased lines; and
- WDM-based solutions.

Self-supply is considered to form part of the relevant wholesale market.

3.3.6 RELEVANT WHOLESALE GEOGRAPHIC MARKET

The EU Commission guidelines on market analysis and the assessment of SMP set out that a relevant geographical market comprises the area in which the undertakings concerned are involved in the supply of, and demand for, relevant products and services in relation to which the conditions of competition are sufficiently similar or sufficiently homogeneous and which can be distinguished from neighbouring areas in which the prevailing conditions of competition are appreciably different to those areas.

The EU Guidelines also refer to the use of two criteria in determining the geographical scope of a relevant market, namely the area covered by a network, and the existence of legal and other regulatory instruments.

The existing conditions of competition are homogenous in the identified wholesale market. This is because the market in question is subject to a national pricing constraint, as all authorised or licensed suppliers offer services and determine prices at the national level without differentiating by reference to geographic location.

The MCA therefore considers that the geographical scope of the identified wholesale market is national.

4.0 MARKET ANALYSIS

4.1 BACKGROUND

Having identified, in the previous section, the relevant retail and wholesale markets for the provision of high-quality access and connectivity services over leased lines in Malta, this section shall now analyse these markets to assess whether any undertaking has significant market power (SMP) as defined in and required by Regulation 5 of the ECNSR (Article 14 of the Framework Directive).

According to Article 14 of the framework directive *'an undertaking shall be deemed to have significant market power if, either individually or jointly with others, it enjoys a position equivalent to dominance, that is to say a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers'*.

Article 14 also states that *'where an undertaking has significant market power on a specific market, it may also be deemed to have significant market power on a closely related market, where the links between the two markets are such as to allow the market power held in one market to be leveraged into the other market, thereby strengthening the market power of the undertaking'*.

Therefore, in view of the above, one or more undertakings in the relevant markets may be designated as having SMP when enjoying a position of dominance. Similarly, an undertaking may be designated as having SMP where it is in a position to leverage market power across closely related markets.

It is also of note that the assessment of competition shall be based either on the Three Criteria Test or on the SMP Test, depending on whether the markets defined in this review feature among those markets identified by the EU Commission Recommendation as being susceptible to ex ante regulatory intervention.

4.2 STRUCTURE OF THIS SECTION

The rest of this section is structured as follows:

- Sub-section 5.3 assesses the state of competition in the retail market for the provision of high-quality access and connectivity services over national leased lines in Malta.

- Sub-section 5.4 assesses the state of competition in the wholesale market for the provision of high-quality access and connectivity services over national leased lines in Malta.

4.3 COMPETITION IN THE IDENTIFIED RETAIL MARKET

Having identified, in the previous section, the retail market for the provision of high-quality access and connectivity services over national leased lines in Malta and given that the Recommendation does not list this market as being susceptible to ex ante regulatory intervention, the MCA is carrying out the Three Criteria Test to establish whether this is the case for Malta.

The Three Criteria Test stipulates that ex ante regulatory intervention in a market would only be warranted if its competitive dynamics are characterised by:

- high and non-transitory barriers to entry (structural, legal, or regulatory);
- no tendency towards effective competition; and
- inadequate competition law to address any potential market failure in the absence of ex-ante regulation.

The Recommendation specifies that the above-mentioned criteria must be met cumulatively before a market can be identified as being susceptible to ex ante regulation. In case one of these three criteria is not met, the market under investigation would not be considered as being susceptible to ex ante regulation. In such a scenario, an already regulated market would have to be deregulated.

The relevant considerations are highlighted in more detail below.

4.3.1 ASSESSMENT OF THE FIRST CRITERION

The MCA will hereby assess whether entry in the market under consideration poses significant challenges. For example, a new market entrant would have to incur significant sunk costs when investing in the access network infrastructure necessary to provide the relevant service. These sunk costs are not recovered on market exit. The extent of economies of scale and scope and the extent of vertical integration also play a role. For example, an undertaking may decide to enter a market by investing in both upstream access to infrastructure markets and downstream service provision markets, as this may give it a competitive edge over existent and potential competitors by way of market power leverage from upstream to downstream markets. Ultimately, the presence of one or more vertically integrated service providers may deter potential market entry by making it difficult for new entrants at the retail level to obtain the necessary inputs at a competitive price in the absence of regulation. Similarly, the vertically integrated provider can engage itself in a number of non-price leveraging strategies that may take the form of delaying tactics and withholding of information, amongst others. Challenges to market entry may be particularly significant given that the market concerned is in decline.

These issues are discussed further down below although the MCA can safely underline at this stage that legal or regulatory requirements do not affect the costs of market entry and are considered to pose a minimum burden in the circumstances.

4.3.1.1 Sunk costs and control of infrastructure not easily replicated

The access network infrastructure of the incumbent, GO, supports the provision of high-quality access and connectivity services over TI leased lines, Ethernet leased lines and WDM on a nationwide basis. The MCA notes that it would be very difficult for a new market entrant to fully duplicate such a network infrastructure within the timeframe of this review. This is because such a move would entail significant upfront investment, most of which can be considered to be sunk cost upon exit.

Nevertheless, it is relevant to underline that market entry has still materialised in past years by way of Melita and Vodafone, which invested in an own-built access network infrastructure to varying extents. Melita's network currently supports the provision of high-quality access and connectivity services over Ethernet leased lines on a nationwide basis. This operator is slowly building its market share, specifically in the provision of such services.

Vodafone's market presence in the provision of high-quality access and connectivity services over national leased lines is however not ubiquitous, but subject to the availability of a limited number of areas. Indeed, this operator still needs to invest significantly to be in a position to supply high-quality access and connectivity over Ethernet leased lines across all the national territory, specifically in those areas not currently served by its access network infrastructure[9]. Nevertheless, it is still considered possible for this operator to enhance its geographic reach over the timeframe of this review and thus to continue building market share.

Another service provider, namely Space Hellas, is also active on the retail market under investigation, by providing retail services via wholesale inputs acquired from Melita and GO.

Overall, therefore, the MCA considers that although sunk costs to duplicate GO's network infrastructure are significant in the market under review, gradual investments by Melita and to a lesser extent by Vodafone and the presence of a reseller on the market, support the view that entry in the retail market under investigation can happen. The presence of Space Hellas as a reseller highlights the contribution of wholesale regulatory intervention towards such market entry, particularly for those entities that may not have immediate access to capital for nationwide deployment of access network infrastructure.

The MCA however notes that both Melita and Vodafone lack the necessary access network infrastructure to supply high-quality access and connectivity services over TI leased lines on a national scale. To do so, these operators would have to invest in duplicating GO's physical infrastructure. However, such an investment would not make commercial sense at this juncture, given that demand for TI leased lines is in long term decline, with end-users shifting their demand towards Ethernet leased lines (currently also supplied by Melita and Vodafone over their own network infrastructure) and, to a very limited extent, towards WDM. GO itself has stopped offering TI leased lines supporting bandwidths of less than 2Mbps and it also possible for this operator to stop offering other products in this category.

4.3.1.2 Economies of scale

GO has been providing high-quality access and connectivity services over national leased lines for a long time. GO also offers a diverse leased line product range in that it provides TI leased lines, Ethernet leased lines and WDM-based solutions. As a result, this operator has managed to establish a larger customer base than its competitors, which means that the average cost for providing dedicated connectivity over an additional national leased line is likely to be lower than that faced by newer market entrants. This is because GO would be catering for a larger number of connections and the related costs, such as for billing and customer care, would be spread over a larger customer base.

[9] Vodafone is currently supplying Ethernet leased line offers to selected retail clients only, on a case-by-case basis, depending on the national circuit routes currently available.

Nevertheless, the size of the market remains relatively small in terms of the number of end-users. It is recalled here that there were only around 525 leased line connections at the end of last March. Hence, neither GO nor any other operator or service provider is essentially in a position to effectively reach such a level of economies of scale as to constrain market entry.

Nevertheless, it is reasonable to argue that the limited size of the customer base in itself poses a barrier to entry, especially when facing a long-established incumbent operator. However the MCA notes that, notwithstanding the small customer base for retail national leased lines, new entry has occurred in the market under investigation, both in the form of Melita deploying a nationwide access network infrastructure, Vodafone expanding its network reach and the arrival of a reseller, Space Hellas.

Even more significant is the increase in take-up for products supplied by newer entrants. Vodafone and Melita, for instance, now have more customers than they did three years ago, at the expense of the incumbent operator GO.

The MCA therefore considers that GO does not benefit from a competitive advantage in terms of economies of scale in the provision of high-quality access and connectivity services over national leased lines. This is because it is competing with several other operators for a small customer base and alternative service providers improving on their subscriber numbers.

4.3.1.3 Economies of scope and horizontal integration

The MCA notes that GO has over the years developed its ubiquitous access network infrastructure to offer a suite of electronic communication services. In this regard, the sharing of common inputs across a suite of services is likely to have lowered the costs for GO to operate in the market in question.

One of the alternative service providers, Melita, is also offering multiple services directly to the end-user, including but not limited to high-quality access and connectivity services via leased lines. This horizontal integration enables Melita to benefit from economies of scope, where the average costs of production are lower given that these are shared over a greater range of services (given the cost savings on common processes).

Vodafone too offers a suite of electronic communications services that can lead to cost savings on common processes. To this effect, both Melita and Vodafone may very well benefit from economies of scope in the provision of their retail electronic communications services.

It may however be argued that Space Hellas lack economies of scope as its product line-up remains rather limited. It is acknowledged that this service provider may find it difficult to mark its presence with sufficient scale, at least in the short term. Nevertheless, its market entry materialised despite GO and other established service providers enjoying economies of scope.

The MCA therefore considers that economies of scope do not pose a significant constraint to entry in the market under investigation.

4.3.1.4 Vertical integration

The MCA notes that Melita and to a limited extent Vodafone have mirrored the vertically integrated structure of the incumbent in the provision of several electronic communications services. In this regard, GO, Melita, and Vodafone are all vertically integrated operators, in that they are active at both the wholesale and the retail level in the provision of several electronic communications services on a nationwide level. Whilst it is considered that the extent of such provision varies from one operator to the other, the MCA is nevertheless of the opinion that the operators in question can compete at par on this matter.

GO, Melita and Vodafone are all vertically integrated to the point that they may leverage market power from upstream to downstream markets. For the record, these operators are all present in the retail provision of high-quality access and connectivity services over national Ethernet leased lines in Malta. It is also true that only GO is mainly involved in the provision of high-quality access and connectivity services over the whole range of TI leased lines. However, such provision has to be seen in the context of a long-term decline in take-up for such services, so much so that GO is phasing out several of its retail offers supplied over the TI platform.

Overall, the MCA considers that vertical integration does not and should not pose a constraint on retail market entry within the timeframe of this review.

4.3.1.5 Conclusion on the first criterion

The market under investigation features various operators and service providers involved in the provision of high-quality access and connectivity services over national leased lines in Malta. Market players have either deployed their own access network infrastructure or else purchased wholesale access to provide the relevant retail services under investigation.

4.3.2 ASSESSMENT OF THE SECOND CRITERION

The MCA is also hereby examining whether or not a market under investigation has characteristics such that it will tend over time towards effective competition without the need for ex ante regulatory intervention. To this effect, the MCA looks at and investigates a number of competition-related factors to determine whether or not the retail market under investigation is moving towards a competitive outcome, as highlighted below.

4.3.2.1 Market share developments

The MCA observes that GO remains the largest party in the retail provision of high-quality access and connectivity services over national leased lines, as it accounted for 87.9% of the connections recorded at the end of last March.

GO enjoys a high market share in the supply of high-quality access and connectivity services over the whole range of national TI leased lines. Nevertheless, demand for TI leased lines experienced a consistent decline, particularly in recent years. Furthermore, GO is no longer commercially offering TI leased line products with bandwidth of less than 2 Mbit/s to new customers, thus automatically eliminating any further growth in its market presence at the lower end of the product range in this market. It is worth noting that the number of national leased line connections supporting a bandwidth of less than 2Mbps accounts for 69.4% of the national TI leased line subscriber base.

Secondly, demand for high-quality access and connectivity services over Ethernet leased lines strengthened over the years, with a good number of end-users opting for operators and service providers supplying Ethernet leased line offerings that are substitutable to those supplied by GO. It is true that GO enjoys a higher market share than its competitors in this segment, however this operator has continued to lose out in its market share for the provision of high-quality access and connectivity services over national Ethernet leased lines, as shown in Table 5 below.

Market shares by operator related to retail national leased lines	Q1 2012	Q2 2012	Q3 2012	Q4 2012	Q1 2013	Q2 2013	Q3 2013	Q4 2013	Q1 2013	Q2 2014	Q3 2014	Q4 2014	Q1 2015	Q2 2015	Q3 2015	Q4 2015	Q1 2016
...on the basis of connections																	
GO	100.00%	100.00%	94.19%	93.71%	93.25%	92.96%	96.17%	96.04%	95.73%	96.08%	92.76%	91.92%	91.52%	91.35%	88.89%	87.82%	87.71%
Melita	-	-	1.16%	1.21%	1.30%	1.33%	1.45%	1.45%	1.29%	1.31%	1.45%	1.44%	1.36%	1.42%	1.49%	1.66%	1.32%
Vodafone	-	-	4.65%	5.08%	5.44%	5.46%	1.85%	1.85%	1.81%	1.44%	4.49%	4.62%	5.00%	5.19%	7.46%	7.93%	8.32%
Space Hellas	-	-	-	-	-	0.24%	0.53%	0.66%	1.16%	1.18%	1.30%	2.02%	2.12%	2.04%	2.16%	2.58%	2.65%
...on the basis of revenues																	
GO	100.00%	100.00%	98.87%	94.61%	84.40%	84.03%	90.69%	90.46%	91.39%	92.49%	86.29%	83.90%	84.23%	84.58%	84.36%	83.37%	80.77%
Melita	-	-	1.13%	1.10%	3.13%	3.14%	3.66%	3.64%	3.12%	3.23%	3.56%	3.53%	2.74%	2.64%	2.67%	2.85%	5.55%
Vodafone	-	-	-	4.30%	12.48%	12.39%	4.54%	4.52%	3.87%	1.73%	7.33%	9.04%	9.48%	9.13%	9.26%	9.89%	9.85%
Space Hellas	-	-	-	-	-	0.44%	1.11%	1.37%	1.62%	2.56%	2.82%	3.54%	3.55%	3.66%	3.71%	3.89%	3.84%

Table 4: Evolution of market shares for the retail national leased lines

This trend of GO losing out to competitors is already evident from Table 4 above, which shows this operator's market share in terms of total connections (including national TI leased lines, Ethernet leased lines and WDM) dropping by around 13 percentage points between March 2012 and March 2016 i.e. at a time when the number of national leased line connections was down by 37%. More significantly, GO's market share in terms of revenues fell by around 20 percentage points during the same period. Such drops in GO's market share are more evident when the analysis focuses specifically on developments concerning the provision of Ethernet leased lines.

Market shares by operator related to retail national Ethernet leased lines	Q1 2012	Q2 2012	Q3 2012	Q4 2012	Q1 2013	Q2 2013	Q3 2013	Q4 2013	Q1 2013	Q2 2014	Q3 2014	Q4 2014	Q1 2015	Q2 2015	Q3 2015	Q4 2015	Q1 2016
...on the basis of connections																	
GO	100.00%	100.00%	88.39%	87.97%	87.89%	87.69%	93.51%	93.26%	92.75%	93.43%	86.94%	85.52%	85.12%	86.05%	83.59%	82.51%	82.00%
Melita	-	-	2.13%	2.12%	1.98%	1.98%	2.34%	2.33%	2.17%	2.19%	2.50%	2.46%	2.48%	2.37%	2.27%	2.46%	2.00%
Vodafone	-	-	9.48%	9.91%	10.13%	9.89%	3.64%	3.63%	3.38%	2.68%	8.61%	8.74%	9.09%	8.68%	11.36%	11.75%	12.57%
Space Hellas	-	-	-	-	-	0.44%	0.52%	0.78%	1.69%	1.70%	1.94%	3.28%	3.31%	2.89%	2.78%	3.28%	3.43%
...on the basis of revenues																	
GO	100.00%	100.00%	98.35%	92.38%	78.51%	78.19%	87.24%	86.91%	87.42%	89.29%	79.01%	75.95%	76.78%	76.49%	78.13%	77.21%	72.77%
Melita	-	-	1.65%	1.55%	4.31%	4.29%	5.36%	5.34%	4.85%	4.95%	5.69%	5.47%	4.18%	4.17%	3.88%	4.06%	8.10%
Vodafone	-	-	-	6.07%	17.18%	16.92%	6.65%	6.62%	6.02%	2.65%	11.72%	14.00%	14.50%	14.44%	13.43%	14.07%	14.39%
Space Hellas	-	-	-	-	-	0.60%	0.75%	1.13%	1.71%	3.11%	3.58%	4.58%	4.54%	4.90%	4.56%	4.67%	4.73%

Table 5: Evolution of market shares for retail national Ethernet leased lines

Table 5 shows that GO's market share was down by around 18 percentage points in terms of national Ethernet leased line connections and by 27 percentage points in terms of revenues for this product segment. This indicates that, whilst GO still enjoys a high market share in the retail market under investigation, alternative service providers have nonetheless managed to successfully improve upon their penetration. Furthermore, the MCA is of the opinion that this trend will continue to consolidate within the time frame of this review and that alternative service providers will continue to pose a direct competitive constraint on the incumbent GO.

The MCA believes that GO's falling market shares, both in terms of connections and to a faster extent in terms of revenues, are indicative of GO's diminishing dominance in the retail market under review. Alternative operators are poised to increase their market share within the timeframe of this review, such as to pose a greater competitive constraint on GO over the next two to three years.

4.3.2.2 Retail pricing

The prices of retail national leased lines, specifically the prices of TI leased lines, Ethernet leased lines and WDM-based solutions, are free to move in accordance with market forces as they are not presently regulated.

It has already been shown in Section 2 that switching is indeed possible from TI leased lines to Ethernet leased lines and for very high speeds to WDM, given that the products in question from part of a chain of substitution dynamic. The MCA has also observed in the previous sub-section that there is switching between the different suppliers on the market, with GO losing out market share to competitors.

It is also important to highlight within this context that competitors to GO may not just be actively competing with GO but that they are also managing to cater for some of the large businesses that are typically high value clients. This is because their gains in revenue market share have generally been stronger than the market share gains they registered in terms of connections. This makes it all the more likely that Vodafone, Melita and Space Hellas are in fact posing a significant direct constraint on the demand and pricing of national leased line connections.

4.3.2.3 Possibility of market expansion

There are circumstances wherein growth and expansion on the part of service providers, particularly newer market entrants, is inhibited by markets that are mature and saturated, and markets that display significant barriers to entry.

However, the MCA has already shown that over recent years the retail market under consideration has witnessed alternative operators making market share gains in the provision of high-quality access and connectivity services over national Ethernet leased lines at the expense of GO.

As alternative providers make more inroads, this is likely to incentivise further investment and growth in the market and would provide scope for operators such as Vodafone to invest further in the expansion of their network reach. It may also incentivise resellers to invest in access network infrastructure or else may serve as an incentive for other entities to start reselling national leased lines.

This is not to say that sunk costs will not be a major consideration when market players formulate their investment plans. However, the MCA has already noted that notwithstanding the significant upfront investment outlays involved in the deployment of access network infrastructures, most of which can be considered to be sunk cost upon exit, new retail market entry still took place over the last few years.

The MCA therefore considers that the possibility of market expansion within the timeframe of this review provides scope for improved competition dynamics in the market under investigation.

4.3.2.4 Countervailing Buyer Power (CBP)

Customers with a strong negotiating position may significantly shape the level of competition in a market as this will tend to restrict the undertakings' ability to exercise market power and to act independently of their customers. In effect, when customers can exert significant pressure on the supplier of a good or service, they can effectively stop an attempt to increase prices by service providers. The extent of countervailing buyer power (CBP) will however depend on whether customers could, at the outset, choose to discontinue the service being provided by a particular supplier and switch to alternative providers, within a short period of time and at reasonable cost.

In this regard, the MCA notes that local end-users have the possibility to acquire national leased lines from several service providers, ranging from network operators to resellers. This is what has actually been happening in recent years, with several end-users opting for leased line offers supplied by different service providers competing directly with GO. In view of this factor, end-users are deemed to be in a position to exert CBP as to sufficiently constrain GO from unilaterally increasing its prices.

However the ease with which end-users can switch between a leased line product to another does not solely depend on the range of products available by the different service providers. It also depends on whether barriers to switching are significant and therefore pose a constraint on end-users to change a particular service or an operator altogether. In this regard, the MCA is aware that, for example, migration from a TI leased line to one based on Ethernet comes at a cost. However, such a cost does not serve as a disincentive for switching. The MCA has indeed already shown that the number of TI leased lines has been in long-term decline, whilst end-users exhibited a strong shift in their demand towards Ethernet-based leased line connections.

Similarly, if end-users have had a long-term relationship with their operator, or perceive it as an unnecessary inconvenience to switch to another provider, switching may not appear as a viable option, at least in the short term. However, this is not the case, as amply demonstrated by developments in retail market shares. The MCA has shown that GO, which is the longest-standing service provider in this market, has been losing out market share to competitors. To this effect, switching between operators is and has been possible.

An additional consideration at this stage is the indirect constraint on service providers of high-quality access and connectivity services over leased line products posed by the availability of microwave connectivity supplied by Vodafone and fixed broadband products supplied by several local market players. Whilst, microwave connectivity and fixed broadband access have not been found substitutable to leased lines in this market review, it is considered that a number of business customers, particularly those requiring low bandwidth services, do not necessarily require 24/7 dedicated connectivity and symmetrical bandwidth and may thus opt for these products instead of a leased line. This may be the case, for example, for end-users availing of legacy leased line products supporting the lowest bandwidths. It may be possible here that these would start looking for faster upload and download speeds rather than dedicated connectivity, given that investments in network infrastructures has made it possible for advertised upload and download speeds to become more attainable and reliable over fixed broadband products. Although this migration cannot be accurately measured, it is nonetheless visible when considering that the total number of leased lines connections has fallen from 2012 as depicted in Sub-Section 2.1.3 above.

The MCA therefore considers that local end-users are indeed in a position to constrain any service provider in the market under consideration, including the incumbent, from behaving independently of their service requirements and pricing considerations.

4.3.2.5 Conclusion on the second criterion

The market share analysis shows that, despite GO's high market shares, Melita, Vodafone and Space Hellas are slowly increasing their market share. In this regard, the market share of GO is anticipated to decline further within the timeframe of this market review, especially when offers based on TI leased lines are discontinued.

The MCA has also identified that there are incentives for service providers to continue to invest in access network infrastructure.

Overall, the MCA considers that the presence of alternative operators to GO, namely Vodafone and Melita, and the arrival of Space Hellas on the market have had a material impact on the behaviour of the incumbent, given that end-users are exercising CBP.

Overall, the MCA considers that the market in question is exhibiting a tendency towards effective competition within the timeframe of this review.

4.3.3 ASSESSMENT OF THE THIRD CRITERION

In its assessment of the first and second criteria, the MCA has given careful consideration to factors that could inhibit market entry and potentially restrict competition within the timeframe of this review. In this respect, the MCA has determined that the market under consideration is tending towards competition as the incumbent operator GO and alternative operators cannot afford to engage in anti-competitive behaviour, given the competitive constraints they pose on each other in the setting of prices and quality of service and the possibility of customers switching service provider.

In its assessment of the third criterion, the MCA considers to what extent it is possible to assume that restrictions on competition or potential market failures may still arise in the retail market under investigation. In this perspective, the MCA assesses whether competition law by itself is sufficient to provide adequate redress to market shortcomings.

The MCA reiterates that, given the competitive dynamics of the examined market, none of the local service providers can afford to engage in anti-competitive behaviour by increasing the price of their services above the competitive level or to decrease the level of their service quality without losing customers to competitors. No service provider can actually behave independently of competitors as all offers available on the market share the qualitative characteristics of a leased line and form part of a chain of substitution dynamic. A price increase is therefore likely to result in end-users switching from the service provider implementing the increase in price to the competition. To this effect, the MCA considers that Melita, Vodafone and Space Hellas will continue building market share within the timeframe of this review, most likely at the expense of GO.

The MCA therefore concludes that the market under investigation is structurally conducive to competition and therefore end-users are protected through competitive market forces. Consequently, there remains limited scope for ex ante regulatory intervention in the retail market under investigation. The MCA deems it very unlikely for these factors to change within the timeframe of this review and that there is limited scope for competitive shortcomings to arise in the retail market for the provision of high-quality access and connectivity services over national leased lines in Malta in the foreseeable future. Even so, in the absence of ex ante regulation, the MCCAA can effectively deal with any potential issues that may arise in the relevant market, through vested ex post powers.

4.3.4 PRELIMINARY CONCLUSION ON THE ASSESSMENT OF COMPETITION IN THE IDENTIFIED RETAIL MARKET

The MCA notes that none of the service providers that are active in the retail market under investigation holds significant market power, for the following reasons:

- The markets in question feature various operators and service providers involved in the provision of high-quality access connectivity services over national leased lines in Malta.

- Alternative service providers have either deployed their own network infrastructure or else purchased wholesale access to provide the retail services under investigation. Effectively, these providers are in a position to meet future demand for high-quality access connectivity services via national leases lines.

- Although still high, GO's market share has declined consistently, in contrast to the increasing market share of alternative service providers. Alternative service providers also offer a diversified retail Ethernet leased line product portfolio, which is much relevant in the context of the steady decline observed in the take-up of TI leased lines and the large majority of leased line connections now being on Ethernet.

- The presence of alternative service providers to GO, namely Vodafone and Melita, and the arrival of Space Hellas have had a material impact on the behaviour of the incumbent, given that end-users are exercising a strong CBP.

Based on the above, the MCA considers that no operator can behave independently of competitors, customers and consumers when setting the relevant retail charges and that therefore no operator enjoys significant market power (SMP) in the retail provision of high-quality access and connectivity services over national leased lines in Malta. This situation is likely to persist within the timeframe of this review.

The MCA also deems that, in the absence of ex ante regulation at retail level, ex post competition law could effectively deal with any potential issues that may arise in this market.

The MCA also notes that the current regulatory regime in the provision of retail national leased lines market is restricted to a light touch approach which features the transparency and non-discrimination obligations. The MCA believes that the removal of these two measures would not impact the drive towards competition in the retail market, especially given the transition to Ethernet connections. The MCA further explains that the competitive situation at the retail level is linked to the wholesale market which is being investigated in the next section.

4.4 ASSESSMENT OF COMPETITION IN THE IDENTIFIED WHOLESALE MARKET

The Commission considers that the market for the provision of wholesale high-quality access and connectivity services provided at a fixed location necessitates ex ante regulatory intervention.

This market review identifies a wholesale market for the provision of high-quality access and connectivity services over national leased lines, which are sold end-to-end in Malta, encompassing two terminating segments, with each segment based on a half circuit link to the operator's distribution point. To this effect, the assessment of competition shall take into account what the Explanatory Note refers to the terminating segment of leased line being '*the part between end-users' premises and the closest exchange of a service provider*'. Hence, the MCA is carrying out a Three Criteria Test to assess the competitive conditions in the identified wholesale market.

4.4.1 ASSESSMENT OF THE FIRST CRITERION

The MCA will hereby assess whether entry in the wholesale market under consideration poses significant challenges. The relevant issues are discussed further down below although the MCA can again safely underline at this stage that legal or regulatory requirements do not affect the costs of market entry and are considered to pose a minimum burden in the circumstances.

4.4.1.1 Sunk costs and replicability of infrastructure

Sunk costs are upfront costs that an undertaking must incur when investing in market entry. Given that sunk costs are not recoverable upon exit, the market entrant must ensure that return on investment at least covers these sunk costs.

It is considered that significant sunk costs would arise with the deployment of the wholesale inputs required to supply a range of electronic communication services including retail and wholesale high-quality access and connectivity over leased lines, which are combined with access fibre and the necessary Ethernet and WDM equipment when offered on the market.

Locally, GO derives its competitive advantage at the wholesale level as it controls a ubiquitous network infrastructure, which supports the provision of a range of leased line products and services including TI leased lines, Ethernet leased lines and WDM. GO's ubiquitous access network infrastructure is currently not fully matched by other suppliers, namely Melita and Vodafone.

Melita has a nationwide access network infrastructure, over which it supplies Ethernet leased lines and WDM but not TI leased lines. Meanwhile, Vodafone still has to absorb significant (sunk) costs to expand its access network infrastructure and eventually fully replicate GO's ubiquitous network infrastructure for the provision of Ethernet leased lines. Currently, this operator only owns an access network infrastructure that is limited in its coverage to certain areas of Malta's national territory. Vodafone does not offer TI leased lines and WDM at the wholesale level. This situation is not expected to change materially within the timeframe of this review.

The MCA considers that, based on calculations carried out in its previous Decision and which it still deems to remain valid, no operator would replicate all the existing aggregation points used by GO to offer SDH services. Such a significant investment decision would be irrational to consider given that Ethernet has become the mainstream technology for the provision of high-quality access and connectivity services over leased lines. This is particularly significant given that the large majority of 'pure' wholesale leased line connections are currently offered over TI technology by GO. Nonetheless, the customer base of such products is very limited, with only 108 connections recorded at the end of last March (accounting for 95.5% of all 'pure' wholesale national leased line connections). Take-up-up for WDM is even smaller, with just one wholesale WDM connection recorded at the end of last March.

For these reasons, it is considered unlikely to be economically feasible for any new market entrant or existing market player to fully replicate GO's network infrastructure for the provision of wholesale high-quality access and connectivity services over national leased lines in Malta, over the next two to three years.

4.4.1.2 Economies of scale

The small number of wholesale national leased line connections (totalling 635 when taking into account self-supply) makes it very difficult for any operator or service provider to acquire economies of scale in the market under investigation. Nevertheless, GO retains a persistent high market share in this market. In fact, despite Vodafone and Melita being active on the market for a number of years and both having gradually consolidated their market presence at retail level, GO still currently accounts for the largest number of wholesale national leased line connections.

Therefore, given GO's ubiquitous set-up, which has not been fully replicated by any other operator, and the small number of customers, most of which obtain services from GO, new market entry at wholesale level is unlikely to occur within the timeframe of this review. This is because the cost of infrastructure investment will be considerable.

4.4.1.3 Economies of scope

Further to the above, GO can utilise the same infrastructure, used for the wholesale provision of high-quality access and connectivity over leased lines, for the provision of an array of wholesale and retail electronic communications services, including fixed access and calls, TV, broadband access, and mobile telephony apart from leased lines. Such horizontal integration may, in fact, enable established networks to benefit from economies of scope, where the average costs of production are lower given that these are shared over a greater range of services.

Melita and Vodafone too offer multiple services which can lead to cost savings on common processes. However, the range of services in the case of Vodafone are limited only to mobile telephony and broadband access. To this effect Vodafone's market presence across the range of electronic communication services is much smaller than that of GO and this operator is therefore unlikely to achieve the same level of economies of scope in the provision of wholesale leased lines. In the case of Melita the situation is different, given that this operator offers a wider range of electronic communications services. Still, Melita faces some limitations, such as in the case of leased line services, whereby it does not offer leased line products based on TI technologies.

Whilst established networks operators can benefit from economies of scope, to different extents as highlighted above, new entrants, on the other hand, can achieve such economies of scope only if they enter a large number of markets and with sufficient scale. This may once again prove to be difficult as the entry costs involved would be high and similarly it would be difficult to recoup such costs on exit. Therefore, economies of scope, like economies of scale may impede new operators from entering the wholesale market under investigation.

The MCA therefore considers that economies of scope contribute to GO's ability to supply wholesale access and connectivity services over national leased lines, including leased lines based on TI technology, at a cost advantage compared to any other alternative operator. Overall, GO's ability to take advantage of the combined benefits resulting from economies of scale and scope further confirm the likelihood that barriers to entry are high in the market under investigation.

4.4.1.4 Vertical integration

An undertaking may decide to enter a market by investing in both upstream access to infrastructure markets and downstream service provision markets. This strategy is not in itself detrimental to competition as it would generally lead to efficiency gains in the provision of services to end-users. However, the presence of an undertaking at both the higher and lower levels in the chain of provision could still raise an incentive for such an undertaking to discriminate against existent and potential competitors, and an incentive to leverage market power from upstream to downstream segments. The leveraging of market power by vertically integrated operators could involve the implementation of price and non-price leveraging strategies.

With reference to the local market under investigation, GO and Melita are both vertically integrated operators, in that they are active at both the wholesale and the retail level on a nationwide basis. Vodafone is also present in the wholesale (self-supply) and the retail provision of high-quality access and connectivity services over leased lines. However, neither Melita nor Vodafone can actually equally leverage market power at the wholesale level as GO. This is because, as already mentioned, Melita has not invested in the infrastructure required to supply SDH leased lines. Nor is it deemed feasible for any operator to invest in such infrastructure, as demand for SDH is in long term decline. Meanwhile, Vodafone is still far from being in a position to fully replicate GO's ubiquitous presence at the wholesale level. For this matter, GO's extent of vertical integration may prove to be a barrier to competition for existing market players, namely Melita and Vodafone. Furthermore, GO's vertical integration may serve as a barrier to entry for potential market players lacking the necessary funds to invest in their own built network.

Overall, the MCA considers that the extent of GO's vertical integration represents a barrier to competition for other service providers in the wholesale market under investigation.

4.4.2 ASSESSMENT OF THE SECOND CRITERION

The MCA is also hereby examining whether or not a market under investigation has characteristics such that it will tend over time towards effective competition without the need for ex ante regulatory intervention. To this effect, the MCA looks at and investigates a number of competition-related factors to determine whether or not the wholesale market under investigation is moving towards a competitive outcome.

4.4.2.1 Analysis of market shares

The market share analysis, based on data for the 2012 -2016 period, shall establish whether any one of the undertakings providing wholesale high-quality access and connectivity services over leased lines in Malta is in a position to exert market power at wholesale level.

The MCA notes that, in order to undertake a market share analysis at the wholesale level, it is necessary to examine a number of different market share aspects that relate to the retail level. This is because competitive conditions at the retail level are likely to impinge on the existence of market power at the wholesale level.

In its market definition exercise, the MCA has concluded that the relevant wholesale product market shall consist of all high-quality access and connectivity services supplied to third parties over national leased lines and (including) self-supplied high-quality access and connectivity services over national leased lines by vertically-integrated operators, namely GO, Melita and Vodafone, which are currently supplying these services to their own retail arms.

For this matter, the wholesale market shares of each operator will be determined by aggregating their connection numbers at the retail level (self-supplied connections) and at wholesale level (connections purchased by third parties).

Available figures show that when only taking into account the pure wholesale connections sold to third parties GO would enjoy a 97% market share, just down slightly from 100% four years earlier.

When taking into account both the self-supply and wholesale leased lines sold to third parties, the market share of GO at the end of last March still represented 91.2% of the market.

Market shares by operator related to wholesale national leased lines (incl. self-supply)	Q1 2012	Q2 2012	Q3 2012	Q4 2012	Q1 2013	Q2 2013	Q3 2013	Q4 2013	Q1 2013	Q2 2014	Q3 2014	Q4 2014	Q1 2015	Q2 2015	Q3 2015	Q4 2015	Q1 2016
...on the basis of connections																	
GO	100.00%	100.00%	93.29%	94.43%	94.03%	94.00%	97.12%	97.12%	97.24%	97.56%	94.89%	94.72%	94.13%	93.94%	92.02%	91.41%	91.18%
Melita	-	-	1.02%	1.07%	1.15%	1.18%	1.27%	1.27%	1.15%	1.16%	1.25%	1.26%	1.57%	1.62%	1.68%	1.88%	1.89%
Vodafone	-	-	5.70%	4.50%	4.82%	4.82%	1.61%	1.61%	1.61%	1.28%	3.86%	4.02%	4.31%	4.45%	6.30%	6.72%	6.93%
...on the basis of revenues																	
GO	100.00%	100.00%	96.94%	95.30%	86.57%	86.64%	93.09%	92.70%	93.52%	95.38%	90.01%	88.40%	88.07%	88.44%	88.33%	87.43%	81.76%
Melita	-	-	0.96%	0.95%	2.69%	2.70%	3.08%	3.26%	2.89%	3.01%	3.26%	3.26%	3.24%	3.14%	3.17%	3.42%	9.46%
Vodafone	-	-	2.10%	3.74%	10.74%	10.66%	3.82%	4.04%	3.59%	1.61%	6.72%	8.34%	8.69%	8.42%	8.50%	9.16%	8.79%

Table 6: Evolution of market shares for wholesale national leased lines

It is considered that this situation will not change over the next two years, mainly because of the relatively small size of the market in question and given that the large majority of wholesale leased line connections are based on TI technology. It is recalled again here that only GO provides TI leased lines and operators such as Vodafone and new market entrants would need to assimilate a high level of sunk costs in order to fully replicate the incumbent's infrastructure.

4.4.2.2 Barriers to switching

The main considerations related to barriers to switching relate to the contract terms of agreement between the customer and the service provider, such as the term of the contract, and the 'actual' costs involved in switching supplier during the contract period or after the expiry of the contract term. The type of service being sought may also play a role, whereby some customers may prefer holding to their long-term serving product despite the availability of substitutes on the market. Customer loyalty, developed as a result of the long-term market presence of the incumbent, may also pose a barrier to switching to alternative operators.

With reference to the local wholesale leased line market, GO’s long-term market presence made it possible for customers to establish a long-term relationship and loyalty to this operator. Also, GO’s wholesale clients appear to be attached to SDH-based solutions as no switching from SDH to Ethernet has been observed since 2012. This is an important observation given that only GO provides wholesale national leased lines based on TI technology, whilst Melita offers wholesale national Ethernet leased lines and WDM and Vodafone offers wholesale national Ethernet leased lines, which means that switching to Melita and Vodafone is subdued by the stickiness of GO’s existing TI clients. Indeed, given the circumstances, GO’s wholesale customers may feel reluctant to switch to Melita and, when possible, to switch to Vodafone, even should GO abuse of its position in the absence of ex ante regulatory intervention.

This effectively means that for the time being GO may be facing no significant competitive threat from alternative operators in Malta in terms of wholesale customer switching, as customer loyalty may be sufficiently strong as to impinge on the preparedness of wholesale buyers of national leased lines to consider switching to services offered by alternative operators at the end of their contract term.

4.4.2.3 Potential expansion

There are several factors which could deter existing market players from expanding in the market under investigation. For example, Melita does not avail of the network infrastructure required to supply SDH-based leased lines. As already argued above, the high level of sunk costs involved in deploying such network infrastructure and the declining demand for SDH are a disincentive to Melita, and to any other operator (existing or new entrant), to expand to the SDH segment of the product market.

In a market with a very small subscriber base and where 96% of the wholesale customers are serviced by SDH-based offers supplied by GO, with no shift to Ethernet having materialised since 2012, the lack of potential expansion to SDH by alternative service providers and new entrants is likely to persist within the timeframe of this review.

This means that GO faces no credible threats in the market under investigation that could constrain its ability to act independently of competitors and customers, particularly in the provision of high-quality access and connectivity over TI leased lines. True, should GO abuse of its position in the absence of ex ante regulation, customers may opt for Ethernet-based leased lines. However, the MCA reiterates that such migration to alternative service providers has not yet materialised and that Vodafone does not currently have nationwide access network coverage to provide these services wherever required.

4.4.2.4 Potential competition

Potential competition refers to the prospect of new undertakings entering the market within a short period of time. The threat of market entry could in fact constrain the incumbent from raising prices above competitive levels, leading to a situation in which no market power can be profitably exercised.

As noted earlier, the provision of high-quality access and connectivity over wholesale leased lines in Malta depends on the deployment of access network infrastructure. It is true that both Vodafone and, to a much wider extent (given its nationwide presence), Melita already self-supply wholesale leased lines. However, their network configuration does not fully replicate that of GO. Further to this, both operators would have to absorb significant sunk costs in order to fully replicate GO's network configuration. Even more, there is no economic case for the deployment of TI network infrastructure given the high sunk costs of deployment and the small size of the market in terms of take-up.

Hence, potential competition in the market under review by Melita and, to a certain extent, by Vodafone is therefore unlikely to be sufficient as to significantly challenge GO's SMP position in the wholesale market in question. It is also considered that new market entry is unlikely to materialise within the timeframe of this review, given that the costs of network roll-out are high and would thus constitute a significant barrier to entry, especially in the context of the size of the local market.

Overall, the MCA considers that existent alternative operators and potential new entrants are unlikely to pose a sufficiently strong competitive constraint on GO in the wholesale market for the provision of high-quality access and connectivity over national leased lines.

4.4.3 ASSESSMENT OF THE THIRD CRITERION

In its assessment of the first and second criteria, the MCA has given careful consideration to factors that could inhibit market entry and potentially restrict competition within the timeframe of this review. In this respect, the MCA has determined that the market under consideration is not tending towards competition as the incumbent operator GO can behave independently of competing operators and wholesale customers, given the high sunk costs involved in duplicating its ubiquitous access network infrastructure supporting the provision of TI leased lines and the lack of switching by wholesale customers from TI-based products to those based on Ethernet and WDM.

To this effect, alternative operators and wholesale customers are deemed not in a position to constrain the pricing behaviour of GO for the wholesale services under investigation. In this perspective, the MCA assesses whether competition law by itself is sufficient to provide adequate redress to market shortcomings.

The MCA reiterates that, given the lack of competitive dynamics exhibited by the market under investigation, GO can afford to engage in anti-competitive behaviour to the detriment of consumers. Currently, around 97% of wholesale customers are purchasing TI leased lines, with no signs over the years of any shift towards Ethernet or WDM. Whilst, Melita and, to a certain extent, Vodafone, are currently offering wholesale Ethernet leased line products sharing the qualitative characteristics of those supplied by GO, Melita has not yet gained from any switching from GO whilst Vodafone still needs to invest significantly to replicate GO's nationwide access infrastructure supporting these services. This means that, in the circumstances, a price increase implemented by GO for its TI-based products is not likely to result in end-users switching from this service provider to the competition. To this effect, the MCA considers that GO still has SMP in the market under investigation and that wholesale customers are not sufficiently protected through competitive market forces.

The MCA deems it very unlikely for these factors to change within the timeframe of this review and therefore finds scope to implement ex ante regulatory intervention in the wholesale market under investigation.

4.4.4 PRELIMINARY CONCLUSION ON THE ASSESSMENT OF COMPETITION AT THE WHOLESALE LEVEL

The MCA considers that, absent regulation at the wholesale level, GO would be in a position to behave independently of consumers and competitors in setting out prices for the services under investigation.

The MCA therefore concludes that the wholesale market under consideration lacks a competitive outcome and that GO has SMP in this market. This situation is not likely to change within the timeframe of this review.

This preliminary conclusion is supported by a number of findings:

- The wholesale provision of high-quality access and connectivity services over national traditional interface / Ethernet leased lines and WDM connections in Malta is subject to high sunk costs that would have to be incurred by any service provider in order to fully replicate GO's access network infrastructure.

- GO also enjoys persistently high market shares at the wholesale level, particularly a 100% market share in the case of high-quality access and connectivity services supplied over wholesale national TI leased lines.

- The incumbent's vertically and horizontally integrated structure makes it difficult to existing market players and new market entrants to compete at par with GO.

- The market exhibits a limited potential for new competition and expansion, given the small customer base and the lack of switching.

Therefore, in the absence of wholesale regulation, the MCA considers that GO can act independently of customers and other network operators in its wholesale pricing structure for the wholesale services under investigation. Hence, the MCA will take regulatory measures to address these market shortcomings. More detail to the MCA's wholesale regulatory approach is presented in the following section.

5.0 REGULATORY APPROACH

5.1 PURPOSE AND STRUCTURE

This purpose of this section is to outline the MCA's regulatory approach following the assessment of competition in the markets identified in this review.

The regulatory issues that are addressed are highlighted below.

- Sub-section 5.2 provides a brief overview to the background and principles of the MCA's regulatory approach.
- Sub-section 5.3 outlines the MCA's current regulatory approach with respect to the wholesale and retail provision of high-quality access and connectivity services over national leased lines in Malta.
- Sub-section 5.4 outlines the MCA's proposed regulatory approach with respect to the retail provision of high-quality access and connectivity services over national leased lines in Malta.
- Sub-section 5.5 outlines the MCA's proposed regulatory approach with respect to the wholesale provision of high-quality access and connectivity services over national leased lines in Malta.
- Sub-section 5.6 specifies the MCA's commitment to constantly monitor developments for the local leased lines markets.

5.2 BACKGROUND TO REGULATORY APPROACH

In accordance with regulation 5(4) of the ECNSR, where an operator is designated as having significant market power (SMP) on a relevant market, either individually or jointly with others, the MCA is obliged to impose on such operator appropriate regulatory obligations, referred to in sub regulation (2) of regulation 5 of the ECNSR, or to maintain or amend such obligations where they already exist.

The MCA must ensure that the selected remedies are in accordance with regulation 11(4) of the ECNSR and Article 8.4 of the Access Directive, in that these are:

- based on the nature of the competition problems that have been identified;
- proportionate and justified, in light of the objectives laid down in Article 4 of the ECRA; and
- only be imposed following consultation, in accordance with regulation 7 and Article 4A of the MCA Act.

5.3 CURRENT REGULATORY OBLIGATIONS

Wholesale level

In its second market review decision on the provision of dedicated capacity over leased lines in Malta, the MCA establishes that GO holds SMP in the following wholesale markets:

- the wholesale market for the provision of dedicated capacity over national trunk segments of leased lines; and

- the wholesale market for the provision of dedicated capacity over terminating segments of leased lines.

To this effect, the MCA implemented a number of regulatory obligations on GO. These are described hereunder:

- GO is to meet reasonable requests for access to end-to-end wholesale leased lines products and access to specified network elements and, or facilities, where such access is not already provided. This operator is not to withdraw facilities already granted and is to provide all the relevant information on access related to the products in question. The provision of access to end-to-end wholesale leased lines, part circuit products and Interconnection Paths is to be supplemented by SLAs and any such provision must be made in a fair, timely and reasonable fashion.

- GO is not to show undue preference or undue discrimination in the provision of interconnection services and related information. In view of this, GO is to offer access to its wholesale product to OAOs under the same conditions as it provides to its retail and downstream providers.

- GO is to ensure transparency on information related to interconnection and, or access, requiring operators to make public specified information, such as accounting information, technical specifications, network characteristics, terms and conditions limiting access to and, or use of services and applications, and prices where applicable. In particular, GO is to publish a reference offer which shall be sufficiently unbundled to ensure that undertakings are not required to pay for facilities which are not necessary for the services requested, giving a description of the relevant offerings broken down into components according to market needs, and the associated terms and conditions including prices. The reference offer should in particular apply to the end-to-end wholesale leased lines products, to the part circuit products, to Interconnection Paths, as well as any new offerings, as well as include a description on SLAs associated with the products in question.

- GO is to implement price control, mandating cost-oriented prices and the necessary cost accounting systems for the regulated leased lines products and services in which it holds an SMP position.

Retail level

In its second market review decision concerning the provision of retail national leased line services in Malta, the MCA established that GO had SMP in the market in question. However, in view of the fact that there were other operators present in the market seeking to build market share, the MCA opted for a light touch regulatory approach in the relevant retail market. To this effect, the following regulatory obligations were imposed on GO:

- a transparency obligation in the provision of dedicated capacity over analogue national leased lines, requiring the publication (in an easily accessible form) of tariffs and connection charges and the terms and conditions for supply and use of an analogue leased line, amongst other information elements.

- A transparency obligation in the provision of dedicated capacity over digital SDH leased lines and Ethernet leased lines, necessitating the publication (in an easily accessible form) of tariffs, periodic rental charges and the terms and conditions for supply and use of the products in question, amongst other information elements.

- A non-discrimination obligation in the provision of dedicated capacity over digital SDH leased lines and Ethernet leased lines, requiring GO to apply equivalent conditions in equivalent circumstances, and to provide leased line services and information under the same conditions and of the same quality.

5.4 PROPOSED REGULATORY APPROACH AT THE RETAIL LEVEL

Based on the findings from the Three Criteria Test, the MCA considers that the retail market concerning the provision of high-quality access and connectivity services over national leased lines in Malta is effectively competitive and the end-user is safeguarded by market forces.

Given this conclusion and the provisions under Regulation 5(3) of the ECNSR, the MCA is to withdraw the regulatory obligations that are currently governing GO's provision of retail national leased lines. This withdrawal shall be implemented without prejudice to any other general obligations at law.

In order to have a smooth transition from a regulated market to a non-regulated market, the MCA shall withdraw the existing obligations at the expiry of 90 calendar days following the publication of the final decision concerning this market. Current obligations shall continue in effect during these 90 calendar days.

The MCA believes that this notice period is justified and sufficient to allow for all stakeholders to make necessary arrangements for the new regulatory approach to the market in question.

5.5 PROPOSED REGULATORY APPROACH AT THE WHOLESALE LEVEL

The MCA carried out a Three Criteria Test for the wholesale market concerning the provision of high-quality access and connectivity over national leased lines in Malta. The main findings are highlighted below:

- Full replicability of GO's access network infrastructure and ubiquitous wholesale leased line offerings is not possible within the timeframe of this review. It has been noted that there is no business case for Melita and Vodafone to extend their product portfolio to include wholesale TI leased line offerings. Meanwhile, Melita can supply wholesale Ethernet leased lines and WDM, Vodafone does not avail of the requisite national infrastructure and network density to provide a ubiquitous wholesale Ethernet leased line and WDM offers.

- Market shares for GO are very high, even when taking into account the provision of self-supply.

- The small size of the customer base for the wholesale service under investigation brings extra pressure to bear on the margins available for competitors. Almost 96% of all 'pure' wholesale connections are on the TI platform, with wholesale customers showing no willingness to switch towards Ethernet of WDM.

Given the above, the MCA considers that in the absence of ex ante regulatory intervention, GO could potentially abuse of its dominant position by engaging in several anti competitive practices when supplying high-quality access and connectivity services over wholesale national leased lines.

- GO may implement price-related leveraging strategies, taking the form of price discrimination and margin squeeze when offering the wholesale service under investigation.

- GO may also implement non-price related leveraging strategies such as by denying access to the service, making discriminatory use of or withholding information, employing delaying tactics, discriminating on the quality of the product offered to third parties, and imposing undue requirements on potential alternative service providers at the downstream level. This may contribute significantly to the creation of a non-competitive environment in the market under investigation.

The MCA therefore considers that ex ante regulatory intervention is required in the wholesale market under investigation. To this effect, the MCA is mandating a number of ex ante regulatory obligations on GO, which has been designated as the SMP operator in the relevant market.

The regulatory obligations are specified below:

i. Access to wholesale services

GO is to continue to offer access to its wholesale leased lines products and to entertain any reasonable requests for access to service variants. Coupled with this, GO is to give OAOs access to necessary specified network elements and, or facilities, where such access is not already provided. The provision of access by GO to part circuit products (terminating segments and national trunk segments of a leased line) is considered indispensable too.

Furthermore:

- in accordance with Regulation 15 (2)(b) of the ECNSR, GO is to negotiate in good faith with undertakings requesting access;

- in accordance with Regulation 15(2)(c) of the ECNSR, GO is not to withdraw facilities already granted. This allows OAOs to continue to provide current retail services uninterruptedly. This notwithstanding, the MCA recognizes that in some instances providing such access may prove inefficient. In such case, GO may request the MCA to waive this obligation and the final decision would be the MCA's;

- in accordance with regulation 15(2)(e), GO is to grant open access to technical interfaces, protocols or other key technologies that are indispensable for the interoperability of services or virtual network services.

- in accordance with Regulation 15(2)(g) of the ECNSR, GO is to provide specified services needed to ensure interoperability of end-to-end services to users, as well as to interconnect network and network facilities;

- in accordance with regulation 15(2)(h) GO is provide access to operational support systems or similar software systems necessary to ensure fair competition in the provision of services;

- in accordance with Regulation 15(2)(i) of the ECNSR, the Authority is also authorized, without prejudice to any measures that may be taken with respect to undertakings with SMP, to impose, to the extent that is necessary to ensure end-to-end connectivity, obligations on undertakings that control access to end-users including, in justified cases, the obligation to interconnect their networks or network facilities where this is not already the case;

- it is also considered necessary that GO continues to offer Interconnection Paths as under a RIO upon a reasonable request for such access being made by OAOs;

- in view of the above, GO is ought to provide all the relevant information on access to technical interfaces, protocols, or other key technologies indispensable for the interoperability of services, and to operational support systems or similar software necessary to ensure fair competition in the provision of services;

- the provision of SLAs by GO to OAOs is especially considered indispensable with respect to the provision of access to end-to-end wholesale leased lines, part circuit products and Interconnection Paths, as it provides OAOs with certainty as to the supply and repair of the wholesale input and hence allows them to compete on a downstream level.

All the above-mentioned access-related remedies must be provided by GO in a fair, timely and reasonable fashion.

ii. Non-discrimination

An important remedy to address the competition problems resulting from vertical foreclosure is that of non-discrimination in the provision of access and / or interconnection.

In accordance with Regulation 13(2) of the ECNSR, GO is obliged to:

- apply equivalent conditions in equivalent circumstances to other undertakings providing equivalent services; and

- provide services and information to others under the same conditions (including timescales, on a basis and of a quality) equivalent to that which it provides to its own services, or those of its subsidiaries or partners.

The current status whereby wholesale national leased line offerings may be an important means by which OAOs provide certain services at a retail level leads the MCA to believe that the obligation of non-discrimination is essential for the uptake of wholesale products by OAOs during the lifespan of this review.

GO also makes use of wholesale leased line products provided internally to be able to offer downstream services. In view of this, the imposition of a non-discrimination remedy obliging GO to offer access to its wholesale product to OAOs under the same conditions as it provides to its retail and downstream providers is necessary.

This non-discrimination obligation also applies to both access to wholesale leased line products (including end-to-end wholesale leased line and part circuit products) provided by GO, as well as to the provision of SLAs. This would diminish the possibilities of GO exercising non-price discrimination. Penalties would be applied if such SLAs are not provided in a non-discriminatory fashion by GO.

iii. Transparency

Regulation 12(1) of the ECNSR states that where an operator with an SMP position has obligations of non-discrimination, the MCA may impose obligations for transparency in relation to interconnection and, or access, requiring operators to make public specified information, such as accounting information, technical specifications, network characteristics, terms and conditions limiting access to and, or use of services and applications, and prices where applicable.

In particular, the MCA may require GO to publish a reference offer which shall be sufficiently unbundled to ensure that undertakings are not required to pay for facilities which are not necessary for the services requested, giving a description of the relevant offerings broken down into components according to market needs, and the associated terms and conditions including prices. This is in accordance to Regulation 12(2) of the ECNSR.

In such instances, the MCA is able to impose changes to reference offers to give effect to the obligations imposed under the Act.

Also in accordance with Regulation 12(2) of the ECNSR, the MCA may also specify the precise information to be made available, the level of detail required and the manner of publication.

The MCA believes that the obligation of transparency needs to be maintained on GO, and is intended to ensure the provision of sufficient information and clear processes required for access to the mandated services.

Currently GO is meeting its obligation to publish leased lines pricing and terms and conditions as part of both its Leased Lines Wholesale Services Offer and its RIO. By virtue of the obligation of transparency which the MCA is to impose on GO, the said operator will be obliged to continue publishing (and update where necessary) reference offers related to the various wholesale leased line products. Such offers are to be sufficiently unbundled, include pricing, terms and conditions and SLAs, as established in the above access obligations and as may be directed by the MCA according to law. Furthermore GO is to update its offers with additional products as appropriate in fulfilment of the access obligations imposed above.

The publication of the description of the relevant offerings should in particular apply to the end-to-end wholesale leased lines products, to the part circuit products, to Interconnection Paths, as well as any new offerings by GO. The MCA reserves the right to specify the level of detail to be published with respect to such information from time to time. Furthermore, GO must continue to provide detailed billing at wholesale level.

The transparency obligations ensure that GO provides other operators with effective access to its wholesale inputs.

iv. Price control

The MCA considers that unless a proper restraint on GO's pricing in the wholesale market under investigation is implemented by means of regulation, there is a risk that GO can abuse from its position in the market.

Regulation 16 of the ECNSR authorises the imposition of obligations on the SMP undertaking - in this case GO - relating to cost recovery and price controls, including obligations for cost orientation of prices and obligations concerning cost accounting systems, for the provision of specific types of interconnection and, or access, in situations where a market analysis indicates that a lack of effective competition means that the operator concerned might sustain prices at an excessively high level, or apply a prize squeeze, to the detriment of end-users.

Furthermore, Regulation 16(2) states that the Authority shall ensure that any cost recovery mechanism or pricing methodology that is mandated serves to promote efficiency and sustainable competition and maximize consumer benefits.

With respect to the price control obligation for wholesale leased lines covered by this decision, the MCA maintains that GO should continue to apply the regulated prices and cost accounting systems currently in place. Going forward the MCA reserves the right to revisit the form of price control for this market in order to ensure that regulation remains relevant and effective. In this regard, any changes to the current wholesale charges will be subject to the standard public consultation process implemented by the MCA.

Such intervention is in itself deemed instrumental in supporting competition at the retail level in question to the benefit of end-users, whilst at the same time supporting the obligations of non-discrimination and transparency at a wholesale level.

v. Cost Accounting

The MCA believes that, in order to effectively promote competition and curb possible abuse of dominance by GO in the wholesale market under review, the imposition of a cost accounting system is necessary. Such an obligation provides the MCA with detailed information regarding GO's leased lines products and ensures that fair, objective and transparent methodologies are followed by the operator in allocating costs to the identified regulated products. Information from such system will be used by the MCA to complement the application of other regulatory measures such as transparency and non-discrimination.

The MCA recalls that GO is currently already obliged to support such a system by virtue of MCA decisions that are already in place.

Going forward, the MCA reserves the right to carry out some refinements to the principles underlying the cost accounting obligation to the extent required – if any - in order to ensure adequate fulfilment of the cost information required in relation to any potential change to the price control mechanism.

vi. Accounting separation

Accounting separation is instrumental in ensuring that the undertaking with SMP is not price discriminating between its retail arm and its competitors when providing access and interconnection at a wholesale level. By evidencing the wholesale and internal transfer prices of the products and services of the undertaking with SMP, accounting separation also supports the obligation of transparency discussed above.

The obligation of accounting separation is also important in the disclosure of possible market failures such as cross-subsidisation and the application of margin squeeze by an undertaking with SMP.

In view of the above and of the fact that the MCA is herein maintaining the obligations of non-discrimination and transparency on GO, the MCA feels that the imposition of an accounting separation obligation on GO is appropriate since it is justifiable and based upon the competition problems identified above.

Currently GO is subject to the accounting separation obligation described in the MCA decision on Accounting Separation. This level of obligation shall be maintained and its scope extended, where necessary so as to include all services provided by GO falling within the ambit of this decision.

Going forward, the MCA reserves the right to carry out some refinements to the format and level of the accounting separation obligation to the extent – if any - required in order to ensure adequate fulfilment of the non-discrimination and transparency obligations and any potential change to the price control mechanism.

The MCA is of the opinion that the remedies it is imposing are based on the nature of the competition problems it has identified in the relevant wholesale markets, and are proportionate and justified in light of the objectives set out in Article 4 of the ECRA.

5.6 MONITORING OF FUTURE MARKET DEVELOPMENTS

The MCA considers that it is sensible to keep a close watch on the competitive progress of the markets identified in this review.

To this end, the MCA intends to analyse market trends and developments on an ongoing basis, and remains committed to issue a new market analysis at any point in time in response to any significant change in market conditions.

In accordance with its powers at law, the MCA is also reserving the right to change any of the above mentioned regulatory obligations following changes in the market structure.

CONSULTATION QUESTIONS

The MCA would like to ask the following consultation questions with respect to the market review carried above:

- Do you agree with the above preliminary conclusions regarding the market definition for the retail and wholesale markets concerning the provision of high-quality access and connectivity services over national leased lines in Malta?

- Do you agree with the above preliminary conclusions regarding the assessment of competition for the identified retail and wholesale markets?

- Do you agree with the above preliminary conclusions regarding the regulatory approach for the markets under investigation?

The Authority appreciates that respondents may provide confidential information in their feedback to this consultation document. This information is to be included in a separate annex and should be clearly marked as confidential. Respondents are also requested to state the reasons why the information should be treated as confidential. The Authority will take the necessary steps to protect the confidentiality of all such material as soon as it is received at the MCA offices in accordance with the MCA's confidentiality guidelines and procedures. Respondents are however encouraged to avoid confidential markings wherever possible. For the sake of openness and transparency, the MCA will publish a list of all respondents to this consultation.

All responses should be submitted to the Authority, in writing by no later than 4:30PM CET on the 30th of September 2016 and addressed to:

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