Wholesale Access and Call Origination on Mobile Networks

Identification and Analysis of Markets, Determination of Market Power and Setting of SMP Conditions

Response to consultation document and final decision

21st November, 2006

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Executive Summary

A new regulatory framework for electronic communications networks and services entered into force in Malta on the 14th September 2004. The framework is designed to create harmonised regulation across Europe and is aimed at reducing entry barriers and fostering prospects for effective competition to the benefit of consumers. The basis for the new regulatory framework are the five new EU Communications Directives.

The new Directives require National Regulatory Authorities (NRAs), amongst other things, to carry out reviews of competition in communications markets to ensure that regulation remains appropriate in the light of changing market conditions. For a limited period, while those reviews are conducted and until the new Significant Market Power (SMP) conditions are imposed, some elements of the regulatory regime which existed prior to the 14th September 2004 continue to be in force in line with Article 39 and 40 of the Electronic Communications (Regulation) Act.

This decision sets out the Malta Communications Authority's (MCA) conclusion for identifying a market and making a market power determination. As required by Article 7 of the Framework Directive (as implemented by Article 4 of the Electronic Communications (Regulation) Act), the MCA's proposals have been notified to the European Commission and to other NRAs.

Summary of Proposals

Identification of Markets

The group of products and services under consideration in this document consist of wholesale access and call origination on mobile networks. Wholesale services are those sold and purchased by electronic communications providers rather than end-users. In this market the wholesale of such services enables electronic communications providers to sell to end-users the ability to access mobile networks and be able to make and receive mobile calls and other associated services.

In relation to these services, the MCA identified the following economic market in accordance with competition law principles: **wholesale access and call origination on mobile networks.**

The details of the definition of this market, and the approach taken by the MCA when identifying these markets, are contained in **Chapter 02** of this document.

Assessment of Market Power

Based on the evidence presently available to the MCA and after having analysed the operation of this market and taken due account of the Commission's 'Guidelines on market analysis and the assessment of SMP' (SMP Guidelines), the MCA concludes that, for the wholesale access and call origination on mobile networks market, Vodafone Malta Ltd and MobIsle Communications Ltd are being designated as having joint (collective) SMP.

The MCA has found sufficient evidence for justification of these designations including:

- High and symmetric market shares;
- Highly concentrated market;

- Evidence of lack of price competition - prices have remained stable for the past eighteen months;
- Existence of high entry barriers;
- Homogenous products and product portfolios;
- Sustained high profitability of Vodafone and go mobile;
- Evidence of parallel behaviour;
- Lack of potential competition;
- Low countervailing buyer power; and
- No provision of wholesale access and call origination services.

Full details of the MCA's designations and reasoning are contained in **Chapter 03** of this document.

Regulatory Implications

Given the position of joint (collective) dominance held by Vodafone Malta Ltd. and MobIsle Communications Ltd. and as a result, their designation as operators having SMP, the MCA is imposing the following obligations on both operators:

(a) Access;

(b) Non-discrimination;

(c) Transparency;

(d) Price control and cost accounting; and

(e) Accounting separation.

Full details of these remedies, including their effect and the reasons for imposing these conditions, are contained in **Chapter 04** of this document.

Chapter 01 – Introduction

A new regulatory framework for electronic communications networks and services entered into force on the 14th September 2004. The framework is designed to create harmonised regulation across Europe and is aimed at reducing entry barriers and fostering prospects for effective competition to the benefit of consumers. The basis for the new regulatory framework are the five new EU Communications Directives:

- 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 Privacy Directive").

The Framework Directive provides the overall structure for the new regulatory regime and sets out fundamental rules and objectives which read across all the new directives. Article 8 of the Framework Directive sets out three key policy objectives which have been taken into account in the preparation of this consultation document, namely promotion of competition, development of the internal market and the promotion of the interests of the citizens of the European Union.

The Authorisation Directive establishes a new 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 Maltese legislation transposing these Directives came into effect in Malta on the 14th September 2004. The relevant pieces of legislation are the Electronic Communications (Regulation) Act, 2004 (hereinafter referred to as "ECRA") and the Electronic Communications Networks and Services (General) Regulations, 2004 (hereinafter referred to ''ECNSR'').

The new Directives require National Regulatory Authorities such as the MCA to carry out reviews of competition in communications markets, in order to ensure that regulation remains appropriate in the light of changing market conditions.

Each market review has three parts:

- a definition of the relevant market or markets;

- an assessment of competition in each market, in particular whether any companies have Significant Market Power (SMP) in a given market; and
- an assessment of which appropriate regulatory obligations should be imposed, given the findings on SMP (NRAs are obliged to impose some form of regulation where there is SMP).

More detailed requirements and guidance concerning the conduct of market reviews are provided in the Directives, the ECRA, the ECNSR and in additional documents issued by the European Commission and the MCA. As required by the new regime, in conducting this review, the MCA has taken the utmost account of the two European Commission documents discussed below.

01.1 Market Review Methodology

The European Commission has identified in its Recommendation, a set of markets in which ex ante regulation may be warranted. The Recommendation seeks to promote harmonisation across the European Community by ensuring that the same product and service markets are subject to a market analysis in all Member States. However, NRAs are able to regulate markets that differ from those identified in the Recommendation 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 European Commission has also issued Guidelines on market analysis and the assessment of SMP ("SMP Guidelines"). The MCA has published a document entitled 'Market Review Methodology' outlining the methodology to be used for assessing effective competition in the Maltese electronic communications sector[1]. The MCA is required to take these guidelines into utmost account when analysing a product or service market, in order to assess whether the market under investigation is effectively competitive or otherwise (refer to Regulation 8 of the ECNSR).

As required by Regulation 6 of the ECNSR (Article 7 of the Framework Directive), the results of this market review and the proposed draft measures need to be notified to the European Commission and to other NRAs. The Commission and other NRAs may make comments within the one month consultation period. If the Commission is of the opinion that the market definition, or proposals to designate an operator with SMP, or proposals to designate no operator with SMP, would create a barrier to the single market, or if the Commission has serious doubts as to its compatibility with Community law and issues a notice under Article 7(4) of the Framework Directive, the MCA is required by Regulation 6 of the ECNSR to delay adoption of these draft measures for a further period of 2 months while the Commission considers its position.

The MCA has collected market data from a variety of internal and external sources, including users and providers of electronic communications networks and services and from consumer surveys commissioned by the MCA, in order to carry out thoroughly its respective market definition and market analysis procedures, based on established economic and legal principles and taking the utmost account of the Relevant Markets Recommendation and the Guidelines.

[1] Link to MCA market review methodology: http://www.mca.org.mt/infocentre/openarticle.asp?id=513&pref=1

01.2 Consultation

As required by Article 10 of the ECRA, the MCA is to publish the results of the market reviews and provide operators with the opportunity to comment on the findings, prior to adopting the final proposals.

Furthermore, Regulation 6 of the ECNSR establishes that, prior to adopting the draft measures, the MCA is required to notify the Commission with the findings of the market reviews, the proposed remedies and the outcome of the national consultation process.

In line with our national consultation process, the MCA carried out a national consultation process from the 27th January till the 24th March 2006, during which the MCA welcomed written comments on any of the issues raised in this paper. The MCA received 4 responses in all namely from, Melita Cable plc., Vodafone Malta Ltd, MobIsle Communications Ltd and Dr. Malcolm Mifsud.

On the 13th July 2006, the MCA notified the draft Decision to the Commission. The Commission published its comments letter pursuant to Article 7(3) of Directive 2002/21/EC on cases MT/2006/0443 on 14th August 2006. The MCA has taken the utmost regard of these comments in its final decision.

01.3 Liaison with Competition Authority

There is a requirement on the MCA under Regulation 10 of the ECNSR to carry out an analysis of a relevant market within the Electronic Communications sector. This analysis must be carried out in accordance, where appropriate, with an agreement with the National Competition Authorities (NCA) under Regulation 10 of the ECRA.

In line with the co-operation agreement signed on the 20th May 2005 between the MCA and the Office of Fair Competition (OFC)[2], the MCA initiated a two-week consultation process with the OFC. The MCA forwarded and presented the results of this review to the OFC. The OFC sent its opinion letter on the 6th February 2005, a copy of which is available on the Authority's website[3].

01.4 Structure of the Document

The rest of the document is structured as follows:

Chapter 02 presents the MCA's conclusions on the definition of the market for wholesale access and call origination on mobile networks in Malta. This section consists of a review of the market definition procedure and its scope, as well as demand-side and supply-side assessments at the retail and wholesale level;

Chapter 03 presents the MCA's market analysis for this market and outlines whether this market is effectively competitive, or identifies those undertakings having SMP; and

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[2] Link to Memorandum of Understanding between MCA and OFC:
http://www.mca.org.mt/infocentre/openarticle.asp?id=656&pref=9

[3] Response from OFC: http://www.mca.org.mt/infocentre/openarticle.asp?id=785&pref=1

Chapter 04 provides a discussion of the general principles associated with remedies, identifies potential competition problems and outlines the remedies imposed on SMP operators under the new regulatory framework.

01.5 Scope of this Review

This review considers the markets for wholesale access and call origination on mobile networks in Malta, which includes the provision of access and call origination services over mobile networks. All respondents agreed with the scope of this review.

Chapter 02 - Market Definition

Regulation 10 of the ECNSR states that before an SMP determination may be considered, the MCA must identify the markets according to the circumstances of Malta and to analyse that market. In identifying the relevant markets, the MCA is required to take utmost account of all applicable guidelines and recommendations issued by the European Commission.

In formulating the MCA's approach to market definition, the MCA has paid the utmost regard to the Commission's Recommendation.

Where the proposed market definition differs from the Commission's Recommendation the difference is identified and justification given, in the light of the national circumstances which justify this departure, in the manner prescribed by the Commission's Recommendation.

Paragraph 3.1 of the Commission's Recommendation states that *'Because market analysis is forward-looking, markets are defined prospectively taking account of expected or foreseeable technological or economic developments over a reasonable horizon linked to the timing of the next market review*'. The market analysis has been carried out on a forward-looking basis and, where it is thought possible that market conditions may change significantly during the timeframe of this review, these changes are identified and discussed.

Paragraph 4 of the Recommendation states that retail markets should be examined in a way which is independent of the infrastructure being used, as well as in accordance with the principles of Competition Law. Again this approach is at the heart of the MCA's analysis. The MCA's approach is based on a Competition Law-based assessment of markets and an assessment of the extent to which switching among services by consumers constrains prices, irrespective of the infrastructure used by the providers of those services.

The MCA has conducted an assessment of the markets for wholesale access and call origination on mobile networks in order to validate its appropriateness in the Maltese context, and as preparatory work for the assessment of SMP in this market.

02.1 Background to the Electronic Communications Sector in Malta

As at March 2006 the total population of Malta stood at approximately 403,000. According to the National Statistics Office (NSO) there are approximately 128,000 residential households. These figures indicate the small geographic size of Malta (ca. 315km²) and this is reflected in the relatively small-scale electronic communications services/networks available. Nonetheless, the electronic communications sector has, in the past decade, experienced an impressive growth, both in terms of the number of operators and the variety of services offered. A perceptible amelioration in the quality of delivery of such services has also been recorded.

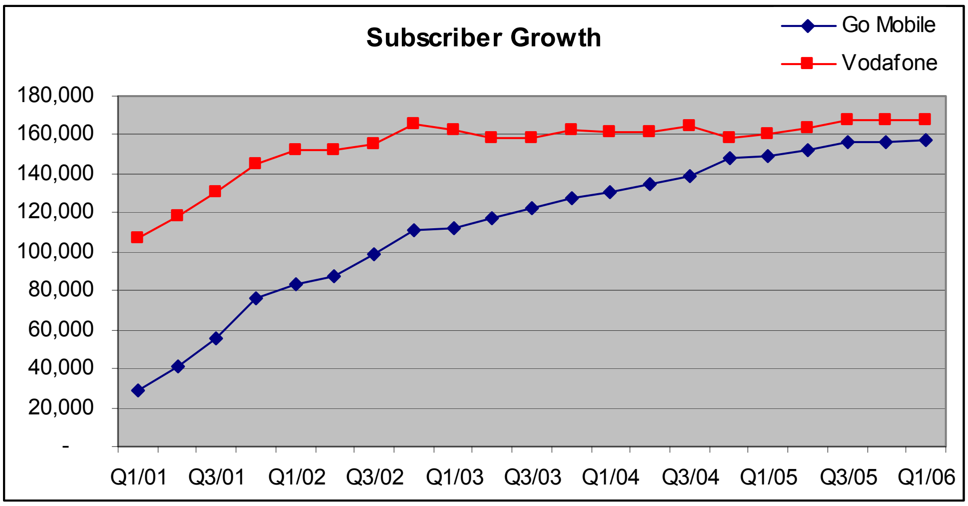
There are currently two mobile operators in the Maltese mobile market. These are Vodafone Malta Limited[4] and MobIsle Communications Ltd. The latter operates under the trade name go mobile[5].

[4] Hereafter referred to as Vodafone

[5] Hereafter referred to as go mobile

Vodafone, which commenced operations in Malta back in 1990, was the incumbent mobile operator. On the other hand the new entrant – go mobile - entered the fray in December 2000. Since 2001 there has been an expansion of the market and now, penetration stands at around 81 per cent, which means that there are 120,000 more mobile connections than fixed lines.

The graph below illustrates the trend in mobile subscriber growth since 2000, when go mobile started its commercial operations. The graph illustrates how the gap between subscribers on either network has been steadily declining during the period 2000-2004.



In March 2005 the MCA issued a call for applications for access to rights of use of radio frequencies in the IMT-2000 band for the development and implementation of Third Generation Mobile Telephony networks in Malta. Following a beauty contest carried out by the MCA, two out of the three bands available were assigned to the two existing mobile network operators, whilst the assignment of the third band is currently subject to legal proceedings.

02.2 Delineation of the Relevant Product Market

In the course of the market definition exercise, it is important to identify the competitive constraints that are faced by mobile operators in the sector. To this effect, the relevant product market includes all those products and services that are sufficiently substitutable, not only in terms of the price and the intended use of the product under scrutiny, but also in terms of the overall conditions of supply and demand.

The competitive constraints on a wholesale market are generally linked to the constraints at the retail level and vice versa. In Malta, no wholesale market for mobile access and call origination currently exists except for self-supply services and hence, the definition of this market is derived from the definition of the retail market.

Although it is clear that there is a link between the retail and the wholesale markets, the MCA considers them as intrinsically different in nature – both in terms of pricing and services provided. In addition, the parties that are involved in each market are also diverse. Thus, for these reasons the MCA considers it important to understand the content and make up of the two markets.

Recital (7) of the Recommendation clearly states that the starting point for market definition is a characterisation of the retail market over a given time horizon, taking into account the possibilities for demand and supply-side substitution. Subsequent to this exercise being carried out in relation to the retail market, the wholesale market is then identified. This approach is exactly that followed by the MCA in the following sections.

02.3 Definition of the Retail Market

As stated previously, the link between the retail and wholesale markets can influence both in an upstream and in a downstream fashion. The definition of the retail market is therefore of pivotal importance when considering the access and call origination market at the wholesale level.

In its market definition process, the MCA has considered if the following products and services currently available to end-users are to be included in the same retail market:

- Access to mobile services
- Outgoing voice calls (including international roaming) and SMS
- Business and residential services
- Pre-paid and post-paid services
- 2G and 3G technologies
- Data services
- WLAN
- Fixed and mobile services

2.3.1 Access to mobile services and calls

Access to a mobile network is symbolised by the SIM card, the use of which allows a customer to gain access to the network of the mobile service provider owning that SIM. However for a customer to start using voice and other services over that network s/he also needs to subscribe to a particular tariff plan. Thus, the access and call charges are reflected through the applicable calling rates/fees paid by the customer, depending on the chosen tariff plan.

Demand-side substitutability

From the consumer's point of view, mobile access can be thought of as the ability to make and receive calls. In effect, a subscriber of mobile telephony services can make various types of outgoing voice calls including national, international and international roaming voice calls. Customers cannot purchase calls through the subscription to a tariff plan without first buying access. Hence, access and calls are not demand-side substitutes but rather complements.

Traditionally, the cost of accessing a network is folded into the retail tariff charges. As opposed to pre-paid tariff schemes, post-paid tariff plans clearly indicate different fixed and variable charges. The fixed charge in post-paid plans normally includes free minutes or text messages, as is also the case in other Member States. In the case of pre-paid tariff plans, the fixed portion of access is included in the applicable call charges, resulting in higher per minute tariffs. **Appendix 1** lists all individual pre-paid and post-paid tariff plans available from both mobile network operators.

Given the existing structure of all tariff plans, if a hypothetical monopolist increases the price of access by 5 to 10 percent without adjusting the price of calls so as to maintain the overall price of the package constant, then it is likely that customers will switch to an alternative operator. The fact that customers buy access and calls as a cluster of services would render the hypothetical price increase non profitable for the monopolist, indicating that both access and calls face the same pricing constraint. This further substantiates the MCA's conclusion that both access to mobile services and the ability to make and receive calls are part of the same market.

Supply-side substitutability

A mobile network operator providing only access/calls services would be in position to start providing calls/access services if a hypothetical monopolist were to increase the price of calls/access, provided that there is available capacity on the network. Access and calls are provided over the same network elements and therefore a mobile network operator would be able to start providing any of these services in the short-term following a price increase by a hypothetical monopolist

Nevertheless, as stated earlier mobile operators usually provided access and calls as a cluster of services, since end-users would not be able to communicate unless they have both access to a mobile network and the ability to make and receive calls. Therefore, the likelihood of potential supply-side substitutability for individual services is very limited in practice.

The MCA concludes that access to a mobile network and the ability to make and receive calls face the same price constrain and hence should fall in the same retail market.

2.3.2 Outgoing Voice Calls and SMS

Demand-side substitutability

Once customers obtain access to the network, they also obtain access to both voice and SMS services as these are usually sold as one cluster of services. However, SMS differs from voice calls in a number of ways:

- an SMS can convey only a limited number of characters per message (160 alphanumeric characters);
- unlike voice calls, an SMS is stored and forwarded between networks; and
- an SMS is not transmitted in real time and can therefore experience delays.

Thus due to these differences in the characteristics of the services a customer may prefer using voice over SMS in particular instances for example for making long conversations, indicating that the latter is not a complete substitute of the former.

In addition, the observed market trends presented in the market review report in relation to the wholesale voice call termination on individual mobile networks[6], further substantiates the argument that voice and SMS are not substitutes but rather adjuncts. In spite of the substantial price differential between the two services, their usage has registered an increasing trend since the launch of SMS. It has also been noted that the increasing trend in voice calls was still maintained no matter the large decreases in the price of SMS.

Thus the MCA considers voice and SMS services as adjuncts rather than substitutes and hence both services are considered to be part of the same retail market.

Supply-side substitutability

A mobile operator with sufficient capacity can supply services within the cluster of retail services in response to a hypothetical price increase for that particular retail service. This is possible because no significant investments would be required by the existing operator in order to adjust operations accordingly. In any case such an investment by an existing mobile operator could be made within a relatively short period of time. This indicates that supply-side substitutability at the retail level exists.

As noted earlier, however, traditionally mobile operators provide services in a cluster and not on an individual basis. This reduces the likelihood of supply-side substitution to occur on an individual basis, as mobile operators need to provide a bundle of services to be able to attract customers to their network.

As a consequence the MCA is of the view that voice and SMS services provided at the retail level are part of the same market.

2.3.3 Business and Residential

Although both existing mobile operators provide a range of pre-paid and post-paid tariff plans, it is not possible to categorise these types of plans as targeted for business and

6 Report published in July 2005 and in relation to which investigations on the part of the Commission have been closed at phase 1 without any comments.

residential customers. A business or residential customer is able to purchase any type of tariff plan from any mobile operator and can easily switch between pre-paid and post-paid tariffs at little or no cost. Existing mobile operators do not distinguish between the two types of customers but rather tailor their retail tariff plans based on usage profiles. Hence for the purpose of this analysis the MCA will consider business and residential services as part of the same retail market.

2.3.4 Pre-paid and post-paid services

Demand-side substitutability

In Malta 92 per cent of mobile subscriptions are pre-paid and only 8 per cent are post-paid. Although pre-paid tariffs are more costly than those applicable to post-paid plans there are significantly more pre-paid subscribers in Malta. This is mainly due to the characteristics of the pre-paid product, namely, the fact that the customer receives no bills and has total control on the total monthly spend.

An increase in pre-paid tariffs by a hypothetical monopolist may result in a shift towards post-paid subscriptions, if customers perceive that the price increase outweighs the non-cost benefits applicable to the pre-paid product outlined above. This would likely render the original price hike unprofitable for the monopolist operator. This argument can be further substantiated in view of the fact that no perceived difference in the quality of service provided exists as both types of services are provided over the same infrastructure.

Given these considerations the MCA is of the view that from a demand-side perspective both pre-paid and post-paid services fall within the same retail market.

Supply-side substitutability

If a hypothetical monopolist raises the price of the pre-paid service, other mobile operators already providing the service can easily match the price increase, whilst other mobile providers not providing the service can start providing it at the new price, thus rendering the monopolist's action a non-profitable one. However, as argued before this situation is unlikely to happen since a network operator would most likely be already offering both types of services on its own infrastructure. Therefore from a supply-side perspective the MCA is considering both pre-paid and post-paid as being part of the same relevant product market at the retail level.

2.3.5 Data Services

The MCA considers data services to encompass those services and products that are supplied through GPRS or WAP Internet enabled technologies. The current set-up of data services allows for a similar scenario as that applicable for voice calls, in that consumers simply make a local voice call to connect to Internet gateways.

The MCA believes that data services are part of the same cluster of services together with voice calls and SMS and could possibly fall within the same retail market. However given the low take-up and demand in relation to voice and SMS services, the MCA considers data services as emerging services. Moreover, the MCA considers that the potential take-up of data services would not significantly impact the structure of the retail market and thus the findings of this review. To this effect it is the intention of the MCA to continue to observe the take-up of these services for the time being and not to analyse further these data services in this market review.

2.3.6 WLAN

Although the availability and usage of this service is becoming more common in Malta, the MCA still considers WLAN as a developing service. The MCA believes that in certain instances WLAN may provide a competitive force where hotspots are available.

Nonetheless given the limited number and coverage of these hotspots when compared to the national territory, WLAN is not as yet considered as providing the full, seamless mobility that is offered by a mobile network. For this reason the MCA is excluding WLAN from the market review

2.3.7 2G and 3G services

The MCA believes that the concept of technology neutrality is pivotal to the issue of whether 3G services should, or should not be included in the cluster of products and services at the retail level. Hence the MCA considers that this should be reflected in the market definition, which should be based on the nature of the product and services provided and not on the underlying technology used to provide them. The demand for voice telephony and SMS services is not derived from the fact that they are delivered over 2G or 3G platforms and therefore the MCA believes that both technologies should be included in the same relevant product market.

With regards to data services, 3G technology would effectively enable network operators to provide a large number of high quality services which today are not supported on 2G and 2.5G infrastructure. The advent of 3G technologies would enable customers to avail themselves of a large selection of data services in addition to the already existing ones. As discussed previously however, the take-up of data services provided over 2G and 2.5G networks is still low and these services are considered to be emerging in Malta. Given that today there are no 3G networks deployed in Malta, no information is available to the MCA on what kind of 3G data services will be commercially available during the timeframe of this review. Furthermore, the MCA considers that given the timeframe required to deploy a nation wide 3G network and the low take-up of 2G data services, it is likely that the take-up of 3G data networks would not have a significant effect on the structure of this market over the next two years. For these reasons, the MCA considers that 3G data services should not be analysed further in this market review. The MCA therefore concludes that voice and SMS telephony services provided over 2G and 3G networks should fall in the same relevant retail market, whilst data services provided over 2G and 3G networks should not be analysed further in this review due to their emerging nature.

2.3.8 Fixed and mobile services

Demand-side substitutability

In the market review report entitled 'National telephone services provided at a fixed location'[7], the MCA concluded that calls from mobile phones and calls from a fixed line do not fall within

[7] Link to document : http://www.mca.org.mt/infocentre/openarticle.asp?id=882&pref=1

the same relevant retail market. The analysis took into consideration both the functionality aspect – most notably mobility - as well as the pricing aspect. It has been argued in the analysis that 'while one can access a mobile network irrespective of location, fixed services can only be accessed from a fixed point. In this sense, it is possible for users to substitute calls in one direction only, that is, by replacing a call from a fixed line with a call from a mobile phone but not vice versa.'

Further cost analysis based on the retail prices of national telephone services provided at a fixed location also indicated that calls to fixed and mobile destinations are cheaper when originating on a fixed, rather than a mobile network. This is replicated in the table below, which illustrates the cost of a one minute call made during peak hours to fixed and mobile destinations from both fixed and mobile networks.

1 minute peak call

		Vodafone	go mobile	Maltacom
Vodafone	Post-Paid*	12c	12c	12c
	Pre-Paid^	20.5c	20.5c	23c
go mobile	Post-Paid*	10.5c	10.5c	10.5c
	Pre-Paid^	16.5c	15c	16.5c
Maltacom	Business	12c	12c	5c9**
	Residential	12c	12c	5c39**

Source: Operators' websites & MCA calculations

* Prices refer to average of all post-paid plans

^ Prices refer to the average of all pre-paid plans

** Charge is for every 5 minute call or part thereof

From the table above, it is clear that a call to a fixed number is much cheaper if it is originated from a fixed line rather than a mobile phone. Whilst a fixed to fixed call costs 5c39 for a 5 minute pulse, a mobile to fixed call costs a minimum of 10.5c per minute for a post-paid user and 16.5c per minute for a pre-paid user. The large difference in pricing indicates that the two products are not appropriate substitutes for the time being.

Both factors indicate that from a demand-side substitutability, fixed and mobile communications services are not complete substitutes and hence, do not fall within the same communications market.

Supply-side substitutability

From a supply-side substitutability perspective, if a hypothetical monopolist providing mobile calls increases its price by 5-10 per cent, the MCA would need to consider the possibility of existing fixed network operators undergoing the required investment to be able to start providing mobile services. The MCA is of the view that it is highly unlikely that such an investment and hence, the provision of mobile services by an existing fixed operator, can occur during the time frame of this review. Hence, from a supply-side substitutability analysis, the MCA considers fixed and mobile communications services as not forming part of the same relevant market.

In conclusion, the MCA considers that the relevant retail market includes:

- access to mobile services;

- outgoing voice calls, including international roaming calls and SMS services;
- both business and residential customers;
- post-paid and pre-paid services;

Furthermore, the MCA considers that the definition of the retail market should be technologically neutral and, to this effect, it believes that any of the above-mentioned services provided over 2G and/or 3G technologies is part of the same relevant market.

02.4 Definition of the Wholesale Market

The main elements required to provide a retail mobile call service are access to the network, call origination, call conveyance (including routing and switching) and call termination. Related elements include signalling and other ancillary services, for example, billing. In order to provide retail services, a service provider needs to obtain access to these network elements, either by building a new network of its own, or by gaining access to the infrastructure owned by an existing mobile network operator (MNO). Service providers obtaining access from another network operator are commonly called a Mobile Virtual Network Operator (MVNO).

The MCA considers MVNOs as broadly defined under one of the following categories or models:

- *service provider or airtime reseller:* In this model, the MVNO does not control any network element and makes use of the SIM cards of the MNO. Thus the MVNO commercializes the offers of the MNO, and may manage billing and customer relationship. It usually obtains a discount on connection charges or usage from the network operator, which provides it with its profit margin. Service providers can only market the services offered by the MNO and have limited possibilities to offer a different price structure, so their pricing tends to follow the pattern established by the MNO.

- *enhanced service provider:* This MVNO model resells the services of a MNO and provides additional own services. Enhanced service providers do not issue their own SIM cards, although they may re-brand the network operator's SIM cards. This category of MVNO resells services provided by an MNO but may also provide additional own services such as call forwarding, and SMS amongst others. These types of service providers usually dispose of their own Home Location Register (HLR) space - owning an HLR or in an HLR from the MNO - for customer profiles management. However since they are not assigned their own mobile network codes, these types of providers have no control over roaming agreements and, depending on their network infrastructure, may or may not have own interconnection agreements.

- *full or extended MVNO:* In this category of MVNO, the organisation operates a physical network infrastructure comprising, at a minimum, a mobile switching centre, an HLR and authentication centre (or 3G mobile equivalents). A full MVNO has its own International Mobile Subscriber Identity Code (IMSI code), its own network code, issues its own SIM cards (or 3G mobile equivalents) and offers its own services to end users. As a result, this MVNO model would have its own national and international roaming agreements, as well as its own interconnection agreements. In this case, however, the service provider is not allocated its own radio spectrum and therefore uses the radio access network of one or more MNOs. The above are summarised in the table provided below.

	Service Provider (SP)[1)]	Enhanced Service Provider (ESP)[1)]	Mobile Virtual Network Operator[1)]
Access Network	• No radio access network	• No radio access network	• No radio access network
SIM, NDC	• No own SIM card • No own NDC	• Possible own SIM • Possible own NDC	• Issues SIM-Cards • Own NDCs
Network Infrastructure	• No switching network • No HLR/AuC • Possibly own VAS platforms • Possibly own Customer Care and Billing (CCB)	• No switching network • Not full control of HLR/AuC • Possibly own VAS platforms • Own Customer Care and Billing (CCB) system	• Own switching network • Full control of HLR/AuC • Own VAS platforms • Own Customer Care and Billing (CCB) system
Pricing	• Own pricing, negotiation based	• Own pricing, negotiation based	• Own pricing
Branding	• Bundled branding ("powerd by") • Possible own billing	• Independent branding, billing • High level of customer ownership	• Fully independent branding • Full customer ownership
Business Model	• Revenues structure – (Value Added) Reseller – Own services • Costs structure – Sales & Marketing – Distribution – Possibly investment in VAS platforms and CCB	• Revenues structure – (Value Added) Reseller – Own services • Costs structure – Sales & Marketing – Distribution – Possibly investment in SIM, HLR/AuC, VAS platforms and CCB	• Revenues structure – Air time, data, etc. – services • Cost structure – Sales & Marketing – Distribution – Radio access lease – Licence, NDC, etc. – Rest of network infrastructure

Source: Arthur D. Little Int., Inc.

In order to define the relevant product market at the wholesale level, there are a number of issues that must be addressed in order to identify the scope of the analysis. It is important to assess whether:

(i) the provision over a single mobile network of call origination, MVNO and other wholesale products and services are part of the same product market;

(ii) wholesale services provided over other mobile networks should be considered as forming part of the same relevant product market; and whether

(iii) self-supply and other wholesale services provided to other parties should be included in the relevant product market.

These are analysed in more detail below.

2.4.1 The provision of wholesale products over the same network

Demand-side substitutability

In Malta all forms of mobile access and mobile call origination services are self-provided. However, different business models exist in other Member States, which depend on the availability of wholesale access and call origination on the part of the mobile network operator , in accordance with the type of market entry strategy being pursued.

Indirect Access operators require wholesale call origination services, whilst MVNOs require access to the MNO's infrastructure. The MCA, however, considers the different forms of wholesale access offered by the MNO as not substitutable since, as described, each depends on the business model being pursued by the alternative operator.

Moreover, demand-side substitutability between the types of wholesale access is further constrained by the level or degree of investment required on the part of the alternative service provider, which varies depending on the market entry strategy adopted. These arguments may therefore suggest that the different types of access fall in different markets.

However, it is also true that each of these business models is a means of satisfying retail customers' needs, and that from a demand-side perspective at the retail level, the end product availed of by the end customer is seen as easily substitutable.

Supply-side substitutability

From a supply-side analysis, depending on the capacity available, it is relatively easy for an MNO to switch from providing wholesale services in the form of access, call origination or both, to accommodate the various types of business models identified above. This is because the infrastructure required on the part of the MNO is already available and no significant investments are envisaged to be required in order to switch between the provision of such services.

The MCA is, therefore, of the view that the various types of wholesale access and call origination services which can be offered by an MNO fall within the same relevant wholesale market.

2.4.2 Wholesale products on all networks

Demand-side substitutability

As identified above, different business models may exist which depend on the availability of wholesale access and call origination on the part of the MNO, in accordance with the type of market entry strategy being pursued. Depending on the type of business model adopted, factors such as market share or the extent of coverage per population of the existing MNOs, are taken into consideration when assessing possible suppliers of wholesale facilities.

The MCA considers that both mobile operators in Malta have high market penetration levels and offer ubiquitous coverage facilities which would be favourably considered by any operator seeking to obtain wholesale access and call origination services. In addition, due to the distinct nature of mobile telephony, there are no substitutes on the demand-side and hence, the relevant wholesale market is restricted to all MNOs.

Supply-side substitutability

Subject to available capacity, an MNO which is not providing wholesale services to third parties would be in a position to offer such services if a hypothetical monopolist increases the price of wholesale access and call origination services. An MNO can provide wholesale access and call origination services to third party service providers since these will use the same network elements as those used by the MNO. Therefore, the granting of wholesale access would not require significant investment for the host network operator.

Overall, the MCA's conclusion is that there is a single, relevant, wholesale market that includes all MNOs.

2.4.3 Self-provision and other wholesale services provided to third parties

Demand-side substitutability

As stated earlier, there are currently no third party service providers purchasing wholesale mobile services in Malta. The provision of wholesale services by existing mobile operators is purely to serve each MNO's retail arm and is thus, a mirror of the retail market. Nevertheless, the MCA considers that the self-provision of wholesale access and call origination services should be included in this market, since there is no distinction between the services provided internally or to third party service providers. Furthermore, if an MNO increases the price of its wholesale access and origination services, it will increase both the cost of access for the third party service provider and also to its own downstream retail provider. Therefore, self-supplied wholesale access and call origination services and wholesale services provided to third party providers face the same pricing constraint.

Supply-side substitutability

The MCA considers it very difficult for alternative operators to start providing wholesale access and call origination services following a hypothetical price increase in the provision of such wholesale services. The potential entry in the market is rendered very difficult due to various factors, such as the significant cost in the acquisition of spectrum, as well as economies of scale, which provide significant barriers to entry in the mobile market.

Given the above, the MCA considers that self-provision of wholesale mobile services and other wholesale services provided to third parties form part of the same relevant market.

02.5 Relevant Geographic Market

A relevant geographical market comprises the area in which the undertakings concerned are involved in the supply and demand of products and/or services, in relation to which the conditions of competition are sufficiently homogeneous and which can be distinguished from neighbouring areas because the conditions of competition are appreciably different to those areas.

According to the EU Guidelines, in the electronic communications sector, the definition of the geographical scope of the relevant market is generally determined with reference to the area covered by a network, and to the existence of legal and other regulatory instruments.

Based on these definitions and the market conditions described earlier on, the MCA takes the view that the relevant geographic market for the provision of wholesale mobile access and call origination services is national in scope. This view is supported by the fact that all mobile operators operate at a national level and do not differentiate their services in terms of pricing and availability between different geographic regions.

02.6 Summary of responses to issues related to the market definition

All four respondents said that they broadly agreed with the definition of the retail and wholesale market proposed by the MCA. One respondent, however, stated that there are various classifications of MVNO and the MCA has only taken one possible definition. The respondent argues that the initial investment of a full MVNO is a significant burden of a new entrant especially since an ESP can provide identical services as a full MVNO. The respondent provides a different classification of MVNO extracted from a university thesis.

The MCA does not agree with the respondent regarding the definition of an MVNO since, as described in the definitions provided in the consultative document, an ESP resells services provided by an MNO, but may also provide additional own services, such as call forwarding and SMS amongst others. As opposed to a full MVNO, an ESP is not assigned its own mobile network codes, does not have control over roaming agreements and, depending on its network infrastructure, may or may not have its own interconnection agreements.

Hence, the range of services provided by the ESP will only be limited to what the host MNO can offer and, given the limitations identified above, cannot in certain cases offer a better overall service package to its customers. Furthermore, as stated in the consultative document, '*contrary to the service provider model, a potential full MVNO operator will have greater flexibility to respond to the market by the setting of its own retail pricings and by its ability to determine its own termination rates and interconnection conditions'*.

This point is further confirmed by the respondent itself when quoting the research made by Kristensson, S. & Gahnström, in their Masters' Thesis on MVNOs stating that *"the end-user starts noticing a difference between the MVNOs in correlation to its level of ambition".*

The Authority acknowledges that various categories or models of MVNOs may be encountered in existing literature on the subject and as such, endorses the definitions provided by the respondent. However, the MCA is of the opinion that, in general, the definitions provided by both parties tally. This is also due to the fact that the definition of an ESP as provided by the MCA could in fact incorporate various MVNO models, depending on the level of investment in network infrastructure as desired by the MVNO.

02.7 Identified relevant markets

The MCA believes that the evidence presented above suggests that a relevant market can be identified for the wholesale provision of access and call origination on mobile networks in Malta. For the reasons explained above, the MCA's view is that the relevant wholesale product market consists of:

- all wholesale access and origination services provided over the same mobile network;
- includes self-supplied access and call origination by vertically integrated MNOs; and
- constitutes a single relevant market that includes all MNOs.

Chapter 03 - Market Analysis

Having identified the relevant market as discussed in **Chapter 02,** the MCA is required to analyse the market in order to assess whether any services provider/s have significant market power as defined in Regulation 8 of the ECNSR (Article 14 of the Framework Directive).

3.1 Method to Assess Significant Market Power

Under the new EU Communications Directives and Article 4(8) of the ECRA, SMP has been newly defined so that it is equivalent to the competition law concept of dominance. Article 14(2) of the Framework Directive 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."

Further, Article 14(3) of the Framework Directive 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 the relevant market, one or more undertakings may be designated as having SMP where that undertaking, or undertakings, enjoys a position of dominance. Also, an undertaking may be designated as having SMP where it could lever its market power from a closely related market into the relevant market, thereby strengthening its market power in the relevant market.

In assessing whether an undertaking has SMP, this review takes the utmost account of the Commission’s SMP Guidelines, as well as the MCA’s equivalent guidelines, as referred to in Chapter 01 above.

3.2 Assessment of Single Market Dominance

This section considers whether single dominance is likely to exist in the identified relevant market. In the MCA's view, the assessment is fully compliant with the Commission’s Guidelines. The SMP assessment set out is based on the evidence available to the MCA.

Single dominance can be assessed using a large number of criteria as described in the Commission's and the MCA's guidelines on SMP assessment, however market share analysis is a first test that is generally applied to assess single dominance.

Although high market shares are not in themselves decisive as to whether an undertaking enjoys SMP in a market, the MCA is of the opinion that market shares higher than 50 per cent point towards the finding of SMP. Paragraph 75 of the Commission Guidelines states that, “*according to established case-law, very large market shares – in excess of 50% - are in themselves, save in exceptional circumstances, evidence of the existence of dominant position*.”

The table below illustrates the market shares for Vodafone and go mobile as at March 2006.

Market Shares	Vodafone	go mobile
Subscribers	51.5%	48.5%
Revenues	58.5%	41.5%
Minutes	55.1%	44.9%

The market share in subscribers and volume of originated minutes are very symmetric, whilst the share of revenue reflects a more favourable situation for Vodafone. Although the market share in revenues would indicate that Vodafone has SMP in this market the other two statistics suggest otherwise. The market shares of go mobile have over the past years converged steadily towards those of Vodafone and this trend is expected to continue during the timeframe of this review. Based on the current market shares, the MCA cannot conclude whether *prima facie* there is case of single dominance in the wholesale access and call origination market.

In its analysis of single dominance, the MCA considered other factors such as, economies of scale/scope, vertical integration, size of the undertakings and countervailing buyer power. Throughout its analysis, the MCA has not found any evidence that Vodafone has single market power in this market. On the contrary, the evidence available to the MCA suggests that both Vodafone and go mobile hold a similar position in the market and none of them holds a significant advantage over the other, such that it indicates the existence of single market power. The MCA has observed that, since the third quarter of 2004, go mobile and Vodafone have achieved a very similar position in the market, thus further supporting the conclusion that no operator holds single market dominance.

The MCA considers that the market under review does not support the finding of single market dominance due to the following factors:

- Highly similar market shares;
- Both operators enjoy similar level of economies of scale/scope;
- Vodafone and go mobile are vertically integrated providers;
- Size of both undertakings is almost identical; and
- Both operators face lack of countervailing buyer power.

Based on this conclusion, the MCA is of the opinion that this market warrants an assessment for the potential finding of collective dominance between Vodafone and go mobile.

3.3 Summary of responses and MCA's replies related to the assessment of single market dominance

All respondents agreed with the assessment of single dominance and with the conclusion that no operator holds single market power in this market. One respondent, however, commented on the fact that the finding of no single market dominance *"does not automatically mean that the MCA should seek a joint dominance finding, hence justifying its stance to propose the imposition of the whole list of remedies."*

The MCA agrees with the respondent that, if no operator is found to have single market dominance, it is not a forgone conclusion that there is joint dominance. The MCA believes that it did not take this conclusion as forgone, but proceeded to analyse characteristics that can possibly lead to such a conclusion. In this particular case, from the initial analysis carried out for a possible finding of single dominance, the MCA concluded that a deeper analysis was warranted since the market presented signs that are indicative of joint dominance, most notably the symmetric market shares held by MNOs.

3.4 Assessment of Collective Dominance

Regulation 8(3) of the ECNSR refers to a situation of dominance held by two or more undertakings in a particular relevant market. The second schedule of these Regulations describes situations under which the finding of joint dominance may be warranted and states, *"Two or more undertakings can be found to be in a joint dominant position within the meaning of regulation 8 of these Regulations if, even in the absence of structural or other links between them, they operate in a market the structure of which is considered to be conducive to coordinated effects."*

The Commission *Guidelines* define joint dominance, within the meaning of regulation 8(3) of the Regulations, as a situation where *"a dominant position may be held by two or more undertakings that are legally and economically independent of each other."* Within the meaning of this definition, two or more operators need not necessarily have any formal links between them in order to support a finding of joint dominance. What is required is that the undertakings under investigation are faced by *"substantially the same position vis-à-vis their customers and competitors"* within a particular market, such that these market conditions may be conducive to tacit collusion or coordinated effects.

The *Guidelines* stipulate that when assessing ex ante, the likely existence or emergence of a market which is, or could become, conducive to collective dominance in the form of tacit coordination, NRAs should analyse:

(a) whether the characteristics of the market make it conducive to tacit coordination; and

(b) whether such form of coordination is sustainable, i.e.

  (i) whether any of the oligopolists have the ability and incentive to deviate from the coordinated outcome, considering the ability and incentives of the non-deviators to retaliate; and

  (ii) whether buyers/fringe competitors/potential entrants have the ability and incentive to challenge any anti-competitive coordinated outcome.

The Court of First Instance in the case of the Airtours/First Choice merger decision applied these principles in its judgment[8]. In its decision, the Court sets out three necessary conditions for the finding of a collective dominance position:

i) Each member of the dominant oligopoly must have the ability to know how the other members are behaving in order to monitor whether or not they are adopting the common strategy. It is therefore necessary for all firms in the oligopoly to be aware, both precisely and quickly, of the way in which the other firms' market conduct is evolving. Important criteria to meet this condition are: market concentration, transparency, mature market, stagnant or moderate growth on the demand-side and homogeneity of products.

[8] Case T-342/99 - Airtours plc. vs. Commission, 6 June 2002

ii) Any tacit co-ordination must be sustainable over time. Implicit in this is the view that a retaliatory mechanism of some kind is necessary, so that any firm that deviates from the co-ordinated practice would be met by competitive reactions by other firms. The most important criterion to meet this condition is retaliatory mechanisms.

iii) It is necessary that existing and future competitors, as well as customers, do not undermine the results expected from the common policy. This condition may be met if there are high barriers to entry.

A number of characteristics which may indicate the presence of joint dominance are provided in the second schedule of the ECNSR. Based on the experience of available case law established by the European Court of Justice, joint dominance is likely to be found where the market satisfies a number of characteristics, in particular in terms of market concentration, transparency, and other characteristics discussed below.

The MCA has taken utmost account of the Commission Guidelines and the experience of the European Court of Justice in determining the finding of collective dominance. The analysis presented below seeks to demonstrate the existence of a collective dominance in the market under review.

3.5 Characteristics conducive to tacit coordination

An oligopolistic firm seeking collusion with another firm would need firstly a clear incentive to do so, and secondly the ability to enter into coordinated practices. The following criteria illustrate that the wholesale access and call origination market in Malta presents sufficient characteristics that facilitate such coordination.

3.5.1 Homogenous product

Vodafone and go mobile have similar network infrastructures that enable them to provide the same services and products at identical service levels. Both operators operate at a national level and are able to reach approximately 99 per cent of the population. Although the two mobile operators provide an array of services tailored for their customers, both operators tend to adopt mass marketing strategies and their products are in essence identical. When one operator launches a new service or tariff plan, the other operator launches a similar product within a very short period of time.

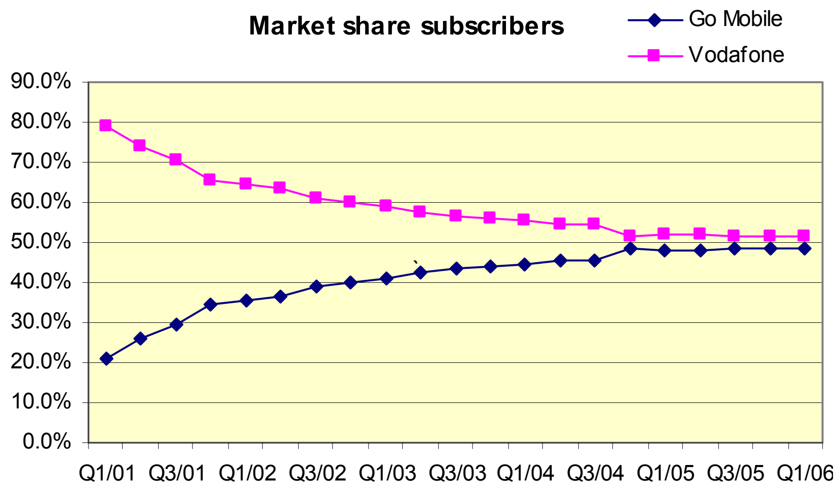
The tariff plans offered by both operators are listed in Annex 1 and it immediately transpires that both operators offer a number of post-paid plans targeted for heavy users. Vodafone offers a number of plans for pre-paid users, whilst go mobile offers only one tariff plan. An identical product that is offered by both operators is the scheme whereby pre-paid customers can choose 3 numbers to which they can make calls at a cheaper fixed rate.

Apart from the traditional voice call services, Vodafone and go mobile offer a range of other value added and data services such as MMS, GPRS, WAP and others. In the future, Vodafone and go mobile will also be able to offer identical products and services over their 3G networks, since they where both assigned 3G spectrum and are expected to rollout their respective networks over a maximum of 60 months timeframe. This makes it possible that in the future, both operators will be able to continue to provide similar services over their respective networks.

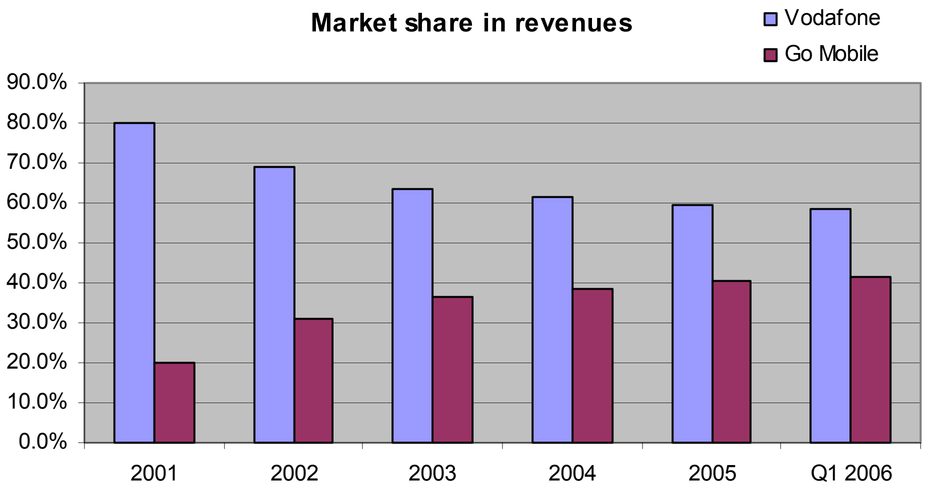
The market place is characterised by a high degree of product homogeneity and this situation is most likely to persist in the future. This suggests that there is further scope for Vodafone and go mobile to facilitate coordinated practices.

3.5.2 Similarity in market share

Market share is the main criterion that indicates the presences of dominance in a market. The three main ways to measure market share is through subscribers, revenues and traffic. Since in Malta the demand for wholesale access and call origination services is entirely made up of self-supplied demand, the wholesale market can be analysed based on the characteristics of the retail market. The following illustration depicts the trend in market share as regards mobile subscribers.

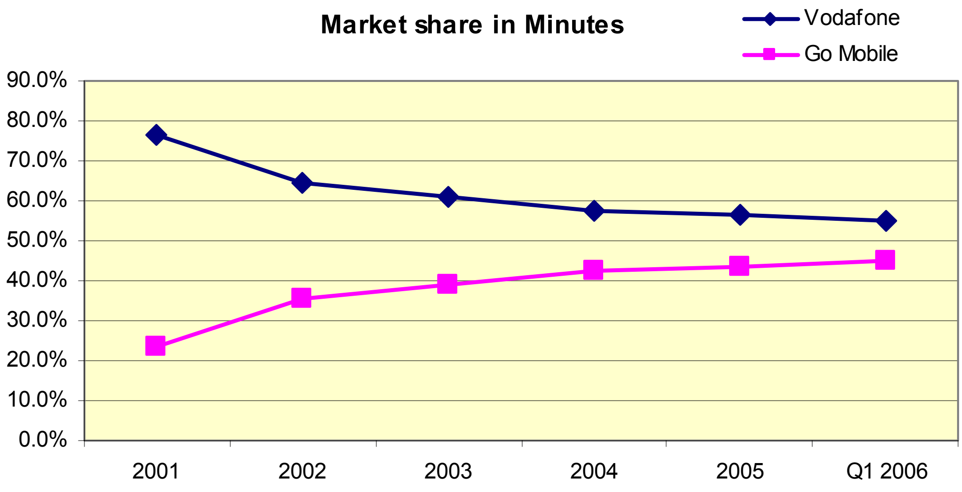


The graph clearly illustrates the converging market shares of the two mobile operators. Over the past 4 years, go mobile has consistently increased its market share and today, has achieved nearly 50 per cent market share. Although Vodafone faced an almost 50 per cent reduction in market share over the same period, both operators have, in absolute terms, increased the number of subscribers. Therefore, the convergence of market shares has not been detrimental in terms of subscriber growth for Vodafone but reflects the substantial increase in mobile penetration in Malta. As from the third quarter 2004, market shares have been stable at around the 50 per cent mark and are expected to remain at current levels during the timeframe of this review.



Market shares in revenues have also converged significantly since 2001. Although Vodafone still maintains nearly 60 per cent of the market share, go mobile have consistently improved their revenue streams. This converging trend is likely to be further observed in the coming months. Although the market share in subscribers is nearly identical, the market shares for revenues are slightly less symmetric. This is due to the historic structure of the market. Up till 2000, Vodafone was the only provider of mobile telephony services in Malta and therefore, business customers, which were amongst the first users of mobile telephony, were all Vodafone subscribers. Notwithstanding go mobile's entry in the market in 2000, Vodafone managed to maintain a sizeable portion of its business customers and this is reflected in the higher number of contract subscribers that Vodafone has.

Business customers are likely to be heavy users of mobile telephone services and therefore tend to opt for post-paid plans. In general, and as observed in Malta for both operators, the revenue streams from post-paid subscribers are higher than for pre-paid subscribers. This explains in part why Vodafone have maintained a higher market share when calculated in revenues as opposed to the market share for subscribers. The second factor contributing to the discrepancy in the revenue market share are the revenues from roaming services that Vodafone attracts during the summer months, mainly due to its worldwide branding. Nevertheless, the market shares in revenues are continuously converging and one expects them to continue to converge slowly during the timeframe of this review.



Similarly to the market share for subscribers, the volume of minutes originated from both networks is constantly converging. As at March 2006, Vodafone and go mobile had a voice traffic market share of 55 and 45 per cent respectively. The gap in market share in minutes is expected to continue to decrease even further over the timeframe of this review.

The similarity in market shares is a clear indication that Vodafone and go mobile are relatively similar and there is a clear incentive for both firms to coordinate their practices in the market place, in order to maintain their current joint dominance position. Given that the Maltese market is now mature and each firm has managed to acquire almost half of the subscribers in the market, it would be beneficial for both firms to maintain stability in the market in order to maximise their returns. In the absence of competition from other undertakings, existing operators have an incentive to maintain their current symmetric position in the market. This market structure is clearly conducive to tacit coordination.

3.5.3 Similar cost structures

Vodafone and go mobile have a similar cost structure resulting from similar network infrastructures. Both operators operate at a national level and have 99 per cent coverage of Malta and Gozo.

Vodafone and go mobile have very similar network elements for the provision of mobile services. Although Vodafone operates a GSM900 network and go mobile a GSM1800 network, the networks are very similar. The two operators have similar network elements in terms of switching centres, base stations and base transceivers.

Moreover, both operators currently have, on average, 2 x 26MHz of assigned spectrum, with almost an identical number of 2G spectrum channels assigned per operator. On top of this, both operators have acquired a blend of both GSM900 and GSM1800 spectrum channels to diminish any cost/operational advantages over each other.

The similarity in network elements and coverage of both network operators tends to suggest that their quality-related costs are very similar. Furthermore, as traffic continues to increase, any cost advantages afforded by one of the operators would be eroded away. Overall, the MCA considers that there seems to be little difference in costs structures of Vodafone and go mobile in the provision of mobile services.

As discussed above, both operators are able to offer the same portfolio of services at nearly identical prices, thus further implying that the cost of providing these services is very similar.

The MCA therefore considers that Vodafone and go mobile have similar cost structures that enhance the potential and incentive to adopt a common policy of muted price competition. The MCA further considers that this situation is likely to persist during the period of this review.

3.5.4 Market Concentration

Concentration measures combine the market shares of some or all of the firms in a market into a single measure. A commonly accepted measure of market concentration is the Herfindahl-Hirschman Index (HHI). It is calculated by squaring the market share of subscribers of each firm competing in the market and then summing the resulting numbers. The HHI takes account of the relative size and distribution of the firms in a market and approaches zero when a market consists of a large number of firms of relatively equal size. The HHI increases, both as the number of firms in the market decreases and as the disparity in size between those firms increases.

The US Department of Justice and Federal Trade Commission Horizontal Merger Guidelines contain explicit thresholds defined in terms of the HHI. Markets in which the HHI is between 1000 and 1800 points are considered to be moderately concentrated, and those in which the HHI is in excess of 1800 points are considered to be highly concentrated.

The Maltese mobile market is characterised by a duopolistic market structure. At March 2006, the number of mobile subscribers in Malta stood at 325,613 and Vodafone held a market share of 51.6 per cent and go mobile 48.4 per cent. Calculating the HHI for this market results in an index of 5004. This measure indicates that the market is highly concentrated. This high concentration is likely to remain stable during the timeframe of this review. Based on the observed stability in market dynamics and market maturity, the Authority safely concludes that market shares are likely to remain stable over the next two to three years with each MNO approximately sharing an equal number of mobile subscribers.

The potential entry of a new operator would increase the number of operators to three and would decrease the level of concentration. However, during the timeframe of this review the market share gained by the new operator is likely to be limited since a new entrant would require a number of months to deploy the network and start operating. The low market share of the new entrant would therefore have limited impact on the concentration index, which reinforces the fact that over the next two years, the market will remain highly concentrated.

The MCA considers the very high concentration of the market is conducive to co-ordinated practices on the part of both operators. Furthermore, the symmetry in market shares and the sustainability of this situation ensure that both operators are likely to benefit fairly similarly from engaging in coordinated practices.

3.5.5 Lack of technical innovation and maturity of technology

Vodafone and go mobile currently operate a 2G network and both have been recently assigned 3G spectrum. Both Vodafone and go mobile use the GSM standard and this enables both operators to acquire mobile equipment from a large number of suppliers. 2G and 2.5G technology has been deployed around the world for a number of years and the technology is now considered as mature. In Malta, Vodafone deployed this technology back in 1998 and go mobile has done so since its inception in 2000. Although go mobile entered the market at a later stage, both operators have similar network infrastructures and offer identical services. This suggests that none of the operators has a competitive advantage over the other and both Vodafone and go mobile are facing the same technology constraints.

The emergence of 3G technology is considered to be a technical innovation since it is able to support a greater number of services, mainly data services. The impact of 3G technology in Malta is unlikely to have a significant impact in terms of market structure during the next two years. Therefore the impact of 3G technology is considered to be limited during the timeframe of this review. Nevertheless, the MCA considers that the provision of voice services over 3G networks is no different from voice services provide over existing 2G networks, as explained in detail in section 2.4.7. The technology utilized in the provision of voice call services is considered to be mature and no MNO has, or will have, a technical advantage in providing voice calls over a mobile network.

The MCA therefore considers that the stability and relative technology maturity in the provision of voice and text services enables Vodafone and go mobile to sustain a coordinated position in this market. The similarity in the technology used and the lack of technology advantages enable both mobile operators to provide identical services in similar ways, thus further reinforcing the incentive and ability to coordinate.

3.5.6 Lack of reduced scope for price competition

In a market with a large number of players, prices are set at an efficient level and no undertaking and/or group of undertakings are able to price significantly above cost. The wholesale access and call origination market in Malta is characterised by a duopolistic market structure, where both undertakings face similar demand and supply characteristics, have similar market power and each offer an overall identical portfolio of services at similar prices.

The MCA has observed that as from the third quarter 2004, go mobile and Vodafone have attained a similar position in the market. A number of characteristics discussed above illustrate that both operators have, and continue, to move towards a symmetric position. Such a symmetric position together with market stability, transparency and lack of alternative competitors facilitate the incentive and ability of the interested parties to tacitly mute price competition. The incentive of engaging in such a strategy is that both operators can maximise their current returns without any of them moving away from the established equilibrium. A deviation from this point would be met immediately by the other party and would result in a lower market price that would lower overall market profits.

The table below shows the Return on Capital employed (ROCE) of Vodafone and go mobile which are clearly indicative of the high return that each company enjoys in the market.

ROCE	2004	2003	2002
Vodafone	27.64%	31.43%	49.31%
go mobile	35.06%	24.43%	4.40%

In 2004, Vodafone and go mobile had a ROCE of 27.6 and 35 per cent respectively. When comparing this rate with the weighted average cost of capital (WACC) of both operators, which currently stands at 17 per cent, it immediately transpires that both operators are enjoying significant high profits which are not normally associated with a competitive market.

A close look at the figures above indicate that the profits for Vodafone have declined from 49 to 28 per cent over two years, whilst those of go mobile have increased significantly. The

MCA considers that an element of competition contributed towards this shift. Nevertheless, the Authority also notes that during 2004 and 2005 Vodafone have embarked on a significant investment programme which included the purchase of a second switch and the laying of an underwater fibre optic cable from Malta to Sicily. This investment enables Vodafone to be self-sufficient (similarly to go mobile through the international link of Maltacom) for the provision of international services over its own network.

Both Vodafone and go mobile have similar network elements and are both able to replicate any service or package that each provides to its customers. Both operators have, over time, provided a portfolio of services which is overall identical. When one operator launches an offer in the market, the other operator promptly replicates that offer. The symmetry in the portfolio of products offered over similar network infrastructures enhances the ability and incentive to coordinate market behaviour.

Given that both operators operate at a national level and target the entire market, Vodafone and go mobile tend to face the same demand and supply characteristics. Similar market characteristics would likely be countered with similar responses and actions, which further enhances the incentive to coordinate market strategies. By engaging in coordinated practices both operators will be able to control the market and limit the level of competition to a desired level. Engaging in individual behaviour would increase the pressure on both operators. Consequently, given the symmetry in the market position of both undertakings, the desire to engage in symmetric behaviour to limit competitive pressures is high.

For coordination to be sustainable, both operators would require sufficient information on each other's pricing strategies, such that the market is sufficiently transparent that it enables parties to observe any deviations from the established pattern. The MCA considers that the market is sufficiently transparent and both the operators and customers can attain pricing information easily. The advertising and media campaigns, together with the information of product portfolios and tariff plans on the websites of the respective operators, provide an easy channel from where information can be obtained. Moreover, both operators have been present in the market for a number of years and therefore both operators have developed means to monitor each other's behaviour and anticipate certain marketing strategies.

A relevant example can be found in the special offers that both operators develop for the Christmas period and for the 'Malta International Trade Fair ' period during the month of June. These offers are now customary for the Maltese market and both operators expect that the other party would come up with an offer and would therefore be ready to offer a similar incentive to consumers. The transparency of the market facilitates tacit coordination.

Retail prices over the past eighteen months have remained relatively stable. A detailed analysis of the tariff plans offered by both operators reveals that on average, the prices charged by Vodafone and go mobile are intrinsically similar and, in certain instances, identical. Appendix 2 illustrates the packages offered by both operators and the cost of a one minute and three minutes peak call during weekdays. For a go mobile pre-paid customer, a one minute peak call would cost 20 cents, whilst the same call would range between 22 and 18 cents (average 20 cents) for a Vodafone subscriber, depending to which tariff plan the user is subscribed to. The 'Family & Friends' and 'Ready to go Club' schemes allow customers to make calls to a maximum of three pre-selected numbers at the cost of 12 cents all day long. As can be clearly seen, the pre-paid tariff plans offered by both operators are nearly identical.

For post-paid customers, Vodafone and go mobile offer a variety of tariff plans based on usage patterns. Both operators offer packages designed for heavy, medium and low usage customers. For users with a heavy usage profile, both operators have an identical rate of 10 cents per minute for calls outside the bundle of 'free' minutes. The tariff for post-paid customers with a low usage profile varies between 14 cents and 11.5 cents for Vodafone and go mobile respectively. For users with a medium usage profile, the tariff is of 12 cents for a Vodafone subscriber and 10 cents for a go mobile subscriber. For the medium and low usage tariff plans, the prices charged by go mobile are slightly lower than those charged by Vodafone however, overall prices are very similar and revolve around an average of 12 cents a minute.

The MCA considers that the prices charged for voice calls by both operators are on the high side when compared to other EU countries. Appendix 3 provides some graphical illustrations confirming the Authority's conclusion.

Due to high usage of SMS, both mobile operators even introduced specific schemes targeted at SMS users. The tariffs of these schemes are almost identical. The price for a text message is identical for both go mobile and Vodafone subscribers, pegged at 2 cent per message.

Prices for other value added and data services are also very similar in nature, or identical. Both operators have not yet introduced on-net tariffs on a permanent basis in their tariff plans.

The MCA considers that the similarity, or in certain instances identical price plans, that Vodafone and go mobile offer, is conducive to coordinated outcomes. Furthermore, the lack of permanent reductions in prices over the past eighteen months and the current lack of on-net tariffs, are indicative of muted price competition. The MCA is of the opinion that Vodafone and go mobile have a very high incentive not to engage in price competition and maintain the current market structure.

3.6 Summary of responses and the MCA's replies regarding the assessment of characteristics conducive to tacit coordination

3.6.1 Homogeneous product

Three respondents commented on this criterion. The first respondent argues that *"in general terms the services provided by go mobile and Vodafone could be considered quite similar",* however this is a common practice observed in other European markets. The respondent then proceeds to highlight a limited number of differences between the products offered by the two operators and also, that the tariff structures are not fully homogenous. Another respondent also agrees that there is product differentiation in the market and that both MNOs strive to create innovative products in the market. Looking ahead, the respondent argues that 3G technology will enable MNOs to further differentiate their product. A third respondent argues that, contrary to what the MCA seems to have concluded, the similarity in products is not achieved through coordination, but is a result of competitive pressures. Since both MNOs target the entire market, one operator cannot afford not to provide its clients with a competitive package that matches that product offered by the competing MNO.

Two of the respondents agree with the MCA that the packages offered by both MNOs are similar, albeit not fully homogenous. In this respect, the MCA notes that for coordination to be possible, operators need not have identical products, but rather similar products. Given the high degree of product homogeneity, the MCA believes that coordination can be successfully sustained in the market. The MCA has noticed that, following the publication of this review for national consultation, Vodafone introduced a new service called Credit Rescue[9] whilst go

[9] Credit Rescue is a service whereby a Vodafone pre-paid client can transfer Lm1 or Lm2 from his credit to another Vodafone pre-paid client which has run out of credit. This is performed by sending an SMS containing the mobile number of the beneficiary to a particular number.

mobile have introduced Mobile TV for their customers. The Authority positively views the introduction of these services, however the emergence of these services is clearly not changing the structure of the main tariff plans and packages. Furthermore, the impact of these two services in the market is likely to be negligible with probably only a handful of customers taking up the Mobile TV offer, whilst the credit rescue is only used in limited circumstances. With the advent of 3G technology, both Vodafone and go mobile can offer a larger selection of products to their customers, however the impact of these developments is likely to be limited during the timeframe of this review. As one respondent itself puts it *"in the first months since launch we do not expect a massive take up of these services, to the extent where it will materially alter the equilibrium in the market"*.

Finally, the MCA states that the high degree of similarity in the products provided by the two MNOs is not indicative of effective competition. Consumers would be better off if both MNOs offer different services at cheaper prices, such that they would be able to choose the best deal. On the contrary, by offering the same services at similar or identical prices, both MNOs are viewed by customers as fairly similar, thus limiting the benefits of competition.

3.6.2 Market Shares

Two respondents argued that only the market shares when calculated in subscribers can be considered symmetrical, whilst the market shares in minutes and revenues are asymmetric. Both respondents argue that Vodafone's revenue has been consistently higher than that of go mobile. One of the respondents gives two major reasons for this discrepancy, namely the higher roaming revenues that Vodafone manages to attract due to its international branding and secondly, the higher number of post-paid subscribers that Vodafone has when compared to go mobile. The respondent argued that these post-paid subscribers are usually the most lucrative customers which therefore contribute significantly to revenues.

Churn patterns according to a respondent indicate that the market is dynamic and users switch between operators. The introduction of mobile number portability will be a major contributor to increase in churn between operators. Given these changes it is unlikely that, in the near future, MNOs will achieve full symmetry.

A respondent commented on the fact that over the past five years, the market shares of both MNOs were different, given that go mobile achieved a market share of 48% whilst Vodafone lost more than 40%. The respondent argues that if a tacit coordination based on market share is to exist, both operators would need to achieve a 50:50 split of the market. According to the respondent, this situation seems highly unlikely since both MNOs would need to agree on the spilt of new customers and churn of existing customers. This situation is further unlikely to subsist, given the introduction of number portability and the incentive of go mobile to deviate from a hypothetical agreement by decreasing its prices in order to increase its market share.

The MCA agrees with the respondents that at present, the market share in subscribers is symmetrical whilst the market share in revenues and minutes is highly similar but not symmetrical to the same extent as in the case of subscribers. In its consultation paper, the MCA did not question the fact that Vodafone has higher revenues than go mobile, explaining the two main reasons why this slight gap in market share exists. Nevertheless, the MCA still considers that market shares are highly similar and that, within the timeframe of this review, they will continue to converge. When observing the trends of the past two years it is safe to conclude that these constant trends will continue in the next two years, which would ultimately lead to a higher degree of similarity in the market share of minutes and also of revenues.

As to the introduction of full number portability, the MCA is cognisant that this would facilitate further switching by customers. At present, it seems that churn resulting from porting of numbers is contributing to further decrease the gap between the two mobile operators, thus further confirming the Authority's view of converging market shares. Nevertheless, the MCA agrees with one of the respondents that states that it is too early to comment on the success of mobile number portability. The MCA also notes that both mobile operators have failed to actively promote the introduction of mobile number portability. Such a decision seems to be at odds with the arguments put forward by both operators that mobile number portability will enhance churn between operators and is therefore regarded as an opportunity to gain market share.

The MCA fails to understand the claim that the market shares of both MNOs were different during the past five years. It is logical that, as go mobile was a new entrant in the market, it had to start gaining market share and as a result Vodafone's market share decreased. However, the increase in market share of go mobile was mainly attributable to a low penetration rate and was not detrimental for Vodafone in terms of the number of subscribers, since over the past years both MNOs increased the number of subscribers significantly.

In its consultation document, the MCA has clearly stated that up till 2003 the market was not mature and it was characterised by significant changes. It was only in the third quarter of 2004 that the market seemed to have reached a point where both operators had achieved a similar position. Since then, the Authority failed to observe any clear signs of permanent movements in prices in the market. Both operators have engaged in parallel behaviour by matching any special offers launched in the market.

A respondent states that a situation of tacit coordination would seek both operators achieving a 50:50 split of the market. Although a tacit agreement would not necessary require an exactly even split, the evidence provided by the MCA clear shows that both operators have nearly achieved an even split with respect to subscribers. The market share in minutes is clearly converging to an even split with only a 5% difference. The gap in revenues is also constantly decreasing, however the convergence period is likely to be longer than that for minutes. With regard to the incentive of go mobile to deviate from a hypothetical agreed outcome, the MCA questions why go mobile has not continued with its aggressive strategy as it did till 2003 when it had gained a high market share. The MCA has not observed any deviation in terms of reduction in prices over the past months and therefore concludes that a deviation is not beneficial for go mobile.

3.6.3 Similar cost structures

One respondent argues that, whilst the network topology of both MNOs suggests that Vodafone and go mobile have similar network infrastructures and therefore costs, the operational structures are different. The respondent argues that since go mobile has lower traffic volumes, the per unit cost of production is higher than that of Vodafone. The respondent states that this is due to higher traffic generated by Vodafone's users and as a result of higher roaming traffic due to its international branding. The respondent argues that this discrepancy is acknowledged by the MCA itself, since the Authority has approved different termination rates for the two operators. Finally, the respondent argues that going forward, both MNOs would incur different investment strategies for the deployment of 3G. As an example, the respondent argues that go mobile invested in EDGE technology prior to moving towards 3G, whilst Vodafone will launch 3G by the end of this year.

Another respondent also argues that both MNOs have different cost structures and a detailed analysis of financial performance ratios would clearly indicate this.

The MCA agrees with the statement that both MNOs have similar network infrastructures which therefore result in similar investment costs. Although cost structures are not necessarily identical, a high degree of similarity facilitates a coordinated outcome. As the respondent states, both operators have a fairly equal number of base stations and controllers, have similar loading levels that are below capacity and have a fairly equal number of subscribers per base station ratio. The respondent therefore concludes that "*as suggested by the MCA – that they* (Vodafone and go mobile) *have incurred in fairly similar network investments*".

With respect to different network utilisation due to different traffic patterns the MCA acknowledges that at present Vodafone enjoys a 5% higher market share in minutes than go mobile. This difference is also reflected in the lower termination rate that Vodafone has compared to go mobile. However, it is abundantly clear that traffic patterns are steadily converging towards symmetry and it is likely that, within the timeframe of this review, a symmetric situation is achieved. This situation is also supported by the fact over the next two years the termination rates of both MNOs will decrease, such that by the end of 2008 both MNOs would have an identical termination rate.[10] This clearly indicates that any difference between the two operators will be eroded over the next two years.

Furthermore, the MCA has carried out an analysis of the financial performance for both undertakings, the results of which are provided in confidence in Appendix 5. The financial ratios support the conclusion of the Authority that both undertakings have similar cost structures.

The MCA acknowledges the development of 3G networks by both MNOs and, although currently there seems to be a different approach to the deployment of such networks, both operators have a strict deadline for the deployment of these networks. As specified in their licences, both Vodafone and go mobile need to have a 50% coverage by August 2007 and national coverage by August 2010. Therefore, even though Vodafone and go mobile are currently adopting different investment decisions, both MNOs are tied to similar rollout timeframes and investment requirements. However, full deployment of 3G networks will not be achieved during the timeframe of this review and therefore, the next analysis of the market would take into consideration any asymmetries in cost structures that may arise.

3.6.4 Lack of technical innovation, mature technology

One respondent argued that innovation happens at two levels, firstly with the introduction of new technology and secondly through the constantly upgrading of existing technologies to improve quality, functionality and cost savings.

Two respondents also commented on the introduction of EDGE technology by go mobile and the introduction of 3G technology by the end of 2006 by Vodafone and later by go mobile. Both respondents argued that 3G is a major technology development in the market.

As stated earlier on, the MCA views positively the development of 3G networks by both MNOs. The MCA however notes that the underlying technology required for the provision of voice and SMS is now mature and established. In its consultation document, the MCA tried to analyse whether any of the operators had a competitive technology advantage over the other, such that a coordinated outcome could not be sustained. However, the MCA found no evidence that would point out any difference in the technology adopted by the two operators. This suggests that a coordinated outcome can be sustained.

As to the development of 3G networks, the MCA notes that these will be fully deployed by August 2010 and therefore, during the timeframe of this review, the predominant technology which would be used for the provision of voice and SMS would still be the existing 2G networks.

[10] In December 2005 the MCA published a decision outlining a glide-path for the reductions of mobile termination rates. http://www.mca.org.mt/infocentre/openarticle.asp?id=748&pref=2

3.6.5 Lack or reduced scope of price competition

Profitability

One respondent stated that go mobile has recently *"achieved high levels of profitability, with an EBITDA margin (…) which appears to be at the high end of an EU benchmark".* The same respondent also stated that this *"is confirmed by the ROCE indicator"* in that following 2002 ,go mobile obtained high profitability levels. However the respondent argues that these high profitability levels have only been achieved for a very limited time period. A high profitability level is required due to the significant investment required by mobile operators to invest and upgrade its network. On the other hand, the respondent states that Vodafone has enjoyed a high profitability for a number of years, given that it has operated as a monopoly for a large number of years. As a result, the respondent concludes that Vodafone is in a much better financial position than go mobile and it is in the interest of end-users that go mobile attains high profit levels that will enable it to make future investments.

The MCA agrees with the respondent that go mobile (and also Vodafone) have attained a high profitability level and this has been achieved as from 2003 onwards. The MCA also acknowledges that, due to its earlier presence in the market, Vodafone managed to attain a high level of profits much earlier than go mobile. Nevertheless, it is clear that go mobile managed to attain such profit levels in a very short time span and it is very likely that, unless the market structure changes significantly, both operators will continue to enjoy such high levels of profits. Although, undertakings require a reasonable element of profit to enable them to re-invest it in their business, this should not be excessively high to the detriment of the consumer.

Another respondent argued that the ROCE is not a good indicator of profitability and that the WACC rate should not be used as a benchmark against which the MCA regulates overall returns or retail prices of MNOs, but only for setting mobile termination rates. The respondent states that ROCE levels which are higher than the WACC rate do not automatically mean that the market is not competitive. According to the respondent the ROCE is, by far, the poorest measure of profitability due to problems of interpretation and measurement and that it will only give a correct indication of profits in very limited circumstances. The respondent favours IRR or NPV as better ways to calculate the return of a company and provides arguments in this regard. Furthermore, the respondent states that the time series provided by the MCA is too limited to assess properly the level of profitability. It further argues that profitability analysis has rarely been used to determine dominance whilst criteria, such as market shares and entry barriers, should carry more weight.

Contrary to what a respondent argued, the MCA has never stated that the WACC rate is to be used exclusively for the setting of mobile termination rates. In this respect, in its 2004 Decision Notice - "Interconnection Pricing Review 2004/05"[11], the MCA stated that the WACC rate will be used for regulatory accounting purposes, including the calculation of interconnection rates. Whilst, for regulatory purposes, WACC is used to allow a reasonable return on investment (refer to Interconnection in the Telecommunications Sector, Report on Consultation and Decision, May 2003[12]), in this instance it is not the MCA's intention to regulate retail prices of MNOs on the basis of the WACC rate established for regulatory purposes. In this context the MCA is using the WACC rate (which allows for a reasonable rate of investment whilst factoring in the perceived risk of the relative investment), in

[11] Link to document : http://www.mca.org.mt/infocentre/openarticle.asp?id=536&pref=1

[12] Link to report : http://www.mca.org.mt/infocentre/openarticle.asp?id=266&pref=1

conjunction with the analyses of ROCE and other financial ratios, so as to determine whether or not Vodafone and go mobile are enjoying above normal returns.

The MCA considers that the high level of profitability as indicated by the ROCE together with

- retail rates which are on average 3 times higher than wholesale rates;
- lack of permanent reductions in prices for past eighteen months;
- high prices compared to EU benchmarks; and
- the maturity of market;

are all indicative of high profitability levels in the market. The MCA considers that this is not consistent with an effectively competitive market. Furthermore, the MCA is now in a position to update the ROCE statistics of both operators for the year 2005.

ROCE	2005	2004	2003	2002
Vodafone	42.09%	27.64%	31.43%	49.31%
Go Mobile	36.71%	35.06%	24.43%	4.40%

During 2005, both operators continued to increase their level of profitability. Given these sustained high profit levels, the MCA believes that both Vodafone and go mobile have a clear incentive to maintain such a position via a coordinated outcome.

The MCA notes that the ROCE is the most commonly used measure to determine whether a company is performing profitably and to determine a company's performance relative to its competitors. NPV and IRR are statistical tools, based on cash flows over a particular period, mainly used for appraising projects and assisting in investment decision-making. In addition it must be noted that, when assessing a company's performance, this is usually done over a period of years. It is widely acknowledged that trend analysis is very important in the interpretation of financial results of companies, for it is only then that the relative position can be identified. This is precisely what the MCA has tried to identify in its analysis. The trend observed in the Maltese market is that Vodafone has been enjoying high profitability levels for a long period of time, whilst go mobile attained such a position as from 2003. Such a trend analysis is usually not applied for the statistical tools (NPV and IRR) mentioned by the respondent.

Therefore, the MCA is of the opinion that ROCE is the best-suited approach to the measurement of a company's economic performance when compared to the other tools mentioned by the respondent.

Price

One respondent argued that following the entry into the market of go mobile there was a dramatic decrease in prices through a parallel behaviour mechanism, where a new tariff offered by one of the MNOs would immediately trigger off a similar, or better, offer from the other operator. The respondent states that from 2000 till 2003 there was a reduction of 74% in pre-paid tariffs, a reduction of 57% in post-paid tariffs and the price of an SMS decrease from 3.5cents in 2000 to 1cent and 2cents in 2003 for pre-paid and post-paid customers respectively.

The respondent states that due to increased competition, both operators have continued to provide reductions in prices through special offers, discounts and promotions. The respondent argued that the introduction of on-net tariffs and the Talk for Less promotion, whereby a user can call for 60 minutes but only pays for the first minute, has significantly decreased the average tariff per minute.

The same respondent proceeds to make an international comparison of retail prices and states that the profile of an average Maltese user is 'different' from that of an average user in the EU due to the very high usage of SMS and the lower average call duration. The respondent agrees with the MCA that go mobile's tariffs are on the higher end of the EU spectrum however, if an adjustment to the average profile of a Maltese customer to compensate for the differences mentioned is carried out, then go mobile's rate is below the EU average. The respondent concludes that the price of SMS of both MNOs is the lowest in the EU.

Another respondent states that, given the great number of tariff packages, promotions, bundles and varied prices, it is very unlikely that a price agreement can be reached and easily sustained. A common price level does not exist and therefore a deviation cannot possibly be monitored. The respondent argued that an offer of free minutes or SMS would not reduce the nominal price however it might still be attractive for a number of users. The respondent therefore questions how Vodafone and go mobile can sustain a coordinated practice based on prices. This respondent also mentions that the price of SMS is the cheapest in the EU and that any international comparisons should be made with markets comparable in size with those of Malta. According to comparisons provided by the respondent, prices of Vodafone are in line with the EU average.

The MCA agrees with the respondent in stating that from 2000 till 2003, there was a significant decrease in prices for both pre-paid and post-paid users, albeit to a lesser degree than stated by the respondent. The respondent calculated the percentage decrease based on the lowest tariff offered by go mobile, which only applies to certain time periods and numbers.

The MCA also acknowledges that the price of SMS is the lowest in the EU and that an average Maltese user has the highest usage of SMS when compared to other EU counterparts. However, as the same respondent correctly stated in its submission, *"following this dramatic price reduction, within a relatively short timeframe of about three years, operators decided to freeze their nominal tariffs (which have not changed until today)".* This statement confirms exactly what the Authority stated in its consultation document that, following 2003, reductions in tariffs have staled and the only changes observed in the market place were a number of special offers that run for a limited time period and subject to certain conditions such as the opt in clause.

Such a 'decision' to freeze nominal rates and partially compete through promotions and special offers clearly shows that Vodafone and go mobile have an incentive not to decrease nominal rates and settle for an established price level. It was only following the publication of this review that Vodafone and go mobile decreased, for the first time, the nominal rate on a permanent basis with the introduction of on-net tariffs, albeit subject to a number of conditions such as increases in prices of other services in the bundle, setup charge and specific time-frames.

With regard to the international comparisons, the MCA notes that comparing the rates that Maltese operators charge with those of other EU counterparts, it transpires that for all mobile usage baskets Maltese prices are on the high side as depicted in Appendix 4. The figures were extracted from the 11th Implementation report published by the EU[13]. On the other hand, SMS usage is the highest in Europe. The MCA believes that the high usage of SMS is a consequence of the low price of an SMS when compared to the cost of making a mobile call. In fact in other European countries the cost of an SMS is very similar, or in certain cases even lower, than the cost per minute of a call and therefore it is more convenient for users to

[13] European Electronic Communications Regulations and Markets 2005 (11th Report) Annex 2

make a call, rather than send an SMS. According to the Authority, the high prices of mobile calls largely explains the high usage of SMS and the low average call duration.

The MCA does not agree with the claim that the large variety of prices and plans in the market do not allow an agreement on pricing to be sustained. For an agreement to be sustained, prices need not necessarily be identical but transparent and similar. As clearly shown in Appendix 1 the price structures adopted by Vodafone and go mobile are very similar and transparent. A deviation from the current price structure (that has been fairly static for the past eighteen months) can be easily monitored. Monitoring of special offers seems to be pretty easy for both MNOs since they are able to match any offer within days. Similarly, a significant change in prices by an operator would be immediately noticed without the need of a unique price point or identical tariffs. Given the existing market structure, a coordinated behaviour based on prices can be successfully sustained.

3.7 Sustainability of tacit coordination

For a tacit agreement to be successful, it has to be sustainable over time. Sustainability over time requires two main conditions, firstly sufficient transparency in the market such that members of the dominant oligopoly can detect cheating and secondly, an effective retaliatory mechanism with which they can retaliate following cheating by one of the members of the oligopoly.

3.7.1 Market Transparency

In order to sustain a coordinated outcome the parties involved in the agreement need to be able to observe and monitor each other in order to identify any deviations from the agreed outcome. The ability to observe such deviations is necessary to ensure that none of the parties involved in the agreement cheats in terms of price deviations and/or muted competition.

As stated earlier, prices at the retail level are publicly known and published on the operators' respective websites. Movements in retail prices would be immediately noticed by the other operator and also by consumers. A deviation from the coordinated outcome would then call for retaliation by the aggrieved party, which would most likely take parallel action and counter the deviation to the detriment of both operators. The retail prices for business customers are not publicly available, however it is known that both mobile operators would be aware of each other's offer through the negotiations and bargaining process.

At a wholesale level, the market is also sufficiently transparent to sustain a coordinated outcome. To date, there are no service providers that request wholesale access to mobile network operators and therefore, wholesale access and origination rates are not published. However, in this market, the coordinated outcome is focused on the supply of access services rather than the price.

The MCA believes that, given the market structure and in the absence of regulation, existing MNOs are not willing to the grant access to third party operators. Such denial of access constitutes the focal point of the agreed strategy in the identified wholesale access and call origination market. Any deviations from this outcome would be immediately noticed by the other operator and would invite retaliation. As discussed earlier a potential third party service provider would consider both MNOs as potential candidates for the setting up of a MVNO, given their very symmetric position in the market. Consequently, the symmetric position held by Vodafone and go mobile in the market makes it possible for any of the MNOs to retaliate, should one of them decide to grant wholesale access to a MVNO.

Transparency in a closely related market may also facilitate the detection of cheating. Wholesale termination rates and other information related to interconnection services are published by both operators in their respective Reference Interconnection Offers (RIO). Moreover, following the publication of the decision on the introduction of a glide path for mobile termination rates, the MCA considers that for the next three years, the market has full visibility and clarity of what mobile termination rates will be. This facilitates the monitoring of each other's behaviour in a related wholesale market, which may also influence the coordinated outcome in the wholesale access and call origination market.

Transparency in a market is an essential condition to detect cheating and sustain a coordinated practice. The MCA is of the opinion that the market for wholesale access and call origination is sufficiently transparent to sustain coordination between the two mobile operators. The ability to detect cheating in this market is further enhanced, given that there are clear elements of transparency in closely related markets, such as the retail level and the wholesale market for termination services over mobile networks.

3.7.2 Retaliatory mechanisms

The sustainability of a coordinated outcome depends on the incentive for each member of the dominant oligopoly not to deviate from the agreed outcome. The sustainability of such a coordinated outcome is therefore based on trust amongst its members that no party would be better off if it acts independently. If one party deviates from the common strategy, the other members of the oligopoly must have credible detection and punishment mechanisms with which they can retaliate back.

An effective punishment mechanism in an electronic communications market would commonly be the threat of reverting back to a state of normal competition. If the members of the oligopoly hold a sufficiently similar position in the market, a deviation from an agreed outcome and a reversion to normal competition would be detrimental for both. It would therefore be more profitable for both companies to choose a coordinated outcome, rather than a competitive outcome. This coordinated outcome means that, while each company still retains a roughly equal market share, the price that they charge their customers is higher than the competitive price.

Retail Prices

In the market under review, Vodafone and go mobile have maintained stable prices for the past eighteen months. No permanent changes in retail prices have been observed. This practice is indicative that at a retail level, both operators have realised that it is far more profitable for both to resort to a common muted competition policy. Any decrease in price to gain market share would be immediately detected by the other party which would, in turn, retaliate by matching the offer within a very short period of time. A deviation from the common outcome would not be profitable for any individual firm, but would result in overall lower market prices and lower revenues.

The MCA also notes that, following a number of reductions in wholesale termination rates through regulatory intervention, retail tariffs have not registered any reductions over the past eighteen months. The MCA considers that an average wholesale termination rate to retail price ratio of 3:1[14] is sufficiently high to sustain further reductions in retail rates. The Authority is of the opinion that if the market is to be considered effectively competitive, retail tariffs should be driven downwards by market forces to levels which are not significantly above cost. However, evidence suggests that permanent reductions in voice call tariffs have stalled over the past eighteen months and the only observed reductions in voice call price have been limited to special offers for limited time periods. This indicates that both operators have followed the same pattern and are successfully sustaining a strategy of muted competition.

The MCA considers that at a retail level, an effective retaliatory mechanism exists and is sufficient to support collusive action. If one firm deviates by trying to undercut prices to gain the market share of the other, the second firm would adopt the same strategy, such that the deviating firm runs the risk of not only not gaining the market share of the other, but also remaining itself worse off because of reduced prices. The result of each firm competing to obtain the other's market share will be lower market prices and overall profits.

Over the past three years, the MCA has observed in numerous instances, examples of parallel behaviour, such as:

- May '03 - revision of SMS rates to international operators on same day and at same price;
- June '03 - discount scheme for post-paid customers for incoming calls;
- July/Dec '03, '04, '05 - numerous special offers which bundle free talk time with the purchase of a pre-paid connection;
- 2004/05 - identical reductions in MMS charges;
- August '05 - identical reductions in roaming charges for post-paid customers;
- Nov '05 - special offer during off-peak hours for pre-paid users. Users can call up to an hour and pay only for the first minute. Vodafone launched this offer for the first 20,000 subscribers. A few days later, go mobile matched this offer but for the first 40,000 subscribers. Two days later, Vodafone extended the offer for the first 40,000 subscribers as well.
- 2005 – Several special offers which include a free pre-paid connection and Lm5 top-up card with the purchase of selected MMS phone sets.

The evidence provided above, suggests that both operators have, and continue to engage in, parallel behaviour. The evidence also suggests that, with the exception of the reductions in roaming rates (which was initiated by Vodafone Malta Ltd. as part of its Group global strategy and subsequently matched by go mobile), there have been no price reductions except for a number of special offers i.e. for a limited time period only. This confirms the MCA's opinion that, with respect to retail prices, Vodafone and go mobile have adopted a muted competition approach.

Wholesale access

As stated earlier, there are no third party mobile service providers in Malta. Both operators have necessary requisites to grant MVNO access in terms of market share, ubiquitous coverage and network elements. The MCA considers that, if one of the operators had to

[14] The average wholesale termination rate is 5c3 per minute. The average pre-paid rate is 12c per minute whilst that of post-paid tariffs is 20c per minute, resulting in an overall retail average of 16c per minute.

grant wholesale access to a third party, the other operator would retaliate back by opening up its network and trying to attract any such service providers by offering better conditions. The MCA is of the opinion that a deviation from the agreed outcome at a wholesale level would trigger parallel behaviour from the aggrieved party and would restore back conditions of normal competition at wholesale level.

In conclusion, the MCA considers that the reversion to normal conditions of competition through parallel behaviour is an effective and easily applicable retaliatory mechanism that Vodafone or go mobile can resort to, in case of deviations from the agreed outcome by either of the parties.

3.8 Summary of responses and the MCA's replies regarding the assessment of sustainability of tacit coordination

3.8.1 Market Transparency

One respondent stated that it agrees in principle that the retail market is fairly transparent especially with pre-paid tariffs, however argues that there are factors that diminish this transparency such as preferential agreements with dealers[15] and multi-SIM contracts with international companies that might have a multi-country agreement with Vodafone Group. The respondent however considers that the wholesale market is not transparent and the MCA does not have any evidence that proves that both MNOs are reluctant to provide MVNO access. The respondent argues that, unlike other EU countries, there are no official cases of refusal of access. The respondent argues that go mobile is not against granting MVNO access on a commercial basis, provided that the requesting party *"affords competitive wholesale pricing*". The respondent concludes that MVNO access can be successfully reached on a commercial basis without ex ante regulation as has happened in other countries.

Another respondent argued that, although it might appear that retail rates are transparent, the degree of transparency necessary for tacit coordination is limited by:

- the lack of ARPU data for each operator;
- prices for business customers are not known; and
- the fact that quarterly data for subscribers is updated to reflect non-active pre-paid SIMs, however these changes might not necessarily reflect movements in actual subscribers following a deviation, but rather a change in data.

As a result, any deviations would be difficult to detect in practice. The large number of promotions and other non-price factors also contribute to decrease transparency in the market. The respondent also stated that it would also be difficult to determine what constitutes a deviation given that there is a large number of ways how to vary a particular tariff plan and not necessarily by a decrease in price. Given the lack of information of ARPU and subscribers, the impact of a deviation by one operator on the other operator's revenues and subscribers would be very difficult to predict and observe.

The MCA agrees with respondents that the retail market is transparent, however it does not consider the factors that they mention as a threat for a sustained coordinated outcome, for the following reasons:

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[15] Both MNOs have agreements with dealers (shops) that sell pre-paid SIM cards and top-up cards. These shops earn a commission on each sale. Most of the dealers sell connections of both Vodafone and go mobile.

- preferential agreements with dealers – dealers have very little (if any) bargaining power with MNOs. In December 2005, both Vodafone and go mobile lowered the commission given to dealers by the same amount on the same day .
- the lack of ARPU data for each operator – the MCA publishes a bi-annual report giving aggregate data on revenues and ARPU. Given that there are only two operators in the market, appropriate calculations can easily be made by both MNOs. Furthermore, it is likely that both MNOs have internal research mechanisms whereby they can measure the elasticity of different consumer segments and average user profiles.
- prices for business/group customers are not known – given that there are only two MNOs in Malta, it is clear that both operators would get to know the offer made by the other through negotiations. The MCA does not have any evidence of the existence of companies that have a multi-country agreement with the Vodafone Group. Nevertheless, the small number of large international companies in Malta is not likely to have a significant impact on an agreed outcome.
- no accurate data on movements in actual subscribers following a deviation – the impact of a tariff change has rarely been observed in the market since both MNOs have not permanently changed tariffs for a number of months. Movements in subscribers following a tariff change through promotional offers has also been limited since both operators match each other in every offer within a matter of days. Users have now been accustomed to wait for operators to match each others' offers and therefore, have very little incentive to switch operator. Switching is likely to happen only following a permanent change in tariff or other factors, such as entry in a group scheme. Furthermore, both MNOs continuously monitor churn levels via specialised market research.

Although the MCA does not have any official case of refusal of access, the MCA has received evidence of requests for access, one of which has been requesting such access for nearly a year. The Authority believes it is very likely that both MNOs would prefer to maintain the current market structures with only two vertically integrated operators in the market.

The incentive to open up the market is clearly not attractive at this point in time, since both operators are enjoying significant profits and share the market fairly equally. Any new entrants would clearly destabilise the current stable market structure, with the consequence that the aggrieved MNO would have to start competing aggressively to retain its customers and also consider opening up its network to retaliate. This would lead to a scenario where competition would lead to reduction in prices and revenues, which is clearly not beneficial for any of the existing MNOs.

Furthermore, one respondent to this consultation argued that the MCA should not restrict the access obligation only to a 'full MVNO' model, but that it should be applicable to all types of MVNO. The respondent argued that *"the access obligation must be imposed on MNOs for all forms of MVNOs. If this is not done, potential new entrants may be barred from entering the market (…)*". Therefore, according to this respondent, the MCA needs to ensure that regulation backs any request for MVNO access to ensure that competition is fostered.

3.8.2 Retaliatory Mechanisms

One respondent agreed with the MCA that retaliatory mechanisms are present in the market however, the same respondent does not agree that prices have been stable over the past eighteen months. The respondent argues that prices have constantly changed and this is proven by the fact that the MCA has found evidence of parallel behaviour between the two MNOs. In the respondent's view, such parallel behaviour is a characteristic of competitive markets and is not conducive to joint dominance.

Another respondent argued that the MCA did not find a credible retaliation mechanism and therefore cannot prove the existence of joint dominance. At a retail level, the respondent argues that an MNO cannot target the customers of an MVNO hosted on the deviating MNO, since the latter will usually hedge against this risk by imposing non-linear pricing arrangements in wholesale contracts. The respondent argues that the cost of hosting an MVNO is only a fraction of the revenue that a significant MVNO would generate, therefore there is an incentive to deviate. The respondent also argues that retaliation might work prior to such a deviation occurring, however once an MNO deviates the 'threat' effect disappears. Furthermore, if retaliation from MNOs had to work in practice the success of MVNOs would be constrained by fierce competition from the other MNOs. This however is not a practice that has been observed for example, in the UK, where MVNOs have been able to grow.

At a wholesale level, the same respondent identifies two potential retaliation mechanisms which however, the respondent states, are not effective. The first form of retaliation is for an MNO to try and switch the MVNO from the deviating network, however this is not easy to observe due to exclusivity clauses negotiated between the MVNO and the host network operator. The second mechanism is the introduction of MVNOs by the other MNOs, however according to the respondent this is not a very effective option. The hosting MNO would have a first mover advantage over the others and would have a high market share at wholesale level. Moreover, since the deviating MNO would already have invested to host the MVNO its marginal cost of adding new MVNOs would be smaller than that of other MNOs.

At the outset, the MCA notes that there are conflicting views amongst respondents on the existence of retaliatory mechanisms. The MCA maintains its view that retaliatory mechanisms at retail level exist and have been observed in practice in a number of instances where Vodafone and go mobile engaged in parallel behaviour. The existence of such mechanisms is also proven by the fact that retail prices were not decreased for a long time and any 'competitive' moves were of a temporary nature through promotions and offers. Had such parallel behaviour resulted in significant permanent decreases in prices, the respondent would have been right to argue that these are an indicator of an effectively competitive market.

The MCA does not agree with the respondent that argues that MNOs will not be able to target MVNOs through competitive pricing because of a non-linear pricing arrangement with the host MNO. Contrary to what the respondent argues, the fact that MVNO would have a price agreement will constrain its flexibility to counteract any price retaliation from other MNOs. The MCA agrees with the respondent that, if the revenues generated by an MVNO exceed the costs of hosting, it would be attractive for an MNO to deviate from an agreed outcome, however with the Maltese market structure where both MNOs have a fairly equal market share and high profitability, it would not be that attractive to deviate. The end result of deviating might be that the market would end up with lower prices and lower revenues. In this case, the prospect of arriving at a worse market position acts as a disincentive for any MNO to deviate.

The MCA broadly agrees with the respondent that an MNO would find it difficult to convince a potential MVNO to switch from a particular host onto its network, especially if lock in clauses are part of the access agreement. However, an MNO would not find it difficult to start offering MVNO access following the offer made by other operators. Although it is true that the first MVNO would enjoy a first mover advantage, it does not necessarily mean other MVNOs would not be able to compete effectively. Furthermore, given the market shares in the market, no MNO enjoys a significant market share over the other and therefore, an MVNO would have an equal chance to succeed, independently of which network it is being hosted on.

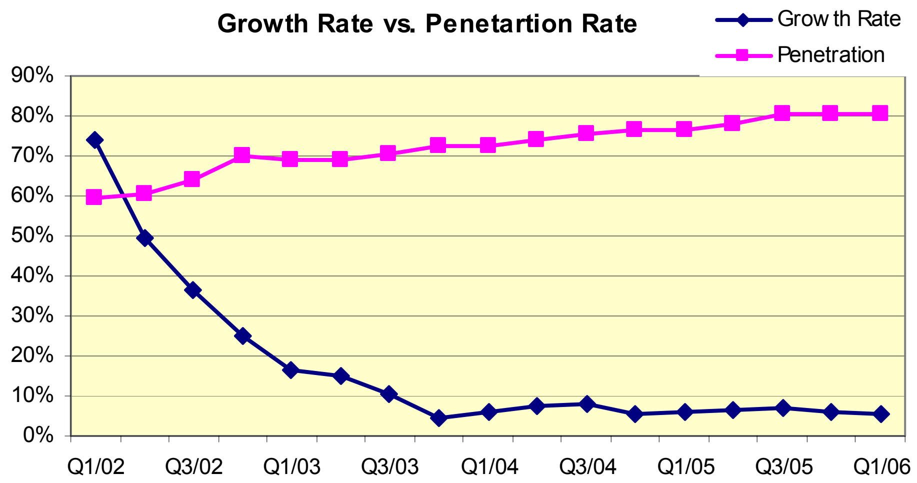
3.9 Potential market constraints on tacit coordination

In assessing the sustainability of tacit coordination, the MCA needs to consider whether potential future competitors and/or customers would be able to pose sufficient constraints on the dominant oligopoly, such that the tacit coordination would be at risk. The following analysis seeks to identify any potential constraints on the presumed tacit coordination between Vodafone and go mobile.

3.9.1 Mature Market

Market maturity, particularly evidence of stagnant or moderate demand-side growth, is important because in a mature market there may be less incentive to compete aggressively. This situation would tend to create more favourable conditions for the adoption of coordinated behaviour, as there would be less incentive for players to compete to attract new customers, and less scope for successful market entry.

Mobile penetration in Malta currently stands at around 81 per cent which compares very well with other EU countries. The following graph illustrates the year on year quarterly growth rate in mobile subscribers and the penetration rate over the past five years.



Since the entry in the market of the second mobile operator in December 2000, mobile penetration has increased from around 35 per cent to around 80.5 per cent as at December 2005. Following two years of rapid growth, the growth rate in subscribers observed over the past two years indicates that it has stabilised at around six per cent.

The stable growth trend in the Maltase market suggests that market penetration will continue to increase in the near future at a slow but stable pace. The growth of the market is largely dependent on young customers (teenagers) who are 'new' to the market and, to a minor extent, dependent on older people who have, up to now, forgone the use of a mobile phone.

The MCA considers that the maturity of the market and the observed stable growth rate suggests that the incumbent MNOs are unlikely to have a realistic threat of competition from new entrants during the timeframe of this review, given the strong position that they hold in this mature market.

3.9.2 High barriers to entry and potential competition

The wholesale access and call origination market is characterised by significant barriers to entry at the network level. The major entry barriers associated with this market are the scarcity of spectrum and the associated significant cost in acquiring it and the significant sunk costs involved in building a mobile network with national coverage. The existence of market entry barriers affects the level of potential competition for the market in question. High barriers to entry limit potential competition, which can, in turn, result in collusive behaviour between existing operators.

Economies of scale and scope

Both Vodafone and go mobile have now been present in the market for a number of years. The significant investment required for the rollout of a nationwide 2G network has already been made and is now being absorbed year after year. Every year, Vodafone and go mobile are making significant profits which enable them to recoup investment costs quickly. Moreover, as MNOs attract more subscribers and thereby increase traffic volumes, the per-unit cost incurred by these undertakings for providing mobile services decrease and are likely to be lower than those of a new entrant.

A new entrant would need to gain a significant share of the market if it is to effectively constrain the incumbent mobile operators. In order to gain a large market share, the new entrant will have to compete aggressively, which would make it very difficult for this operator to recoup its high investment costs. This difficultly is further augmented, given that the market is now mature as opposed to the low mobile penetration when the second operator entered the local market.

Sunk cost

Sunk costs are those costs that a new entrant must incur to enter the market but which are not recovered on exit. A potential entrant will only seek to incur these costs if its expected return from such an investment would be sufficient to cover these costs. An existing undertaking, on the other hand, would have already made its investment and would therefore be in a much better position to compete with the new entrant since it would already have covered its sunk costs. This asymmetry would make it very difficult for a new entrant to effectively compete with existing firms.

Entering the wholesale access and call origination market requires a large upfront investment resulting in significant sunk costs, which would be very difficult for any entrant to recoup if it decides to leave the market. The presence of such significant costs and the lengthy process to deploy a nationwide mobile network would make it very difficult for any new entrant to start effectively competing with existing MNOs during the timeframe of this review.

New mobile network operator

Up till December 2000, Vodafone held a monopolist position in the provision of mobile services. The entry in the market of go mobile initiated price competition and sparked off the provision of new services in the market. Moreover, a marked improvement in quality of services was also registered. Following the entry of the second operator, subscriber growth increased significantly and go mobile managed to acquire the majority of new subscribers, together with a number of customers from Vodafone. The strategy adopted at the time by go mobile was intended to reduce prices and attract the largest possible number of new customers and possibly customers willing to churn from Vodafone. This strategy earned go mobile nearly 50 per cent share of mobile subscribers over the past five years.

The market structure has changed significantly compared to what it was in 2000. A new entrant today would not find the same market conditions as go mobile did back in 2000, since mobile penetration is now very high and the market is mature. A new entrant would need to build its customer base mainly from customers willing to churn from existing operators. In order to adopt such a strategy, the new operator would need to undercut prices significantly. Given the strong position held by both existing mobile operators, such a strategy would not be very effective since Vodafone and go mobile have achieved significant economies of scale and scope which would enable them to meet any decrease in prices. Furthermore, given that retail prices are currently significantly higher than wholesale costs, existing operators have a large margin within which they can profitably reduce retail prices.

The rollout of a 3G network by a new entrant is a lengthy and laborious process and it is highly unlikely that a new operator would start providing commercial services within the next two years. This is further supported by the fact that, as at the date of publication of this review, only the two incumbent mobile operators have been assigned 3G frequencies. Moreover, the licences already granted to Vodafone and go mobile establish that the rollout of 3G networks can take up to a maximum of 60 months to achieve total national coverage.

The MCA considers that a new market player would certainly intensify price competition in the market, however its impact would not be sufficient, if any, in order to erode the market power held by Vodafone and go mobile in this market during the timeframe of this review.

Alternative service providers - MVNO

Potential market entry could however come from alternative service providers – MVNOs – who would be able to offer mobile services over existing infrastructures. An MVNO would need access to the infrastructure of Vodafone or go mobile to start operating. To date, there are no MVNOs present in Malta. Apart from the benefits derived by consumers, the provision of wholesale access services would also result in a number of benefits for existing network operators such as increased revenues, increased churn and possibly the attraction of new subscribers through niche marketing.

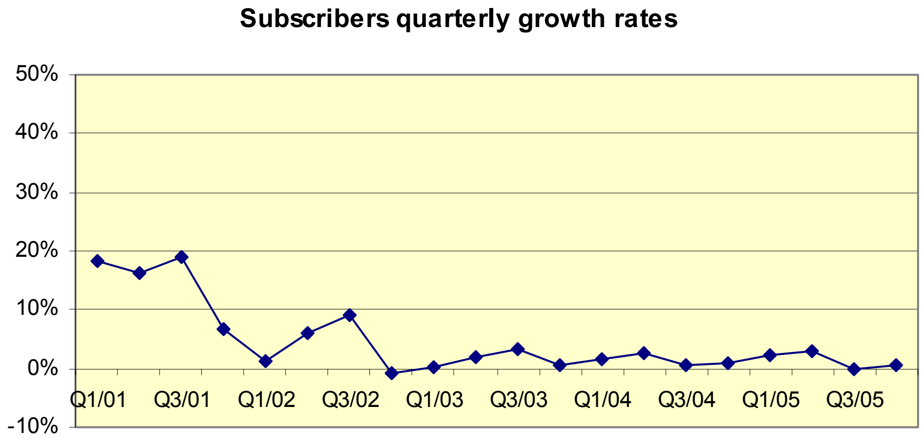
In many European countries, MVNO agreements have been concluded on a voluntary basis through commercial negotiations. However, given the characteristics of the market this practice is likely to be difficult to observe in Malta. The MCA considers that there is a potential for an MVNO to enter the market since the margin between wholesale rates and retail tariffs is sufficient to allow such entry profitably. As explained earlier, the MCA considers that retail rates are sufficiently high, when compared to wholesale rates, to attract interest from potential MVNOs. The Authority therefore considers that granting of wholesale access would significantly reduce entry barriers in this market.

The analysis of entry barriers and potential competition issues indicates that there are high entry barriers in order to enter the wholesale mobile access and origination market. The scale of the investment needed to build a ubiquitous mobile network and sunk costs associated with such an investment, are significantly high. Apart from facing such barriers to entry, a new entrant would also have to start competing in a mature market which would make the process of acquiring new customers more difficult. In the event of the entry of an MVNO, entry barriers would be much lower since there is no need to deploy a full network. However, as argued earlier, wholesale access is unlikely to be offered unless regulation is in place.

3.9.3 Stagnant or moderate growth in the demand-side

A new market entrant would find it very difficult to acquire market share where growth in demand is low. As argued above, the retail market is mature with a mobile penetration rate of 80.5 per cent. The illustration below depicts the quarterly growth rates in mobile subscribers.

The average quarterly growth rate over the past three years was of 1 per cent. The stable



low growth rate indicates that the market is still expanding, however at a very small rate. This trend is likely to continue to be observed over the next two years, given the maturity of the market.

The graph also captures a cyclical movement in the trend. During summer months, the number of subscribers of both mobile operators is temporarily inflated by a significant number of connections purchased by tourists who visit the Maltese Islands. The easiness in purchasing a pre-paid connection makes it very attractive for foreigners to buy a local SIM card to call back their country at a cheaper rate compared to roaming charges. These pre-paid connections are normally used for a limited time period. Following the expiry of the top-up card time-window and an additional time-window concession, the connection is deactivated.

The MCA considers that due to the high market penetration rate and the observed low growth in demand for connections, a new entrant would find it very difficult to gain market share and effectively pose a competitive constraint on the existing operators. The MCA therefore considers that the observed low growth in the demand favours tacit coordination.

3.9.4 Low elasticity of demand

A low elasticity of demand would imply that consumers are not very sensitive to price changes. This may be either due to consumers' own preferences, or due to the lack of substitutes to which they can resort following a price increase.

At a wholesale level, there is no elasticity of demand since all demand is internal. There are no alternative operators which request access services and therefore, a change in the price of access and call origination services would not have an impact on Vodafone and or go mobile since such a change is determined internally. The lack of elasticity of demand is therefore conducive to coordination at wholesale level.

At a retail level, consumers are faced by two relatively symmetric operators offering almost identical products and services. The Commission Guidelines on market analysis state that the Commission *"would consider two or more undertakings to be in a collective dominant position when they had substantially the same position vis-à-vis their customers and* *competitors as a single company has if it is in a dominant position provided that no effective competition exists between them."* The MCA considers that the position held by Vodafone and go mobile in the retail market is sufficiently similar such that consumers have limited elasticity of demand.

Notwithstanding, the MCA considers that price elasticity does not constrain operators or diminish the incentive and/or ability to collude. Ivaldi et al support this view in their article on tacit collusion where they argue *"elasticity has no impact on the sustainability of collusion. This comes from the fact that demand elasticity (and more generally, the shape of consumer demand) affects in the same way both the short-term gains from undercutting rivals and the long-term cost of foregoing future collusion."*[16] The authors further elaborate that demand elasticity and buying power may have a negative effect on absolute profitability, but not on the incentive and/or ability of collusion.

3.9.5 Countervailing buyer power

Countervailing buyer power exists where large customers have the ability within a reasonable timeframe to resort to credible alternatives following a price increase, or deterioration in the conditions of delivery by a hypothetical monopolist. The MCA considers that there is no countervailing buyer power at a wholesale level since all wholesale demand is internal. To date, no third party providers obtain wholesale access from Vodafone and go mobile and therefore these operators do not face any constraints from wholesale customers.

The MCA acknowledges the fact that, at a retail level, large customers can exert an element of countervailing buyer power on existing mobile operators. However, this is considered to be insufficient to constrain mobile operators. This level of countervailing power is reflected in the fact that both mobile operators do not publish a fixed rate for large business customers but tariff plans for these customers are usually negotiated on a case-by-case basis. The MCA however, has no evidence that any other customers or group of customers have sufficient countervailing buyer power in order to constrain a coordinated behaviour. The fact that pre-paid and post-paid tariff plans have remained constant for the past eighteen months indicates lack of downward pressure on retail prices.

The MCA considers that the lack of countervailing buyer power at a wholesale and retail level facilitates a sustained coordinated approach.

3.10 Summary of responses and the MCA's replies regarding the assessment of potential market constraints on tacit coordination

3.10.1 Maturity of Market

One respondent argued that the Maltese market is not yet mature and in the future, it will continue to grow strongly. The respondent argues that mobile penetration will increase in parallel with the GDP per capita and estimated that in 2007, the Maltese GDP per capita will reach €20,000. Currently, countries like Cyprus and Portugal which have a similar GDP per head enjoy a mobile penetration rate of 99% and 106% respectively. The respondent considers that the mobile penetration rate in Malta will reach 95% in 2007. Furthermore, the respondent argues that revenues will continue to increase at a higher rate than subscribers.

The MCA observed that over the past three years, mobile subscribers increased at an average rate of 6% per annum. This increase is, in turn, translated into a 2% increase in the

[16] The economics of tacit collusion, Ivaldi et al http://idei.fr/doc/wp/2003/tacit_collusion.pdf

mobile penetration rate per annum. The MCA considers that this stable growth trend is likely to persist during the two year timeframe of this review, especially when considering the high level of penetration already attained. As a result, the MCA believes that the future penetration rate provided by the respondent is overestimated.

3.10.2 High barriers to entry

One respondent argued that entry in the market is not characterised by high entry barriers since sunk costs are relatively low in Malta when compared to other EU countries. Given the small network size, the investment would also be low and the new entrant can quickly become profitable as go mobile did in the past. The respondent argues that a new entrant would have a variety of technologies at its disposal such as 2G, 2.5G, 3G and WiMax. This would allow the new entrant to quickly deploy the network and recover its investments. The same respondent also argued that, although a new entrant would not find a market structure similar to what go mobile found in 2000, a third operator would initially target low users with low prices. This has been a successful practice adopted by third entrants in other EU countries, such as in the UK and Italy and therefore, a potential third network operator in Malta can still obtain good return on investment. The respondent argues that this is proven by the fact that a 'candidate' third operator requested frequencies from the MCA, which it however failed to obtain. The third operator however managed to win an appeal case. According to the respondent, the persistence of the third operator shows that the market still presents good investment opportunity.

The MCA does not agree with the respondent that investing in a mobile network is not a significant investment. This statement is clearly in contrast with other statements made by the same respondent in other sections of its submission highlighting the significant commitment and financial burden that existing mobile network operators will incur to deploy 3G networks.

The MCA believes that a new entrant would face significant barriers to entry, not only because of the cost of investing in a 3G network (and not 2G or 2.5G as the respondent claims), but also because the market is mature. Although the Authority agrees that there is still room for a good return on investment, such a return would be difficult to earn since a new operator would have first to attract sufficient subscribers onto its network. This would clearly be a lengthy process through which prices would clearly have to fall, with the consequence that revenues would also be lower. As a result, the third mobile operator would require more time than go mobile did to become profitable.

3.10.3 Countervailing buyer power

One respondent argued that since there are no indirect service providers, countervailing buyer power can only be exerted by end customers namely business clients and dealers. The respondent argues that large business clients are able to exert significant pressure on mobile operators since they know that contribute significantly to revenues from post-paid subscribers. Dealers are also in a position to exert pressure on mobile operators to get discounts.

The MCA considers that business clients can only exert very limited pressure on both mobile operators since both operators would tend to know what the other operator is offering to the customer during negotiations. Vodafone and go mobile can mitigate against excessive pressure by 'setting' a limit to discounts and rates that they would offer during negotiations beforehand, such that commercial negotiations would be safeguarded by a lower limit.

With respect to dealers, the MCA is not convinced that these authorised resellers of SIM cards and top-up cards have the ability to exert any countervailing buyer power. The MCA notes that in December 2005, Vodafone and go mobile lowered the commission given to dealers on the same day and by the same amount. If dealers had the ability to exert power, such a move would not have occurred.

3.11 Summary of responses and the MCA's replies regarding the finding of joint dominance

Three respondents did not agree with the finding of joint dominance, whilst another one agreed with this conclusion. Two respondents argued that, since the entry of go mobile, retail prices have gone down and there were numerous new products and services launched. The respondents therefore argue that the retail market presents clear signs of effective competition. Furthermore, the two respondents argue that the two mobile operators are not symmetric in many aspects such as revenues, cost structures and products offered.

The MCA agrees with the respondents that since the entry of go mobile in the market, prices have gone down and new services were launched. However, as stated clearly in the consultation document, price reductions and introductions of new tariff plans have stagnated over the past eighteen months. This shows that competitive forces were present in the market between 2000-2003 and thereafter, the market did not see any major changes. The existence of joint dominance does not require parties to be perfectly symmetrical but rather sufficiently similar, so as to be able to benefit from an agreed outcome and sustain a coordinated practice. The MCA considers that Vodafone and go mobile are not symmetric, however they are sufficiently similar to sustain a coordinated outcome in the market which would yield them similar benefits.

Pent–up demand

Two respondents also argued that the MCA has no evidence of pent-up demand and is simply speculating that Vodafone and go mobile are reluctant to provide wholesale access. One of the respondents stated that, even if the MCA had proven the existence of pent-up demand, it does not automatically mean that there is joint dominance. The respondent argues that such a conclusion would require an assumption that all competitive markets will always see the entry of MVNOs, which according to the respondent is not the case as evidenced in Hungary and Italy, where the market has been assessed as competitive and no MVNOs are present in the market. The respondents argue that since there is no pent-up demand, there is no point in establishing a coordinated practice to refuse access.

One of the respondents also states that go mobile is not against the granting of wholesale access to MVNOs and *"may in the future agree on a commercial basis to grant access to any operator, provided that the latter affords competitive wholesale prices"*. Another respondent commented on the fact that currently, Vodafone are evaluating an MVNO proposal on a purely commercial basis and therefore, this shows that Vodafone is not against the granting of wholesale access.

The MCA does not agree with the respondents that there is no evidence of pent-up demand and the Authority has received, in confidence, two requests from interested parties seeking MVNO access. These confidential requests can be found in Appendix 6.

The MCA is also aware that Vodafone is currently evaluating an access proposal. Although the MCA does not have any further information in this regard, it views such a development in a positive light. Nevertheless, the MCA is still of the opinion that both operators have an incentive not to grant wholesale access, given the current market structure. Consequently, the MCA needs to ensure that all requests for access are appropriately considered and, where feasible, access is granted.

3.12 Summary of Commission Comments and MCA's replies

In its Comments letter dated 10th August 2006, the EU Commission has requested the MCA to clarify further the existence of pent-up demand in the final decision and also, to clarify how the retaliatory mechanism with respect to first mover advantage would not suffice to render the retaliation mechanism at wholesale level incredible.

The Commission also invited the MCA to monitor closely developments at retail level and also, the impact that a third operator would have on the future sustainability of the collectively dominant position.

The MCA has positively noted the comments of the Commission and it is hereby taking utmost consideration in its final decision. In its notification document, the MCA provided evidence to the Commission regarding two interested parties which require wholesale access. At the time of the notification, one of these interested parties was negotiating with an MNO to obtain wholesale access. However, the MCA has been informed that, following months of negotiations, at the time of the notification, a prospective party was refused access by this MNO for no apparent justifiable reason.

The MCA believes that there is sufficient evidence to consider that there is pent-up demand for wholesale mobile access services and that such demand is not being fulfilled. The MCA will therefore, in accordance with this decision and its powers at law, ensure that any reasonable requests are met.

The MCA has also considered in detail the effectiveness of retaliatory mechanisms for the non-deviating MNO in view of a first mover advantage of a deviating party. The MCA agrees with the Commission that, should the deviating MNO grant access to the MVNO on an exclusive basis, the non-deviating MNO would not be in a position to attract that MVNO to its network. However, there are two other effective retaliatory mechanisms that the non-deviating MNO can use: firstly it can itself attract a new MVNO or secondly, it can decide to retaliate by reducing its retail prices to make the MVNO appear unattractive to its customers.

Given past practices, it is likely that in Malta, a non-deviating MNO would find it more effective and less costly to reduce retail prices to match those offered by the MVNO, in order to make it unattractive for its customers to switch to the MVNO. This move can be applied in a matter of days and is very effective due to the high transparency in the market. Should this strategy not be sufficient, the non-deviating MNO can also consider hosting an MVNO itself. Given the willingness to host the MVNO, it is reasonable to expect that a commercial agreement could be achieved in a short period of time, so as to compete effectively with the other MVNO.

The MCA believes that the assessment presented here clearly shows that Vodafone and go mobile enjoy SMP. Nevertheless, the MCA will continue to monitor closely any developments in both the retail and wholesale markets and consider revising its conclusions accordingly.

3.13 Conclusion and SMP designation

The evidence presented above suggests that Vodafone and go mobile[17] jointly (collectively) hold significant market power in the wholesale access and call origination market.

[17] A reference in this report to Vodafone Malta Ltd and MobIsle Communications Ltd. shall be deemed to include that undertaking and any undertaking which is associated with, or is controlled by, or controls, directly or indirectly, the undertaking in question and which carries out business activities in Malta, where the activities engaged in (either directly or indirectly) are activities falling within the scope of the relevant markets defined above.

The MCA believes that Vodafone and go mobile have engaged in coordinated practice for the past eighteen months. At a wholesale level, coordination is focused on not granting access to alternative providers whilst at the retail level, the focal point is price. Such a strategy is beneficial for both operators since it enables them to:

- maintain a symmetric dominant position in the market;
- continue to make above normal profits in the long-run;
- limit potential competition which would likely lower market prices and reduce revenues; and
- maintain their vertically integrated dominant position in the market.

This conclusion is supported by a number of factors including:

- High and symmetric market shares;
- Highly concentrated market;
- Evidence of lack of price competition - prices have remained stable for the past eighteen months;
- Existence of high entry barriers;
- Homogeneous products and product portfolios;
- Sustained high profitability of Vodafone and go mobile;
- Evidence of parallel behaviour;
- Lack of potential competition;
- Low countervailing buyer power; and
- No offer of wholesale access and call origination services.

Consequently, the MCA concludes that Vodafone Malta Ltd. and MobIsle Communications Ltd. are designated as having jointly (collectively) significant market power in the wholesale access and call origination mobile market.

Chapter 04 – Regulatory Implications

As evidenced above, this market review has defined the market for wholesale access and call origination on mobile networks. Pursuant to the analysis of the characteristics of these markets, the MCA has concluded that Vodafone and go mobile have a joint (collective) position of market power in this market.

In accordance with Regulation 10(4) of the ECNSR, where an operator is designated as having significant market power on a relevant market, either individually or jointly with others, in accordance with Regulation 8 of the same ECNSR, the MCA is obliged to impose on such operator such appropriate specific regulatory obligations referred to in sub regulation (2) of regulation 10 of the ECNSR or to maintain or amend such obligations where they already exist.

In particular, the MCA shall impose, or amend if already imposed, the appropriate of the following obligations:

- Transparency (Regulation 18)
- Non-discrimination (Regulation 19)
- Accounting Separation (Regulation 20)
- Access to, and use of, specific network facilities (Regulation 21)
- Price control and Cost Accounting (Regulation 22)

Any obligations imposed by the MCA upon an operator with significant market power in accordance with the above must:

- be based on the nature of the problem identified,
- be proportionate and justified in the light of the objectives laid down in article 4 of the ECRA; and
- only be imposed following consultation in accordance with article 10 of the ECRA and regulation 6 of the ECNSR.[10]

This section identifies actual and potential competition problems that exist in the wholesale mobile access and call origination market, and proposes adequate remedies to address these problems.

04.1 Current Remedies

Under the previous regulatory framework, the MCA had already identified both mobile network operators as having a dominant position in the provision of public mobile electronic communications systems and services. Vodafone[18] and go mobile[19] had been designated as having a dominant market position in May 2002 and August 2003 respectively.

Consequently, the MCA had imposed on both operators the following remedies:

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[18] Decision on dominance held by Vodafone: http://www.mca.org.mt/infocentre/openarticle.asp?id=100&pref=1

[19] Decision on dominance held by go mobile: http://www.mca.org.mt/infocentre/openarticle.asp?id=335&pref=1

- To ensure that the access or service provided meets certain specified quality of service standards and to keep records and furnish to the MCA details of compliance with those performance standards;
- To interconnect promptly, publish a Reference Interconnection Offer (RIO) and ensure that charges for access/services are cost-orientated, transparent, unbundled and independent of the application to which they are put;
- To operate a cost accounting system which is suitable for implementation of the tariff requirements imposed on dominant operators and the calculation of charges for network elements used to provide interconnection; and
- To be subject to certain regulatory controls over retail tariffs as required by the Regulations.

All of the above obligations are still incumbent on the two mobile network operators with the exception of the last remedy, which has been removed following the adoption of the new regulatory framework in September 2004. Even though the MCA had imposed this remedy on mobile operators, the MCA had refrained from setting or adjusting retail mobile tariffs limiting its regulatory controls to the approval or refusal of changes in such tariffs.

04.2 Competition Problems

The assessment of the competition problems is related to providers' "possible behaviour"[20] within the time horizon of the market analysis. Thus, National Regulatory Authorities do not need to ascertain that a provider has previously abused market power in order to impose specific obligations. Potential competition problems are also relevant.

The MCA has identified two broad categories of existing and potential competition problems that arise due to the significant market power enjoyed jointly by both undertakings, namely Vodafone and go mobile, in the identified mobile access and call origination market.

4.2.1 Vertical Leveraging

Vertical leveraging refers to a situation where a vertically integrated undertaking that enjoys significant market power – individually or jointly with others – in the upstream market, denies access to an essential input factor with the intent of extending its monopoly power to a related downstream market.

Vodafone and go mobile own practically the entire infrastructure in the relevant market, whilst simultaneously providing services also at a retail level. Both operators, collectively, have the opportunity and incentive to foreclose competitors from the downstream market, either by outright refusal to provide access, or by leveraging by means of price or non-price variables.

Refusal to deal/denial of access

An undertaking with single or collective significant market power has the incentive to leverage its market power by denying access to, or refusing to deal with, undertakings operating upstream or downstream and which compete the dominant undertaking's retail operation.

[20] ERG Common Position on the approach to Appropriate Remedies in the New Regulatory Framework

The MCA believes that it is probable that in the absence of ex-ante regulation, undertakings collectively enjoying significant market power, will deny other undertakings access and call origination services. By barring competitors from a necessary input at the wholesale level, an undertaking with significant market power will, to a certain degree, be able to protect its own service provider operation against effective competition.

Following the market analysis, the MCA is of the view that the current lack of mobile access and call origination products is largely attributable to undertakings enjoying market power. Presently, the only wholesale access and call origination products offered by the significant market power operators are self-supplied products. Despite the high profit margins enjoyed by the said SMP operators, alternative operators have not been able, in practice, to avail themselves of access from MNOs.

Non-price issues

Operators with significant market power could potentially discriminate in favour of their own retail arm and against downstream competitors, using non-price factors such as the withholding of information, discrimination in terms of quality, delaying tactics, unjustifiable requirements, strategic design of product and discriminatory use of information.

These actions impact upon the quality of competing operators' offerings, raising their costs and restricting their sales. The conclusion of any access agreement can hinge on both price and non-price aspects and as such, price and non-price issues are equally relevant.

Pricing issues

A vertically integrated undertaking enjoying, individually or collectively with other undertakings, significant market power in the wholesale market, may potentially use price discrimination to raise the costs of competitors at the retail level over those of its own service provider operation. This will raise its rival's costs downstream and induce a margin squeeze.

The MCA believes that Vodafone and go mobile – because they collectively enjoy significant market power – will have a strong incentive to price discriminate should ex ante obligations not be imposed. Each operator could potentially discriminate between competing undertakings and its own retail arm, by charging MVNO's prices that are higher than those it charges itself internally.

Furthermore, potential leveraging by means of pricing could occur if the undertakings collectively enjoying significant market power cross-subsidise between the upstream and downstream markets. Vodafone and go mobile will potentially also have an incentive to incur a loss at the level of the retail market, whilst making higher profits in the wholesale market. This will foreclose potential competitors from the retail market.

4.2.2 Market Dominance

Apart from the problems relating to leveraging market powers, an undertaking individually or collectively enjoying significant market power in the market for mobile access and call origination may also potentially resort to exploitative behaviour through excessive pricing or price discrimination.

The MCA believes that the market structure gives Vodafone and go mobile, as collectively dominant operators, an incentive to overprice especially if ordered to provide access upon request. Apart from securing increased profits, excessive pricing will also serve to increase the costs of a rival operator, thus making it harder for that operator to compete at a retail level.

04.3 Available Remedies

As stated previously, the MCA is obliged by the ECNSR to impose at least one of the remedies outlined in the Regulations on undertakings with significant market power. In particular the following obligations may be imposed:

- Transparency (Regulation 18)
- Non-discrimination (Regulation 19)
- Accounting Separation (Regulation 20)
- Access to, and use of, specific network facilities (Regulation 21)
- Price control and Cost Accounting (Regulation 22)

04.4 Principles applied in the Selection of Remedies

In accordance with regulation 37(2) of the ECNSR, the MCA is obliged to ensure that any remedy imposed on undertakings enjoying significant market power shall be based on the nature of the problem identified and be proportionate and justified in the light of the objectives laid down in Article 4 of the Electronic Communications Regulation Act. Remedies imposed shall operate in such manner as to protect end-user interests, whilst promoting effective competition in the relevant markets.

The MCA is obliged to impose the least burdensome and most effective remedy or remedies to address the potential competition problems identified in this market. However, depending on the competition problem being addressed, an interaction between diverse remedies may be necessary. Thus, the available remedies detailed above are complementary in that they support and reinforce each other.

04.5 Imposition of Remedies

The MCA has established that the relevant market for wholesale mobile access and call origination market is not effectively competitive. As a result of the significant market power enjoyed collectively by Vodafone and go mobile in the said market, the MCA is required at law to impose appropriate remedies.

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 market, and are proportionate and justified in light of the objectives set out in Article 4 of the Electronic Communications (Regulation) Act.

Nonetheless, the MCA will continue to monitor market developments and where appropriate, may issue further directions refining or altering these remedies.

4.5.1 Access

The potential competition problems previously referred to appear to be predominantly structural in nature. This suggests that mandated access to network infrastructure is a justified and proportionate remedy to increase competition at the wholesale level and consequently, also at the retail level.

The MCA believes that the imposition of an access remedy will address the core potential competition problem by encouraging new investment in infrastructure through alternative service providers, whilst also providing an incentive for current operators to compete against each other. The MCA expects that this increase in competition will, in turn, help to realise further consumer benefits by providing more choice, by driving prices down and by providing a platform for more enhanced ranges of services. For these reasons, the MCA considers that denial of access or unreasonable terms and conditions having a similar effect would hinder the emergence of a sustainable competitive market at the retail level and would not be in the end-user's interest.

Therefore, the MCA is imposing an obligation on Vodafone and go mobile to meet reasonable requests for access[21] to, and use of, specific network elements and associated facilities. The said undertakings shall, in addition, be required to provide - to undertakings requesting access, as well as to the MCA – all information that may be necessary for implementing a request for access. This shall include details on available capacity, together with any other necessary technical data.

According to regulation 21 (4) of the ECNSR, when considering whether to impose obligations relating to access and, in particular, when assessing whether such obligations would be proportionate to the objectives set out in the Act, the Authority shall in particular take into account the following factors:

(a) the technical and economic viability of using or installing competing facilities, in the light of the rate of market development, taking into account the nature and type of interconnection and access involved;

(b) the feasibility of providing the access proposed, in relation to the capacity available;

(c) the initial investment by the facility owner, bearing in mind the risks involved in making the investment;

(d) the need to safeguard competition in the long term;

(e) where appropriate, any relevant intellectual property rights; and

(f) the provision of pan-European services.

On the basis of these considerations, in imposing an obligation of access, the MCA has taken into account the need to maintain an appropriate balance between network-based competition and service-based competition. A remedy that increases competition in the short term should not reduce competitors' incentive to invest in alternative inputs which, in turn, may increase competition in the long term. Although service-based competition may be effective in the short term in reducing prices, it does not offer the same long term benefits as network-based competition.

Without prejudice to the generality of the access obligation imposed above, the MCA has examined the following forms of access in further detail so as to establish the scope of the access obligation according to the aforementioned criteria set out in regulation 21 (4) of the ECNSR.

[21] Access is defined as "the making available of facilities and, or services, to another undertaking, under defined conditions, on either an exclusive or non-exclusive basis, for the purpose of providing electronic communications services. It covers inter alia access to network elements and associated facilities, which may involve the connection of equipment, by fixed or non-fixed means (in particular this includes access to the local loop and to facilities and services necessary to provide services over the local loop), access to physical infrastructure including buildings, ducts and masts; access to relevant software systems including operational support systems, access to number translation or systems offering equivalent functionality, access to fixed and mobile networks, in particular for roaming, access to conditional access systems for digital television services; access to virtual network services", The Electronic Communications (Regulation) Act Cap.399, Article 2

4.5.1.1 National Roaming

National roaming refers to a service that, following agreement between two mobile operators, enables a subscriber of one network operator to use another operator's mobile network in areas where the subscriber's own operator does not have coverage. This option will be available to the subscriber without that subscriber having to enter into any ad hoc agreement with the other network operator. National roaming can take place, both between GSM networks and between GSM and UMTS networks.

The MCA is of the view that the introduction of wholesale national roaming access shall encourage competition, both at the wholesale and the retail level. There appear to be clear advantages, especially in the reduction of costs of competitors wishing to offer services in the mobile market. Undoubtedly, geographic coverage is an important consideration to consumers in the selection of a mobile service provider. In default of an obligation to provide national roaming imposed on operators, individually or collectively with others, enjoying significant market power, new entrants shall be compelled to rollout nationwide networks in very short periods, so as to be able to provide full coverage. Although it is both technically and commercially possible to duplicate relevant access and call origination infrastructure, the MCA understands that this is costly to establish and that rollout is only possible over an extended period of time. National roaming thus allows new entrants to be more competitive during the rollout period, whilst also allowing them to offer access and origination wholesale products to third party operators which equal those provided by the incumbents.

The MCA believes that the introduction of national roaming shall promote competition at the retail and wholesale level, as this allows new entrants to provide an equivalent mobile service in terms of mobile network coverage. This will also promote the interests of consumers by increasing the level of competition in the retail and wholesale markets. For this reason, the MCA decides that the scope of the access obligation shall include the provision of national roaming.

4.5.1.2 MVNO Access

As stated above, in examining the scope of the access obligation, the MCA recognises that it is necessary to consider whether the provision of a particular form of access will result in increased infrastructure competition to the benefit of the market and ultimately, to the benefit of consumers. In all cases, the MCA is committed to maintaining an appropriate balance between network-based competition and service-based competition.

With respect to full MVNOs, the MCA is of the view that full MVNO access will both stimulate investment in infrastructure and have a beneficial impact in the short term on competition in the retail market. Primarily, even though the setting up of a full MVNO requires considerable costs, such costs are significantly lower than those necessary for the setting up of an independent mobile network. As in the case with national roaming, the option to avail itself of MVNO access may give a new entrant the opportunity to rollout over an extended period of time. This would allow new entrants to be more competitive during the rollout period. To the potential operator, MVNO access may also be advantageous over national roaming, since MVNO access does not require extensive investments in one's own radio network. Furthermore, contrary to the service provider model, a potential full MVNO operator will have greater flexibility to respond to the market by the setting of its own retail pricings and by its ability to determine its own termination rates and interconnection conditions.

With respect to Service Providers or Extended Service Providers, the MCA understands that such obligations could guarantee a regulatory safety net in the form of an obligation on the dominant operator to provide access to such service providers. This would imply that a service provider could start up with relatively small investments. Nonetheless, the MCA is cognisant also of the risk that reselling services might prove to be attractive to the extent that it will become too good an alternative for infrastructure investment.

Thus, although such a form of access could increase competition in the short term, it risks reducing the incentive to invest in alternative inputs which may increase competition in the long term. As a general rule, service providers do not have sufficient control over infrastructure so as to be able to dictate pricing models and supply conditions and so be able to establish interconnection and termination rates. For this reason, the MCA proposes to place a greater emphasis on MVNO access, rather than service provision access. This approach will benefit consumers because, contrary to service providers, full MVNO operators will enjoy sufficient flexibility so as to be able to compete on both price and service, thus offering reduced pricing options, as well as additional services to consumers. The MCA is thus of the view that it is not necessary to impose access for service providers at this time.

On the basis of the above, the MCA directs that the access obligation shall be applicable to the provision of access for full MVNOs. The MCA believes that the scope of the access obligation shall not, at this stage, extend to service providers that do not qualify as full MVNOs. Any such potential operators will therefore have to acquire access on the basis of commercial negotiations. Nonetheless, the MCA will monitor the market carefully and if necessary, shall consider extending the scope of the access obligation.

4.5.1.3 Carrier Selection and Carrier Pre-Selection

Presently, according to the MCA document entitled "Introducing Carrier Selection & Carrier Pre-Selection in Malta - Report on Consultation and Decision" of May 2004, mobile operators who enjoy a dominant position are not required to enable their subscribers to access carrier selection and/or carrier pre-selection services. At the time, the MCA was of the opinion that during the interim period between the implementation of the new regulatory framework and the completion of the market analyses, the introduction of carrier selection and carrier pre-selection obligations on mobile networks would have been disruptive to the market. Instead, the MCA opted to extend obligations imposed under the old regime into the said interim period and determined that it would revisit the issue during the process of market analysis of the relevant market.

Following the finding of joint dominance, in its national consultation document the MCA proposed to impose an obligation upon Vodafone and go mobile to provide carrier selection and carrier pre-selection in accordance with Regulation 39 of the ECNSR. Following the responses received during the national consultation process, the MCA has now reconsidered the imposition of this obligation as explained in further detail in the Section 4.5.2 below.

4.5.1.4 Co-Location and Facility Sharing

Regulation 21(f) of the ECNSR provides that the scope of the access obligation may require operators to provide co-location or other forms of facility sharing including duct, building or mast sharing.

The MCA is of the view that the imposition of co-location and facility sharing would be beneficial to a new entrant for a number of reasons. Primarily, co-location and facility sharing is expected to reduce costs for a new entrant in the rollout of its network infrastructure, thus limiting entry barriers to the market and promoting sustainable competition. Secondly, it will give the new entrant access to prime sites already utilised by dominant operators. Thirdly, it will allow the new entrant to avoid the cumbersome and normally lengthy process of acquiring the relevant planning permits for the setting up of new facilities, particularly for masts. This again will allow for earlier deployment of the new entrant's mobile network. From an environmental perspective, it is also beneficial that facilities are shared between operators, rather than unnecessarily duplicated.

The MCA, however, has noted that currently, both operators collectively enjoying significant market power have commercially negotiated a number of facility and site sharing arrangements. The MCA assumes that this practice shall be continued even with respect to potential new operators and therefore decides at this stage not to define the scope of the access obligation to include access in the form of co-location and facility sharing. The MCA will keep this position under review and shall consider imposing a remedy of co-location and facility sharing, if necessary, in order to promote competition in the market.

4.5.2 Response to consultation and the MCA replies regarding issues related to the Access obligation

MVNO Access

One respondent argued that the imposition of an access obligation should not be a natural consequence of a finding of joint dominance but should be motivated in the light of the expected degree of competition, the impact on the investment of existing MNOs, country specific characteristics of the Maltese market and any negative effect that this decision might have on the entry of new MNOs.

The MCA does not agree with the respondent that the MCA imposed MVNO access as a natural consequence of the finding of SMP, but rather assessed the potential competition problems in the market and tailored the remedy in a way that targets the objectives of the Authority to foster competition, whilst taking into consideration the characteristics of the market, including the needs of both MNOs. The MCA strongly believes that the imposition of an MVNO remedy would foster competition in the short run and ensure sustainability in the long run by promoting a stable market development.

Another respondent argued that the MCA is not justified to impose MVNO access since there is no evidence of pent-up demand. The respondent argues that rather than imposing a fully fledged access obligation, the MCA should have adopted an approach whereby access obligations are only imposed on a case by case basis in the event that access by an MVNO is denied for unjustified reasons.

The MCA disagrees with the respondent that it was not justified to impose the MVNO access remedy. The MCA analysed in detail the retail and wholesale market and concluded with ample evidence that Vodafone and go mobile collectively enjoy a position of SMP. Furthermore, one of the potential competition problems identified in the wholesale market was the clear incentive not to grant third party access in order for both MNOs to continue to enjoy the current favourable market structure. The MCA is therefore fully justified in imposing the access remedy.

Moreover, the MCA does not agree that it has imposed fully fledged access remedies. As clearly stated in the consultation document, the MCA has tailored the MVNO remedy to suit the particular problems of the Maltese market and not imposed a blanket remedy as alleged by the respondent. In actual fact, the remedy outlined in the consultation document resembles what the respondent is suggesting, i.e. both MNOs have the obligation to negotiate in good faith with any access seeker and only in the case of failed negotiations for a full MVNO will the MCA intervene to ensure that such a refusal was justified. Should the MCA conclude that the refusal to grant access was unjust, the MCA will then, in accordance with its powers at law, ensure that appropriate access is granted in a non-discriminatory, transparent and cost-oriented manner. Consequently, the MCA strongly believes that the MVNO remedy as detailed in the consultation document allows MNOs to negotiate freely with potential new entrants but ensures that genuine requests are appropriately met.

A third respondent argued that the MCA should not restrict the access obligation to cover only the full MVNO model since this would make it more difficult for other types of MVNO to get the required access. The respondent argued that the investment required to set up a full MVNO is significant and therefore hinders the establishment of MVNOs. The respondent argues that other service providers are willing to enter the market and would provide the same services as those provided by a full MVNO. According to the respondent, the MCA should have imposed the access obligation as to include all types of MVNO, similar to what the Irish and Spanish regulators have done upon the finding of SMP in this market.

The MCA does not consider that the access obligation should be extended further than detailed in the consultation document for a number of reasons. Firstly, although the MCA has proposed in its consultative document to impose an access obligation on MNOs with respect to full MVNOs, it also proposed that the SMP operators should consider any other form of requests to acquire access on the basis of commercial negotiations. A further safeguard in this regard to ensure that the hindrance referred to by the respondent does not take place, is the additional requirement the MCA has imposed on the SMP operator to submit to the MCA progress reports on commercial negotiations with respect to access. The MCA believes that the MVNO remedy is fair, justified and ensures entry of MVNOs in the market.

National Roaming

One respondent questioned what are the justifications for imposing national roaming given that a new entrant is likely to deploy a 3G network. Moreover, the respondent states that there were no requests so far for the provision of national roaming services.

The MCA is cognisant that a potential new entrant is likely to deploy a 3G network since, at this stage, it appears that such a business model would be more feasible, although the deployment of a 2G network is not excluded. In any case , the MCA believes that, to facilitate the entry of a third mobile operator and should the need arise, existing MNOs are required to enter national roaming agreements with new entrants until the deployment of a new network is accomplished. Such agreements should be first negotiated commercially and then, if agreement has not been reached, the MCA will intervene to decide on a case by case basis the conditions for access. The MCA considers national roaming a measure that enables new entrants to start providing services whilst deploying their network, thus fostering competition in the short run, whilst ensuring long run infrastructure competition.

Carrier Selection and Carrier Pre-Selection

Two respondents argued that in the case of MVNO access the MCA is stating that its main interest is to promote infrastructure based competition, however by imposing CS and CPS, the MCA is clearly promoting service-based competition to the detriment of the former. According to the respondents, such an obligation would clearly incentivise interested third parties to choose the less costly option of implementing CS and CPS instead of investing in their own infrastructure. Furthermore, according to these respondents, the introduction of CS and CPS would clearly discourage existing mobile network operators from continuing to invest and improve their infrastructure, especially in the light of the imminent deployment of 3G networks.

One of the respondents also questioned the commercial feasibility of such a solution since, according to the respondent there are no mobile CS or CPS providers in any of Member States within the EU. Furthermore, the respondent argues that there are no CS/ CPS service providers over the fixed network after 3 years from its introduction in Malta. The respondent therefore questions the benefits of imposing such an obligation on mobile networks, especially in the light of the full MVNO access requirement.

At the outset, the MCA clarifies that, whilst service-based competition has the potential to contribute to increased benefits for the consumer, infrastructure-based competition is preferable because the objective of the regulatory framework is to achieve a situation where there is competition between a number of different infrastructures. This can occur within or between platforms. Regulation mandating access to existing networks enjoying SMP serves as a measure to ensure that sufficient competition exists.

Furthermore, a service provider has only limited opportunities to provide new and innovative services since it would be dependent on the inputs provided by the host network. On the other hand, a provider backed by its own infrastructure would be sufficiently independent from the network operator to provide new services with the desired terms and conditions at different prices.

In the case of the MCA approach to MVNO models, the MCA is at this stage favouring the full MVNO model over less 'infrastructure-based' models. The MCA believes that by favouring such a model, it would be fostering competition and also ensuring long term infrastructure-based competition.

The MCA is cognisant of the fact that the investment required to offer CS and CPS is less than that of deploying a full MVNO and it can possibly be compared to that of an Enhanced Service Provider. As a result, the MCA acknowledges that the risk exists that third parties who would have, in the absence of such facilities, opted for a full MVNO, could choose to provide only CS or CPS services.

On the other hand, the MCA does not agree with the respondent that, with the introduction of CS and CPS services, existing network operators would not have an incentive to invest in the future. The MCA has clearly never imposed any access obligation based upon unreasonable terms and therefore there is no reason to claim that MNOs would be discouraged from investing in the future.

Furthermore, the absence of fixed CS and CPS providers does not justify in any way the imposition or not of an obligation on mobile operators. Mobile and fixed operators face different market characteristics and conditions and therefore it cannot be concluded *a priori* that, since there are no CS and CPS providers over the fixed network, it will be the same situation with mobile networks.

However, in line with the need to foster infrastructure based competition, the MCA is at this point reconsidering the imposition of CS and CPS obligation on mobile operators. The MCA therefore proposes that until further notice, mobile operators have the obligation to negotiate in good faith any requests for access from potential CS and CPS providers.

Nevertheless, the MCA reserves the right to revise this decision should the need arise and where the MCA considers that there are sufficient justifications for doing so.

Summary of the access obligation

The MCA is imposing an access obligation upon operators enjoying significant market power in the mobile access and call origination market. Taking full consideration of comments received, the MCA directs Vodafone and go mobile to negotiate, in good faith and at reasonable conditions, any request for access from interested third parties. Should the parties fail to achieve a commercial agreement, the MCA shall then intervene according to its powers at law to ensure that the obligations for providing national roaming services and access to full MVNOs are met appropriately. Appendix 7 provides further detail on the implementation of the full MVNO access remedies. The MCA reserves the right to issue further directives as to the manner in which mobile network operators are to offer MVNO access.

As part of the access obligation and in order to ensure that this obligation is duly met, the MCA is also directing operators enjoying significant market power to be obliged to submit to the MCA progress reports on commercial negotiations with respect to any kind of access as requested by the MCA. Furthermore, such operators shall also forward to the Authority any access agreement that may have been concluded, as well as any amendments to such agreements within not more than one week from the date on which the conclusion or amendment shall have been effected.

4.5.3 Non-discrimination

A potential competition problem highlighted above is that an undertaking that enjoys, individually or collectively, a position of significant market power in a market may have an incentive to provide wholesale services on terms and conditions that discriminate in favour of a particular undertaking, in such manner as to have a detrimental effect on competition.

In this light, the MCA is of the view that the access obligation delineated above needs to be supplemented with an obligation of non-discrimination in the provision of access. The MCA believes that such a non-discrimination obligation shall tackle price parameters as well as target non-price parameters, such as the withholding of information, delaying tactics, undue requirements, low or discriminatory quality, strategic design of products, and discriminatory use of information, which would disadvantage competing providers and, in turn, consumers.

Having been designated as operators collectively enjoying a position of significant market power, in accordance with regulation 19 of the ECNSR, the MCA is imposing upon Vodafone and go mobile an obligation of non-discrimination. The MCA is of the view that the non-discrimination obligation does not, in itself, inhibit undertakings from differentiating in their commercial dealings, including offering different terms and conditions to different access seekers, when this is based on objectively justifiable reasons. Thus, the obligation will ensure that undertakings with significant market power are not able to unjustifiably discriminate between themselves and other operators so as to gain unfair competitive advantage.

4.5.4 Transparency

Regulation 18 of the ECNSR authorises the Authority to impose transparency obligations on undertakings enjoying significant market power in relation to interconnection and, or access. This obligation would require operators to make available to the MCA and interested third parties during negotiations specified information, such as accounting information, technical specifications, network characteristics, terms and conditions for supply and use, and prices.

The MCA believes it is proportionate and justified to supplement the access obligation also by imposing a transparency obligation on undertakings enjoying significant market power in the mobile access and call origination market. The imposition of this remedy guarantees that access seekers and third party providers have access to all the necessary information for the provision of access.

Moreover, in particular because of the non-discrimination remedy, the MCA requires Vodafone and go mobile to make available to the Authority, upon request, 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. The reference offer shall give a description of the relevant offerings broken down into components according to market needs and shall provide the associated terms and conditions, including prices. In such instances, the Authority will be able to impose changes to reference offers to give effect to the obligations imposed according to this Decision and under the Act. The Authority may also specify the precise information to be made available, the level of detail required and the manner of publication.

The MCA is imposing the transparency obligation on Vodafone and go mobile as specified under regulation 18 of the ECNSR. The MCA reserves the right to specify the precise information to be made available, the level of detail required and the manner of publication of this information. The MCA believes that the imposition of transparency obligation ensures that a) services are not provided on a discriminatory basis, b) helps avoid any possible disputes, and c) accelerate negotiations between existing and potential operators. This obligation makes the access requirements more effective and makes it easier for the Authority to ascertain whether non-discrimination obligations are being met. The MCA believes that the requirements outlined are not excessively burdensome and will promote sustainable competition in the market.

4.5.5 Price Control and Cost Accounting and Accounting Separation

Regulation 22 of the Electronic Communications Networks and Services (General) Regulations authorises the imposition of obligations 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.

The predominant potential competition problem of denial to access may be sustained by the constructive refusal to provide access on the part of a mobile network operator enjoying significant market power by adopting anticompetitive pricing strategies including price discrimination, cross-subsidisation and excessive pricing. In principle, it would be preferable if undertakings would negotiate on a commercial basis between themselves the terms and conditions, including pricing, of access. However, the significant market power found to be held jointly by Vodafone and go mobile, may create an incentive on the part of the dominant operators to prolong, even indefinitely, the conclusion of an access agreement by demanding excessive pricing. Similar behaviour would be detrimental to the market and to sustainable competition.

The MCA has evaluated whether other remedies imposed above will be sufficient to counteract this potential competition problem. The MCA's view is however that other remedies, by themselves, are insufficient to prevent against competition problems where pricing is the principal issue.

For this reason, the MCA believes that direct regulatory action in the form of a cost orientation obligation is required, so as to ensure the timely conclusion of access agreements. A cost orientation obligation ensures that prices are tied to cost information obtained from cost models or separated accounts. The MCA directs that such cost orientation shall be achieved on the basis of Cost Accounting Systems and Accounting Separation.

In this light, the MCA is to require a Cost Accounting System in order to calculate efficient wholesale pricing on the basis of underlying costs from both SMP operators. In all cases, the MCA shall endeavour to ensure that a sufficient return on capital is allowed so as to encourage innovation in the network area. In the past, the MCA has issued a number of directives highlighting the manner in which cost accounting systems are to be implemented[22]. These decisions and guidelines shall apply also to the provision of wholesale access products by Vodafone and go mobile insofar as they do not prejudice this decision and any other provision at law.

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[22] 'Implementation of Cost Based Accounting Systems for the Telecommunications Sector - Report on Consultation and Decision', July 2002; 'Current Cost Accounting Methodologies for the Electronic Communications Sector - Consultative Paper on Proposed Decision', July 2005; 'Implementation of Cost Based Accounting Systems and Accounting Separation – Mobisle Communications Ltd.- Decision Notice', April 2004

The MCA is also requiring dominant operators to provide for Accounting Separation. This will aid the MCA in the monitoring of compliance with the other obligations imposed as a result of this decision, particularly that of non-discrimination. In this context, the MCA has also in the past issued a number of decisions and guidelines specifying the manner in which accounting separation is to be implemented[23]. Without prejudice to this decision and to the provisions at law, these directives shall also apply in relation to access and call origination products offered by undertakings with significant market power.

The MCA is thus imposing obligations of price control and cost accounting that shall be immediately effective from the date of publication of this decision. The MCA shall grant a reasonable time period for the operators to implement such obligation. In all cases, the MCA is allowing operators to primarily negotiate the price and other terms and conditions of wholesale access to mobile networks commercially in good faith. Should commercial negotiations fail, the MCA shall intervene as necessary to guarantee acceptable terms and cost-oriented pricing.

4.5.6 Response to consultation and the MCA replies regarding issues related to the transparency, non-discrimination, price control and cost accounting, and accounting separation obligations

Two respondents argued that since the imposition of the access remedy is unnecessary, so are the associated remedies. The respondents argue that any requests for access should be negotiated commercially, without the need for regulation. Furthermore, one respondent argues that the price control obligation under the form of cost-orientation risks discouraging new investment. The respondent argues that a potential new entrant may forgo the associated risk of investing in its own infrastructure and conveniently enter the market as an MVNO offering only basic services (voice and SMS), rather than a full range of valued added services.

The MCA believes that the imposition of the access remedy is both necessary and justified in the light of the collective SMP position enjoyed by existing MNOs. The MCA also provided sufficient justification as to why it considers that the associated remedies of transparency, non-discrimination, price control and cost accounting and accounting separation are required.

The MCA does not agree with the respondent that, if access is granted at cost-oriented levels, there is a risk that a potential new entrant may decide not to deploy its own network and rely on MVNO access from existing network operators. Firstly, the obligation of cost-orientation kicks in only following failed commercial negotiations and only in the case of a request for access of a full MVNO. As stated earlier in the document, a full MVNO model requires the new entrant to invest in its own infrastructure and therefore, similar to a network operator, faces a significant element of risk. Moreover, as stated by the respondent earlier on, a potential new mobile network operator would likely invest in a 3G network, which would enable it to provide a full range of value added services, including high speed data services. A new entrant opting for a MVNO model would not be in a position to offer a full range of services and compete with Vodafone and go mobile with their 3G infrastructure.

The MCA therefore believes that the associated remedies of transparency, non-discrimination, price control and cost accounting and accounting separation are required in

[23] 'Accounting Separation and Publication of Financial Information for Telecommunications Operators Report on Consultation and Decision', October 2002; 'Implementation of Cost Based Accounting Systems and Accounting Separation – Mobisle Communications Ltd.- Decision Notice', April 2004

order to ensure a smooth implementation of the access obligation and also ensure sustainable long term investment.

04.6 Conclusion on the imposition of remedies

The MCA is imposing the following obligations on Vodafone and go mobile to be applicable from the date of publication of this final Decision:

1. Access obligation;
2. Non-discrimination obligation;
3. Transparency obligation;
4. Price Control and Cost-Accounting obligations; and
5. Accounting Separation obligation.

The MCA believes that these remedies are based on the nature of the competition problems it has identified in the relevant market and are proportionate and justified in light of the objectives set out in Article 4 of the Electronic Communications (Regulation) Act.

04.7 Monitoring Market Developments

The MCA considers that it would be sensible to keep a reasonably close watch on market developments following this review. This would ensure that imposed obligations on the SMP operator identified earlier on would be justified throughout the duration of this market review. If the MCA deems it necessary or appropriate, a new market review would be undertaken at any time in response to changing market conditions.

Appendix 1

Mobile Network Operator	Post-paid Plan	Monthly Cost	Inclusive with Monthly Cost
Vodafone	Lite	Lm9	35 minutes
	Active	Lm19	140 minutes
	Extra	Lm32	275 minutes
	Lite Text	LM9	500 text messages
	Business Plan	Lm10.26	35 minutes
Go Mobile	Business Go	Lm19	140 minutes
	Go Together	Lm7	30 minutes
	On the Go	Lm10	30 minutes

Mobile Network Operator	Pre-paid Plan	Applicable rates
Vodafone	**e-one**	Mobile to Mobile (Peak) - 20c Mobile to Mobile (Off-Peak) - 11c5 Mobile to Fixed (Peak) - 30c Mobile to Fixed (Off-Peak) - 11c5
	e-two	All Calls (Peak) - 22c All Calls (Off-Peak) - 12c
	e-three	All Calls - 18c
	Good-to-Talk	All Calls (Peak) – 22c All Calls (Off-Peak) – 12c On-net (off-Peak) – 12c (per hour)
Go Mobile **Go Mobile**	**Ready to Go**	All Calls: 1st Minute (Peak) - 20c All Calls: 2nd Minute Onwards (Peak) - 12c All Calls (Off -Peak) - 12c
	Ready to Go Club	All Calls (Peak) - 20c All Calls (Off-Peak) - 12c
	Ready to Go Text	All Calls - 20c
	Ready to Talk	All Calls – 14c

The tariff plans of Vodafone and go mobile are extracted from their respective websites. The monthly cost for post-paid plans does not include any discounts given to customers opting for direct debit payment. The inclusive free minutes or text messages are applicable to local calls only and are not rolled over from one month to another. These terms and conditions are applicable to post-paid customers on both mobile networks. The *Ready to Talk* and *Good to Talk* pre-paid plans were published following the publication of the national consultation document.

Appendix 2

	1 min peak[1] call (weekdays)		3 min peak call (weekdays)	
	Mobile - Fixed	Mobile- Mobile	Mobile - Fixed	Mobile- Mobile
Vodafone				
Pre-paid Scheme				
Eone	30c	20c	90c	60c
Etwo	22c	22c	66c	66c
Ethree	18c	18c	54c	54c
Family & Friends[2]	12c	12c	36c	36c
Good to talk[6]	22c	22c	66c	66c
Post-paid Scheme				
Lite (calls in bundle)	22c85	22c85	68c55	68c55
Lite (outside bundle)	14c	14c	42c	42c
Active(calls in Bundle)	12c14	12c14	36c42	36c42
Active(outside bundle)	12c	12c	36c	36c
extra (calls in Bundle)	10c54	10c54	31c62	31c62
extra (outside bundle)	10c	10c	30c	30c
Business Plan (calls in bundle)	29c3	29c3	87c9	87c9
Business Plan (outside bundle)	11c8	11c8	32c4	32c4
Lite text option[3]	18c	18c	54c	54c
go mobile				
Pre-paid Scheme				
Ready to go	20c	20c	44c	44c
Ready to go Club[4]	12c	12c	36c	36c
Ready to go Club (other numbers)	20c	20c	60c	60c
Ready to go text[5]	20c	20c	60c	60c
Ready to talk (all calls) (on-net)[6]	14c	14c 8c	42c	42c 24c
Post-paid Scheme				
On the go (calls in bundle)	26c67	26c67	80c01	80c01
On the go (outside bundle)	11c5	11c5	34c5	34c5
Go together (calls in bundle)	20c	20c	60c	60c
Go together (outside bundle)	10c	10c	30c	30c
Business go (calls in bundle)	12c14	12c14	36c42	36c42
Business go (outside bundle)	10c	10c	30c	30c

Sources: Maltacom, go mobile, Vodafone - as at June 06

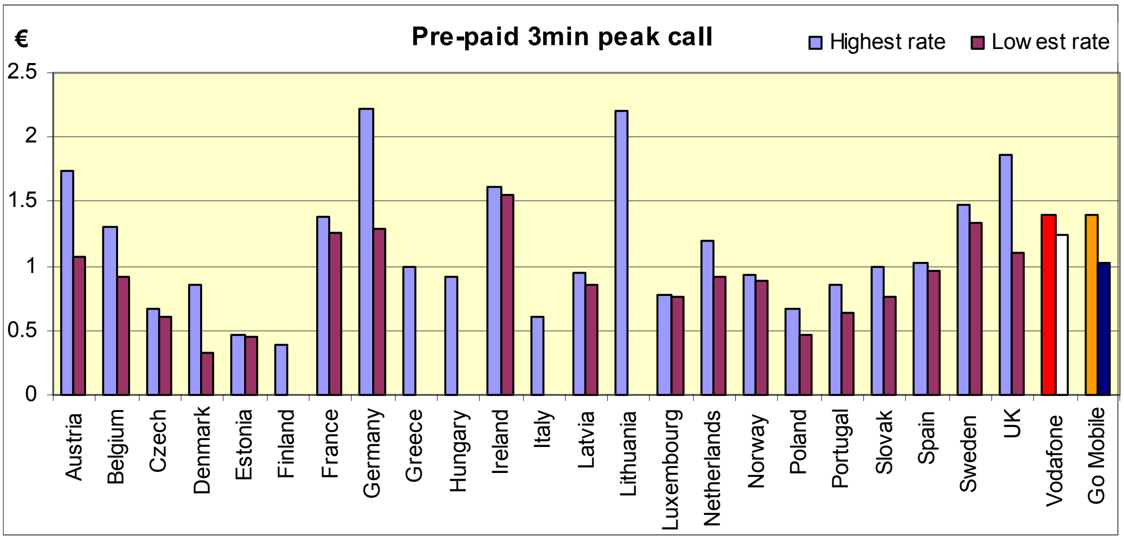
All charges are inclusive of the applicable VAT rates.

'Calls in bundle' for post-paid schemes has been estimated as the monthly rate divided by the free minutes in bundle.

1. Peak hours for mobile operators are from 8.00am – 8.00pm.
2. Family & Friends scheme includes only 3 numbers (fixed and/or mobile), which the customer can choose to call at reduced rate.
3. Lite text option carries an Lm8 monthly rental and includes 500 SMS. SMS outside bundle cost 2c each.
4. Ready to go scheme includes only 3 numbers (fixed and/or mobile), which the customer can choose to call at reduced rate.
5. Ready to go text users can purchase bundles of 500 SMS at Lm5 (1c each). SMS outside bundle cost 2c each.
6. The Ready to talk and Good to talk tariff plans have been introduced in March '06 following the publication of the national consultation document of this market review.

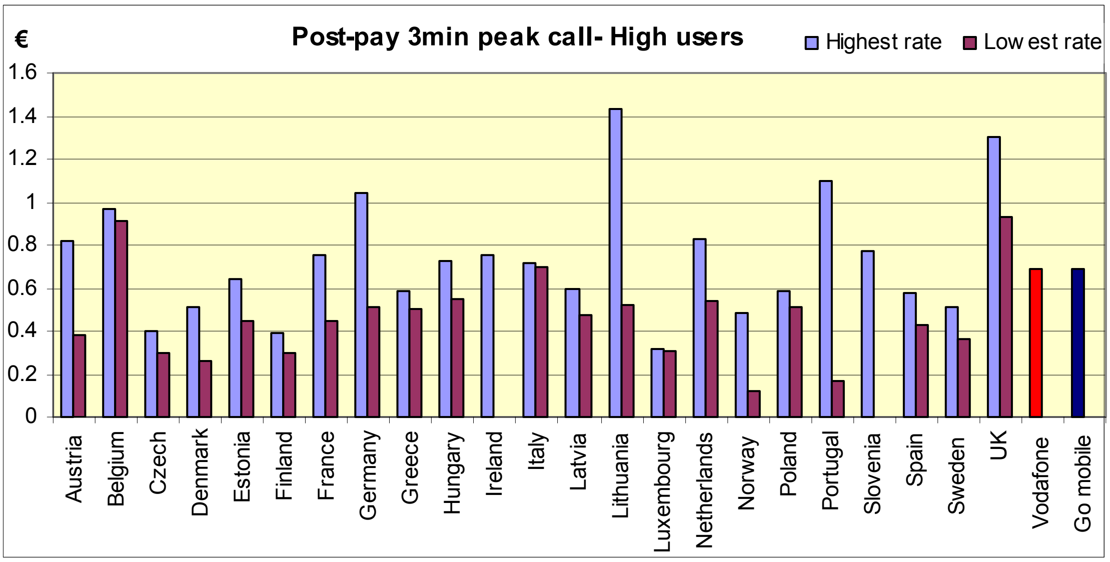
Appendix 3

The following graph depicts the highest and lowest call rate for a 3-minute peak call for a pre-paid subscriber.

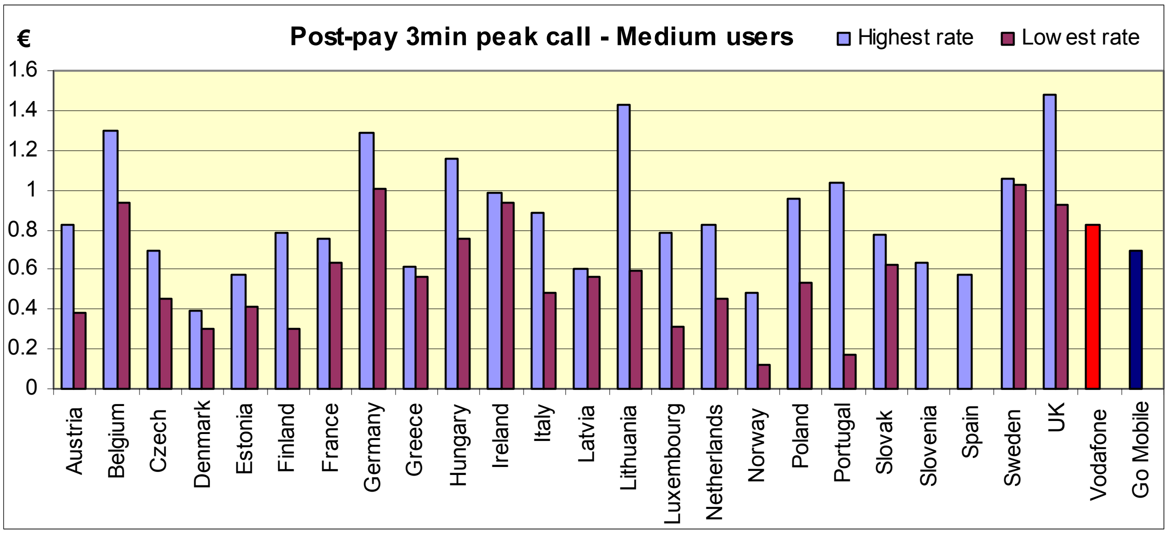


Source: Tariffica, Vodafone and go mobile websites

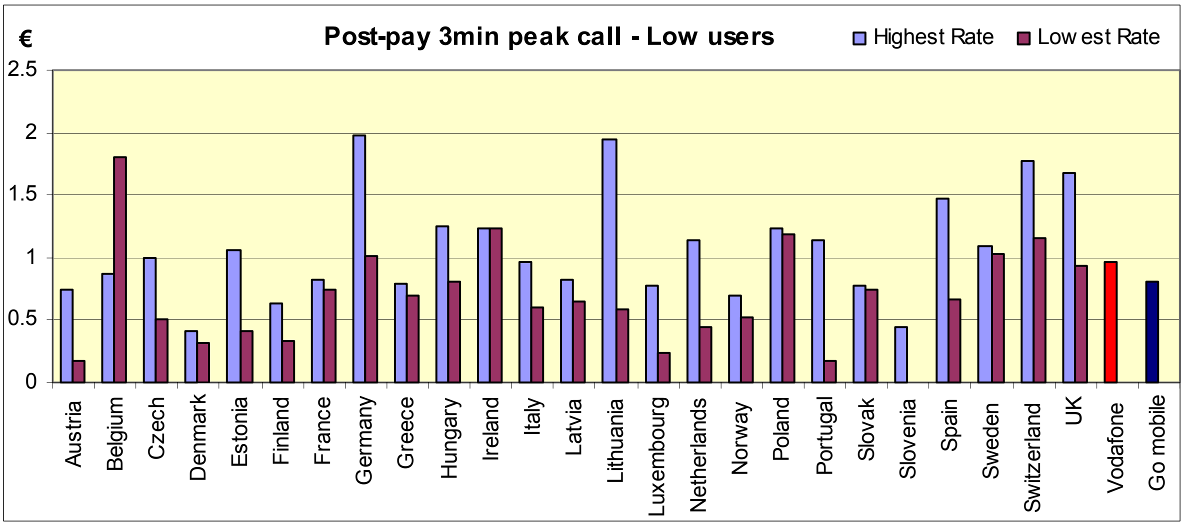
The illustrations below portray the cost of a 3-minute peak call for high, medium and low post-paid users. Each illustrations shows the highest and lowest rate per country (where available).



Source: Tariffica, Vodafone and go mobile websites

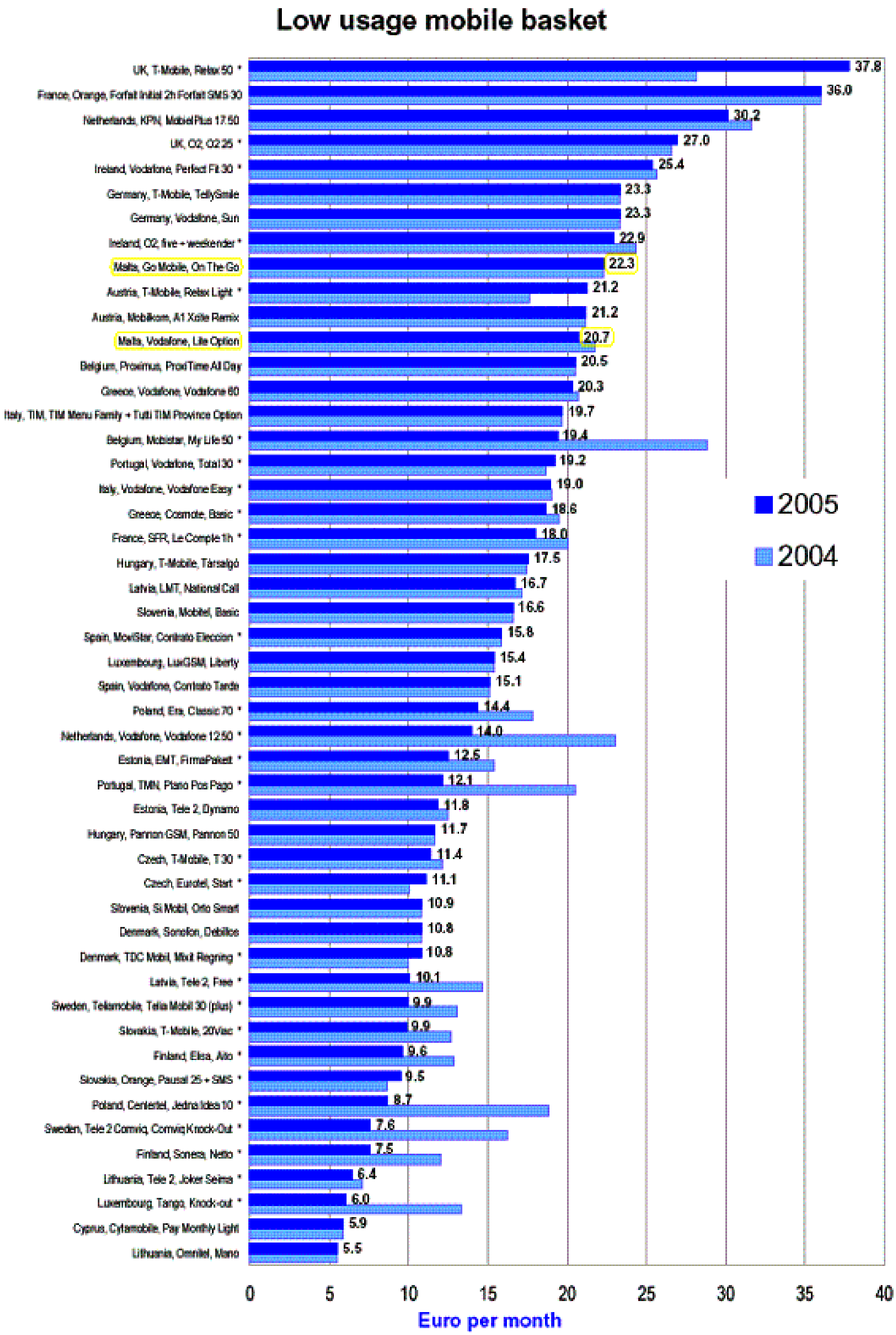


Source: Tariffica, Vodafone and go mobile websites

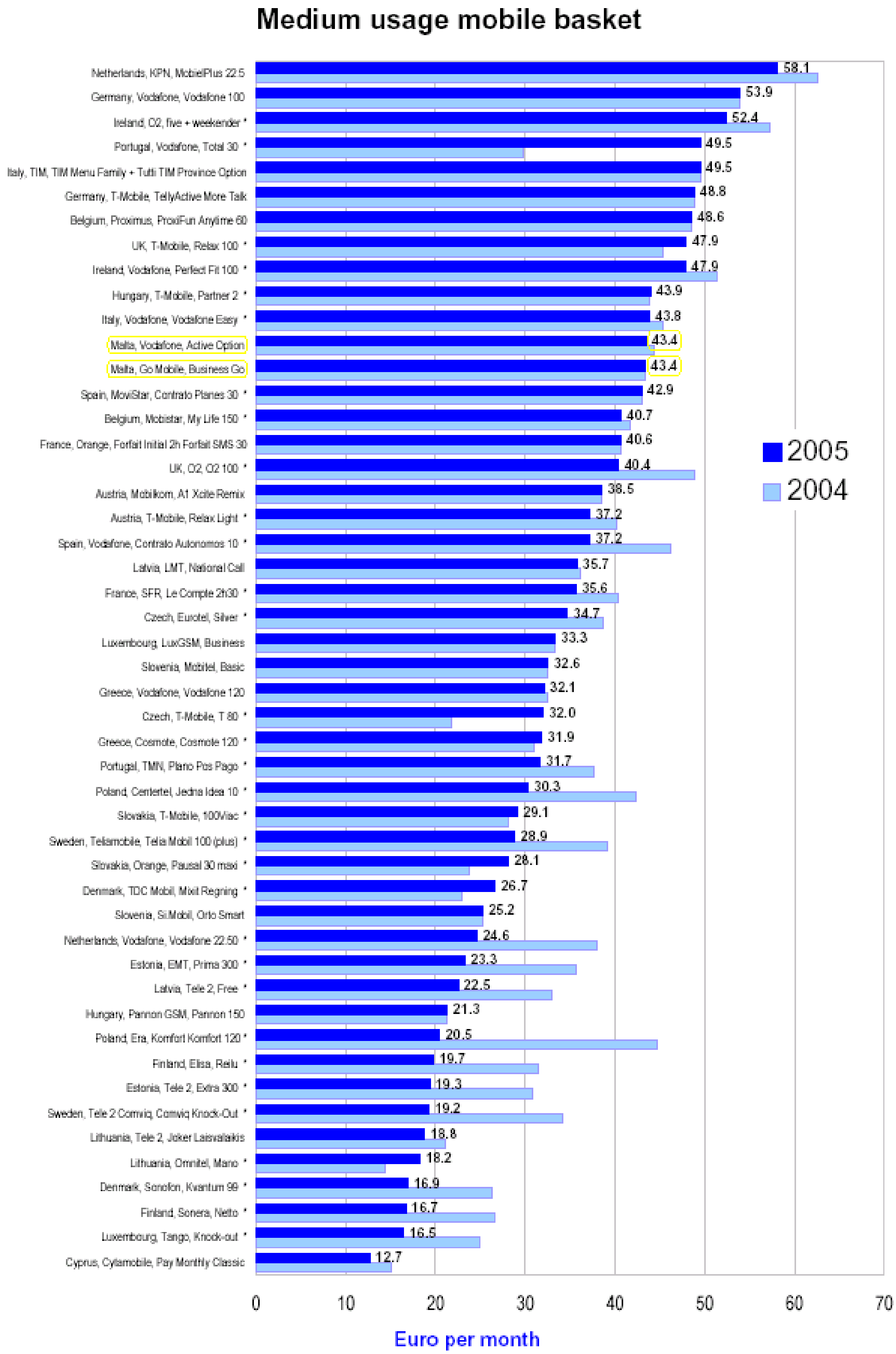


Source: Tariffica, Vodafone and go mobile websites

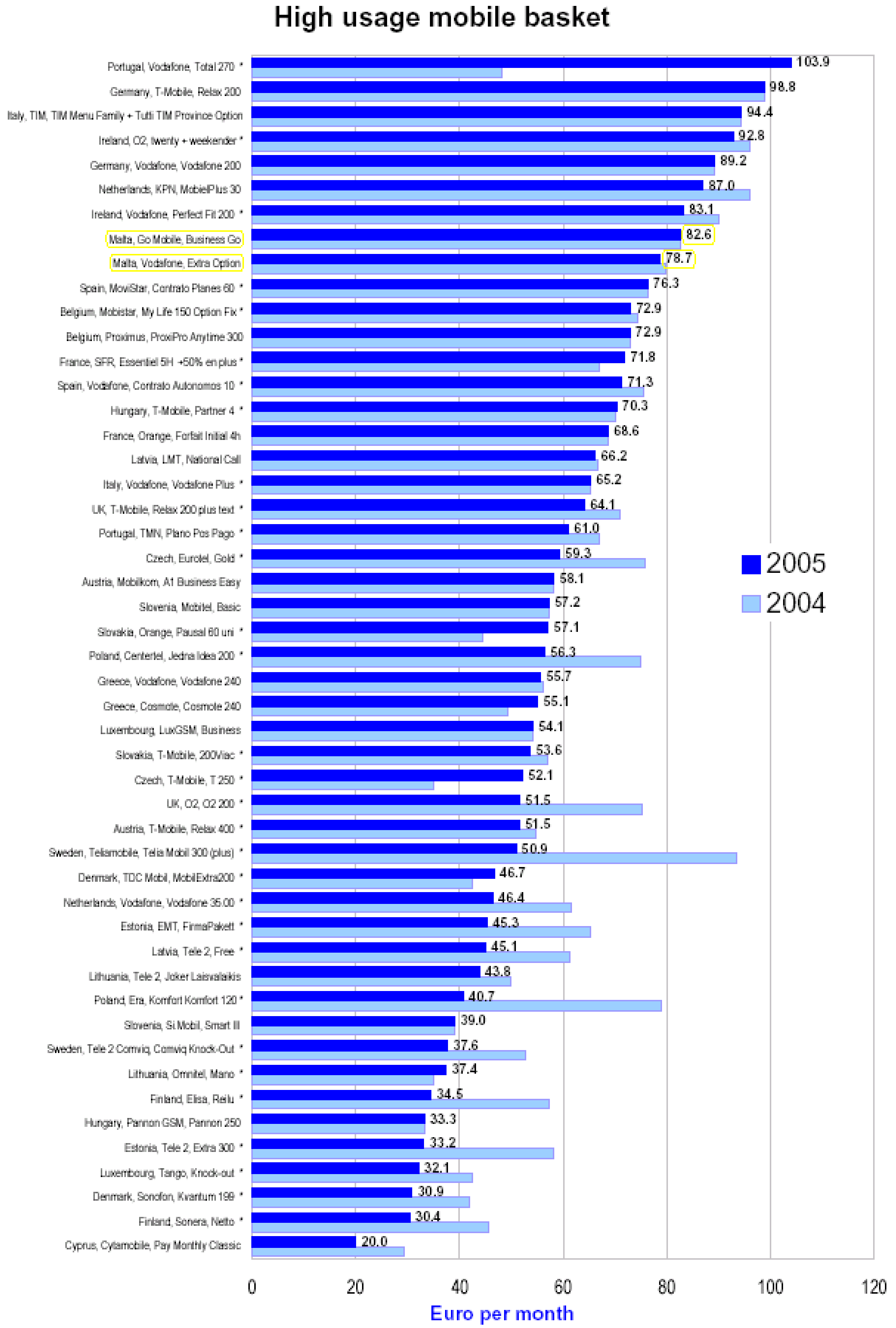
Appendix 4



Source: European Electronic Communications Regulations and Markets 2005 (11th Report) Annex 2



Source: European Electronic Communications Regulations and Markets 2005 (11th Report) Annex 2



Source: European Electronic Communications Regulations and Markets 2005 (11th Report) Annex 2

Appendix 5

"CONFIDENTIAL Appendix 5 – Financial Performance "

The contents of this Appendix are not being published, in accordance with the MCA's confidentiality guidelines and procedures.

Appendix 6

"CONFIDENTIAL Appendix 6 – Requests for wholesale mobile access and origination"

The contents of this Appendix are not being published, in accordance with the MCA's confidentiality guidelines and procedures.

Appendix 7

Minimum Requirements

As outlined in the market definition process there are a number of permutations applicable to MVNO access:

	Service Provider (SP)[1)]	Enhanced Service Provider (ESP)[1)]	Mobile Virtual Network Operator[1)]
Access Network	• No radio access network	• No radio access network	• No radio access network
SIM, NDC	• No own SIM card • No own NDC	• Possible own SIM • Possible own NDC	• Issues SIM-Cards • Own NDCs
Network Infrastructure	• No switching network • No HLR/AuC • Possibly own VAS platforms • Possibly own Customer Care and Billing (CCB)	• No switching network • Not full control of HLR/AuC • Possibly own VAS platforms • Own Customer Care and Billing (CCB) system	• Own switching network • Full control of HLR/AuC • Own VAS platforms • Own Customer Care and Billing (CCB) system
Pricing	• Own pricing, negotiation based	• Own pricing, negotiation based	• Own pricing
Branding	• Bundled branding ("powerd by") • Possible own billing	• Independent branding, billing • High level of customer ownership	• Fully independent branding • Full customer ownership
Business Model	• Revenues structure – (Value Added) Reseller – Own services • Costs structure – Sales & Marketing – Distribution – Possibly investment in VAS platforms and CCB	• Revenues structure – (Value Added) Reseller – Own services • Costs structure – Sales & Marketing – Distribution – Possibly investment in SIM, HLR/AuC, VAS platforms and CCB	• Revenues structure – Air time, data, etc. – services • Cost structure – Sales & Marketing – Distribution – Radio access lease – Licence, NDC, etc. – Rest of network infrastructure

Source: Arthur D. Little Int., Inc.

In the light of the remedies imposed through this decision and in order to provide clarity to the market, a further breakdown of the specific requirements necessary to qualify as a full MVNO are provided in this appendix.

In particular, as a minimum, a full MVNO must have full control, independent from the MNO, of the following network elements:

- Mobile Switching Centre
- Home Location Register
- Authentication center (AUC)
- Equipment identity register (EIR)
- Billing Systems
- Operations and Support Systems
- Any other equipment required to be in line with the applicable legal obligations, for example, Lawful Interception functionality, Number Portability compliance.

Moreover, depending on the business plan of the MVNO in question, the following network elements might be required:

- Intelligent Network/Service Control Point

- Short Messaging Switching Centre (SMSC)
- Visitor Location Register
- Other Value Added Systems

A full MVNO must also be in a position to issue its own SIM cards and own a Network Destination Code (NDC), assigned by the Malta Communications Authority. The NDC together with the Country Code (+356) forms part of the MSISDN (the mobile phone number) and uniquely identifies the mobile network in a particular country. For example:

+356	89	444444
Country Code	Network Destination Code	Subscriber Number

Finally, a full MVNO must be in possession of the applicable authorisations in line with the local regulatory framework to operate as an electronic communications provider.

Timeframes

In terms of discussions involved and the subsequent implementation, the envisaged timeframes are as follows:

	Maximum Timeframes
Discussions between MNO and the prospective MVNO; signing of final agreement covering all technical and commercial issues	2 months
Completion of technical implementation for MVNO access	4 months