Commission for
Communications Regulation

Response to Consultation

Market Analysis – Wholesale International Roaming

(Response to Consultation Document 06/20)

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Contents

1 Executive Summary

1.1 On 13th April 2006, ComReg issued a national consultation on its review of the Irish market for wholesale international roaming services on public mobile networks, identified by the European Commission[1] (ComReg Document 06/20). ComReg received submissions from the four respondents listed below by the close of the consultation period.

1.2 The four responses to the consultation were provided by:

- O2
- Vodafone
- Meteor
- Mr. Daniel Sokolov

1.3 ComReg thanks all respondents for their submissions. Having considered the views of all respondents, ComReg sets out in this document its conclusions regarding the market analysis process.

Wholesale International Roaming Services

1.4 International roaming is the ability of a customer to make and receive voice calls, send and receive text messages using SMS (Short Message Service), or access other services when travelling outside the geographical coverage of their "home network" by means of using the infrastructure of a "visited network". The market for wholesale international roaming services relates to calls provided by Irish mobile operators to foreign mobile operators to allow them to offer retail roaming services to their customers visiting Ireland. In the context of the Irish wholesale international roaming market, the 'visited network' refers to Irish mobile network operators, that is, the network selling international roaming services. The 'home network' refers to the foreign network to which the foreign customer roaming in Ireland subscribes, that is, the network purchasing wholesale international roaming services.

1.5 The relevant wholesale markets for retail roaming services used by Irish mobile subscribers when travelling abroad (called outbound roaming) falls within the jurisdiction of each destination country and outside the Irish wholesale market. Instead, the wholesale international roaming market required to be assessed by ComReg relates to the roaming services provided by Irish mobile network operators (MNOs) to foreign MNOs, allowing foreign inbound roamers use their mobile phones while travelling in Ireland (called inbound roaming). As such, any conclusions relating to this market review will not influence the roaming experience enjoyed by Irish subscribers when travelling abroad. Instead, the corresponding market reviews carried out by National Regulatory Authorities (NRAs) in other jurisdictions will impact on this experience. However, ComReg is actively promoting tariff transparency on retail international roaming services in order to

[1] Market 17 of the Relevant Markets Recommendation, 11 Feb 2003 C(2003)497.

benefit Irish subscribers travelling abroad. The publication by ComReg of retail international roaming prices is aimed at informing Irish consumers about relative roaming rates charged by Irish networks in major travel destinations, to bring pressure to bear on pricing at the retail level.[2] This move is part of a wider initiative promoted by the European Regulators Group (ERG).

1.6 In early 2006, Commissioner Vivienne Reding of the European Commission (EC) stated that the level of international roaming rates across the EU is of concern to the Commission. On 20th February 2006, the EC launched a 'call for comment' on a form of regulation that could be undertaken for this market. On 3rd April the Commission launched the second phase public consultation on a proposed form of retail regulation and responses were received on 12th May. On 12th July the European Commission then tabled an EU regulation aimed at cutting the cost of using mobile phones abroad by up to 70%[3].

1.7 The Commission wants to ensure that prices paid by consumers for roaming services within the EU are not unjustifiably higher than those they pay for calling within their own country (the European Home Market Approach). This approach would work by capping, first of all, the wholesale charges that mobile phone operators charge each other for carrying calls from foreign networks. The approach also proposes a price cap at retail level. Operators will be allowed to add to their wholesale cost a retail mark-up of up to 30%, which is the margin that operators can normally make with domestic phone calls. This retail mark-up would apply to calls made and received while roaming. For calls received, this retail cap would become effective on the day of the entry into force of the new EU regulation.

1.8 For calls made, the retail cap would take effect automatically after a final transition phase of 6 months. Finally, the Commission proposes to enhance the transparency of roaming charges for consumers. MNOs will be required to provide customers with full information on applicable roaming charges when subscriptions are taken out and to update consumers regularly about these charges. NRAs will also be tasked to monitor closely the development of roaming charges for SMS and multi-media message services (MMS).

1.9 Provided that the European Parliament and the EU Council of Ministers support the Commission's proposal, the new EU regulation – which is a legal instrument directly applicable in all EU Member States as soon as it is published in the Official Journal of the EU – could come into effect by summer 2007. ComReg supports the Commission initiatives to address high retail and wholesale international roaming rates. For the avoidance of doubt, this market review focuses on the wholesale market in Ireland.

Conclusions on the Irish market

1.10 Having considered the views of all respondents, ComReg has defined the market as having the following characteristics:

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[2] http://www.askcomreg.ie/mobile/International_Mobile_Roaming.153.LE.asp

[3] http://europa.eu.int/rapid/pressReleasesAction.do?reference=IP/06/978&format=HTML&aged=0&language=EN&guiLanguage=en

- The relevant market is a multi-network market;
- Termination of international roaming services (i.e. receiving calls or SMS while roaming in Ireland) is not part of this market and should, instead, be treated as regular (inter)national wholesale termination as the services are identical;
- Voice and SMS, but not data services, are part of the same market;
- Roaming services carried over 2G and 3G networks are in the same market;
- Other fixed and mobile telephony services are not in the same market as international roaming services;
- Although pre-paid roaming has only been introduced in recent years, wholesale international roaming services enabling the provision of post-paid and pre-paid roaming are in the same market, and
- The relevant geographic scope of the market is Ireland.

1.11 Having analysed the competitive characteristics of the above market, as defined, ComReg concludes that no undertaking enjoys a position of single dominance. The existence of countervailing buyer power is illustrated through not only the ability of foreign MNOs to direct traffic away in response to a price increase, but also through the ability to induce discounting on the Inter Operator Tariffs charged by Irish MNOs. Although there is no single dominance, the market does, however, appear to have some characteristics which might be conducive to coordinated effects. However, on balance ComReg considers that Vodafone and O2, together, do not enjoy a position of collective dominance, when assessed against the three criteria set out by the CFI in *Airtours* [4], and will not do so within the timeframe of the review. Unlike the Irish retail mobile market, where discounts are mainly offered to corporate customers only, in the wholesale international roaming market Irish MNOs appear more willing to offer confidential bespoke discounts to any foreign MNO once certain criteria are met. As such, there is much less transparency of pricing in the Irish wholesale roaming market than in the Irish retail mobile market. Such a lack of transparency also has the effect of undermining any retaliatory mechanism inherent in the market. In addition, Meteor appears to have doubled their share of wholesale voice roaming traffic within a year through IOT discounting, suggesting that there exists fringe competition in the market. Thus, none of the three criteria set out in *Airtours* has been met.

1.12 The Competition Authority of Ireland (see Annex C) supports ComReg's conclusions with regards to market definition and analysis. The Authority believes that ComReg has defined this wholesale market in accordance with competition law and taken utmost account of the SMP Guidelines issued by the EU Commission in accordance with Regulation 27.1 of the Framework Regulations. The Competition Authority believes that it is reasonable to accept that the market identified by ComReg is appropriate, at least for the period under review. The Competition Authority also states that it has no reason, at this time, to disagree with ComReg's conclusions with regards to market analysis.

1.13 However, as discussed in the consultation document, ComReg is aware that large variations in retail pricing, within and across countries, appear to persist for mobile

[4] T-342/99 *Airtours v. Commission* [2002].

roamers travelling to Ireland. In light of this and pursuant to its obligations under the Framework Regulations, ComReg intends to continue to monitor developments at both the retail and wholesale level, including the effect of international Groups and Alliances on the level of competition, in order to ensure that market power could not be exercised to the detriment of the internal market.

2 Introduction

Objectives under the Communications (Regulation) Act 2002

2.1 Part 2 Section 12 of the Communications (Regulation) Act 2002 outlines the objectives of ComReg in exercising its functions. In relation to the provision of electronic communications networks, electronic communications services and associated facilities these objectives are to:

(i) promote competition;

(ii) contribute to the development of the internal market; and

(iii) promote the interests of users within the European Union.

2.2 This review is in line with the objectives set out in the Communications Regulation Act 2002, in particular, as ComReg seeks to promote competition and ensure that end-users derive the maximum benefit in terms of price, choice and quality.

Regulatory Framework

2.3 Four sets of Regulations, [5] which transpose into Irish law four European Community directives on electronic communications networks and services, [6] entered into force in Ireland on 25 July 2003. The final element of the European electronic communications regulatory package, the *Privacy and Electronic Communications Directive*, was transposed into Irish law on 6 November 2003.

2.4 The new communications regulatory framework requires that ComReg defines relevant markets appropriate to national circumstances, in particular relevant

[5] Namely, the European Communities (Electronic Communications Networks and Services) (Framework) Regulations 2003 (S.I. No. 307 of 2003), ("the *Framework Regulations*"); the European Communities (Electronic Communications) (Authorisation) Regulations, 2003 (S.I. No. 306 of 2003), ("the *Authorisation Regulations*"); the European Communities (Electronic Communications) (Access) Regulations 2003 (S.I. No. 305 of 2003), ("the *Access Regulations*"); the European Communities (European Communications) (Universal Service and Users' Rights) Regulations 2003 (S.I. No. 308 of 2003), ("the *Universal Service Regulations*").

[6] The new regulatory framework for electronic communications networks and services, comprising of Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services, ("the *Framework Directive*"), OJ 2002 L 108/33, and four other Directives (collectively referred to as "the *Specific Directives*"), namely: Directive 2002/20/EC of the European Parliament and of the Council on the authorisation of electronic communications networks and services, ("the *Authorisation Directive*"), OJ 2002 L 108/21; Directive 2002/19/EC of the European Parliament and of the Council on access to, and interconnection of, electronic communications networks and services, ("the *Access Directive*"), OJ 2002 L 108/7; Directive 2002/22/EC of the European Parliament and of the Council on universal service and users' rights relating to electronic communications networks and services, ("the *Universal Service Directive*"), OJ 2002 L 108/51; and the Directive 2002/58/EC of the European Parliament and of the Council concerning the processing of personal data and the protection of privacy in the electronic communications sector, ("*the Privacy and Electronic Communications Directive*"), OJ 2002 L 201/37.

geographic markets within its territory, in accordance with the market definition procedure outlined in the *Framework Regulations*[7]. In addition, ComReg is required to conduct an analysis of the relevant markets to decide whether or not they are effectively competitive[8]. Where it concludes that the relevant market is not effectively competitive (*i.e.*, where there are one or more undertakings with significant market power ("SMP")), the *Framework Regulations* provide that it must identify the undertakings with SMP on that market and impose on such undertakings such specific regulatory obligations as it considers appropriate[9]. Alternatively, where it concludes that the relevant market is effectively competitive, the *Framework Regulations* oblige ComReg not to impose any new regulatory obligations on any undertaking in that relevant market. If ComReg has previously imposed sector-specific SMP obligations on undertakings in a market, the maintenance of existing obligations or creation of new SMP obligations on undertakings without SMP is inconsistent with the regulatory framework. It must withdraw such obligations and may not impose new obligations on those undertaking(s)[10].

2.5 The *Framework Regulations* further require that the market analysis procedure under Regulation 27 be carried out subsequent to ComReg defining a relevant market, which is to occur as soon as possible after the adoption, or subsequent revision, of the *Relevant Markets Recommendation* by the European Commission[11]. In carrying out market definition and market analysis, ComReg must take the utmost account of the *Relevant Market Recommendation* and the European Commission's *Guidelines.*

ComReg procedure

2.6 ComReg has collected market data from a variety of internal and external sources, including users and providers of electronic communications networks and services ("ECNS"), consumer surveys and other NRAs, in order to carry out thoroughly its respective market review procedures based on established economic and legal principles, and taking the utmost account of the *Relevant Markets Recommendation* and the *Guidelines*.

2.7 This market review has drawn on a wide range of data and information to reach its conclusions. ComReg has utilised data supplied by industry, and has also referred to comparative data from other jurisdictions.

2.8 On 13th April 2006, ComReg issued a national consultation on its market analysis for wholesale international roaming services (ComReg Document 06/20). ComReg received submissions from the four respondents listed below by the close of the consultation period.

2.9 The four responses to the consultation were provided by:

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[7] Framework Regulation 26.

[8] Framework Regulation 27.

[9] Framework Regulation 27(4).

[10] Framework Regulation 27(3).

[11] Framework Regulations 26 and 27.

- O2
- Vodafone
- Meteor
- Mr. Daniel Sokolov

2.10 ComReg thanks all respondents for their submissions. Having considered the views of all respondents, ComReg sets out in this document its conclusions regarding the review of this market.

2.11 ComReg notes that one respondent (O2) who agreed with ComReg's finding that no undertaking in the Irish market enjoys a position of dominance, did not comment on any other aspect of the consultation. Instead they focused on the European Commission's initiative to regulate roaming prices. As the views expressed by this respondent are outside the scope of this consultation, ComReg has not addressed them in this document.

2.12 Comments relevant to each consultation question are addressed in the relevant sections. All responses received will be published on the ComReg website (with the exception of material supplied on a confidential basis).

Liaison with Competition Authority

2.13 As noted above, there is a requirement on ComReg under Regulation 26 and 27 of the *Framework Regulations* to carry out an analysis of a relevant market that has been defined. Regulation 27 (1) of the Framework Regulations also requires that, as soon as possible after ComReg defines a relevant market, ComReg shall carry out an analysis of such market, in accordance, where appropriate, with an agreement with the Competition Authority under section 34 of the Competition Act 2002[12]. In December 2002, such a co-operation agreement was signed between ComReg and the Competition Authority for a period of three years[13], which upon completion was automatically extended. In accordance with Regulation 27, ComReg has discussed its findings on this market with the Competition Authority and Annex C includes the Authority's response to ComReg's conclusions on the market.

Structure of Consultation Document

2.14 The remainder of this consultation document is structured as follows:

- **Section 3** presents ComReg's conclusions regarding the definition of the Irish wholesale market for international roaming services (market 17 of the *Recommendation*);

[12] Section 34 of the Competition Act 2002 requires that the Competition Authority of Ireland and statutory bodies such as ComReg enter into an agreement for the purposes of, inter alia, facilitating co-operation between both parties in the performance of their respective functions in so far as they relate to issues of competition between undertakings.

[13] ComReg Document No. 03/06

- **Section 4** presents ComReg's conclusions on the assessment of competition in this market;
- **Section 5** presents ComReg's conclusions on the presence or absence of dominance in this market, and
- **Section 6** contains instructions for submitting comments on this consultation.
- **Annex A** sets out the consultation questions.
- **Annex B** includes a glossary of terms used in the document.
- **Annex C** includes the Competition Authority's opinion

3 Relevant Market Definition

Introduction

3.1 Regulation 26 of the *Framework Regulations* requires that ComReg, taking utmost account of the *Recommendation* and of the *SMP Guidelines*, define relevant markets in accordance with the principles of competition law, including the geographical area within the State of such markets.

3.2 The European Commission recommends in the *Relevant Markets Recommendation*, that NRAs should analyse the relevant wholesale national market for international roaming services on public mobile telephone networks.[14] In the Explanatory Memorandum to the *Recommendation* the Commission gives the following definition of international roaming: "*wholesale international roaming services provide access and capacity (airtime minutes) to a foreign network operator for the purpose of enabling its subscribers to make and receive calls while on another operator's network abroad*".

The Irish Mobile Market

3.3 There are four Mobile Network Operators (MNOs) in the mobile market in Ireland, namely, Vodafone (previously Eircell) which launched in 1985; O_2 Ireland, which launched in 1997 (previously Esat Digifone); Meteor, which launched in 2001; and, most recently, '3', which launched 3G services in Ireland on September 30th 2003.

3.4 Since the introduction of Irish mobile services, the penetration rate has maintained a strong upward trend and now stands at 103%. Mobile penetration exceeds fixed line penetration, with over 4.27 million mobile subscribers as at June 2006.[15]

3.5 Vodafone, O_2 and Meteor have offered wholesale international roaming services to foreign MNOs roaming in Ireland for a number of years, while '3' has entered the market more recently in order to offer wholesale international roaming services over its 3G network. In the initial period prior to the entry of O2, Vodafone (then Eircell) was the only MNO offering wholesale international roaming services in Ireland and for a number of years after the entry of O2 (then Esat Digifone) carried the majority of roaming traffic. However, with the entry of O2 and to a lesser extent Meteor, Vodafone's share of the overall wholesale international roaming market has slowly begun to erode.

International Roaming

3.6 International roaming is the ability of a customer to make and receive voice calls, send and receive SMS, or access other services when travelling outside the geographical coverage of their "home network" by means of using the infrastructure of a "visited network". In the context of the Irish wholesale international roaming

[14] This market corresponds to that referred to in Annex I(4) of the Framework Directive.

[15] ComReg Document No. 06/28 – Irish Communications Market Quarterly Key Data Report.

market, the 'visited network' refers to Irish mobile network operators, while the 'home network' refers to the foreign network to which the foreign customer roaming in Ireland subscribes. Figures 3.1 and 3.2 below illustrate how international roaming works at the retail level.

3.7 When a roaming subscriber makes a call to their home country: (1) the Visited Network receives the call; (2) Seeing an international number, it passes the call via 'international transit' to the Home Network; (3) the Home Network then passes the call to its destination number. The connection is established.

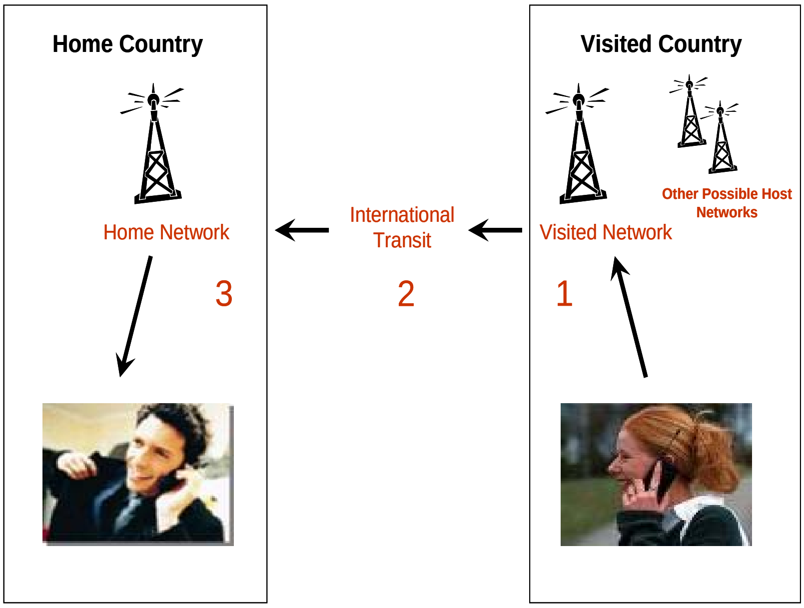

Figure 3.1: Calling home when roaming

3.8 When someone from the home country calls a roaming customer, the roamer will pay an international roaming tariff. When such a call is made: (1) the caller dials the roamers mobile phone number, (2) their fixed/mobile operator routes the call to the roamers Home Network (which may or may not be the same network), (3) the Home Network knows that they are currently roaming on a Visited Network in the Destination Country, so it passes the call to them via 'international transit', (4) this Visited Network receives the call and passes it to the roamer. The connection is established.

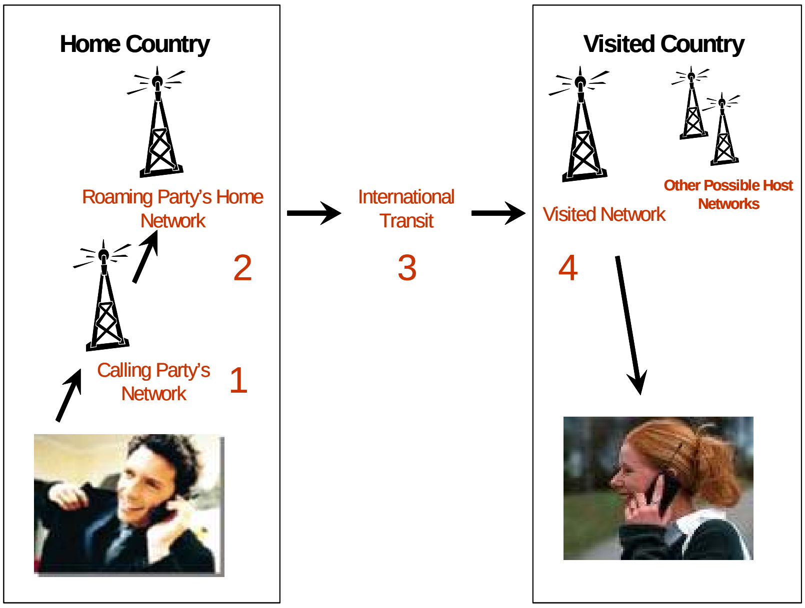

Figure 3.2: Being called when roaming

3.9 Retail roaming services are not provided as a stand-alone product but as part of the overall group of mobile services purchased by subscribers. For retail international roaming to work, the home network operator and the visited network operator need to conclude a wholesale roaming agreement which determines the commercial terms and conditions under which the roaming will take place. These agreements are, generally, concluded on a bilateral basis between individual licensed MNOs that are members of the GSM Association (GSMA).[16] The roaming agreements are based on a common framework agreed upon by the members of the GSMA: the Memorandum of Understanding (MoU) which provides the general basis for the establishment of international roaming, the Standard International Roaming Agreement (STIRA) which defines the principles of bilateral roaming agreements between GSM operators and the Inter Operator Tariff (IOT) which defines the actual charging principles.

3.10The wholesale international roaming service is usually a bundled service whereby the visited network operator (in this case Irish MNOs) offers a full service including the link from the visited network to the destination network (see Figure 3.3 below). For an originated call, the visited network then charges the home network an IOT[17]. However, parties to a wholesale international roaming agreement are free to negotiate and offer bespoke discounts and other preferential conditions outside of the standard terms to foreign MNOs. ComReg is aware that network operators are increasingly granting individual discounts on the IOT charged to different roaming partners depending on the volumes, revenues and roaming services on offer.

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[16] The GSMA is the industry body responsible for the development, deployment, evolution and promotion of the GSM standard.

[17] The IOT is a tariff between MNOs, charged by the visited (Irish MNO) for use of its network. As discussed below, the visited network does not directly charge the home network any tariff for terminating traffic.

3.11 There are, in general, two types of roamed calls: mobile originated roamed calls and mobile terminated roamed calls. In Ireland (as is the case in most GSM countries), the IOT only applies to traffic which originates on the visited network. Where a visited network terminates a call on the handset of a roamer on its network, it charges its standard termination rate to the carrier which delivers the call, e.g. a fixed international carrier, but levies no charge directly on the roamer's home network.

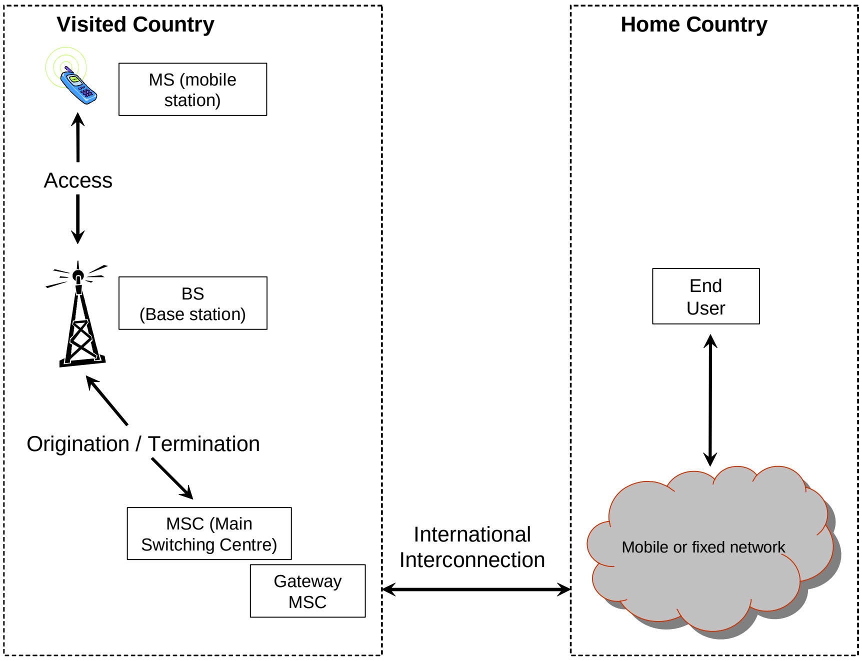

Figure 3.3: The technical functioning of wholesale international roaming

3.12International roaming services may also be classified as either inbound or outbound:

- **Inbound roaming** refers to the wholesale service provided by Irish MNOs to foreign MNOs allowing their subscribers to roam on Irish mobile networks
- **Outbound roaming** refers to the wholesale service provided by foreign MNOs to Irish MNOs allowing Irish mobile subscribers to roam on foreign mobile networks when travelling abroad.

3.13The relevant upstream market for roaming services used by Irish mobile subscribers when travelling abroad (outbound roaming) falls within the jurisdiction of each destination country and outside the Irish market. Instead, the appropriate wholesale international roaming market in Ireland relates to the wholesale roaming services provided by Irish MNOs to foreign MNOs, allowing inbound roamers use their mobile phones while travelling in Ireland (inbound roaming). As such, any conclusions relating to this market review will not influence the roaming experience enjoyed by Irish subscribers when travelling abroad. Instead, the corresponding market reviews carried out by NRAs in other jurisdictions will impact on this experience.

Recent Developments in International Roaming

Traffic direction

3.14 In order to provide their customers with the possibility of receiving and making calls while roaming abroad, MNOs need to conclude international roaming agreements with MNOs in the visited country. Traditionally, GSM operators would usually conclude roaming agreements with as many operators as possible in each country, in order to ensure that their customers had the best possible coverage when travelling abroad. In addition, most SIM cards would contain a list of "preferred" foreign networks in order to facilitate a priority selection among all available networks in a given country. However, until recently, it was difficult for foreign MNOs to effectively determine the Irish network a handset would choose once turned on in Ireland. If the signal of the preferred network in Ireland was not strong enough or unavailable, the mobile handset would pick up the signal of another network and remain on the latter without reverting back to the preferred network. When the phone was switched on and off, the phone would routinely look for its home network and then for the Irish network it was last registered on. As a result, the roaming customer was directed towards the preferred network each time only upon initial entry. Therefore, network selection has been up until recent years quite random, that is, the Irish network on which a foreign network would roam was not predetermined.

3.15 However, data collected by ComReg and other NRAs indicates that, due to technological developments, foreign MNOs are in a position to effectively direct a greater proportion of their roaming traffic onto preferred visited networks. Advanced SIM cards and new network functions such as Over-The-Air (OTA) programming of SIM cards and Customised Application Mobile Enhanced Logic (CAMEL) pre-paid roaming, in combination with more intelligent handsets, increasingly enable foreign MNOs determine on which network in Ireland their customers will roam.[18] While such traffic direction techniques are far from perfected, based on evidence obtained by ComReg on the Irish market (see Figures 4.3, 4.4 & 4.5 below), it appears that increasing proportions of traffic are being directed onto preferred Irish networks by MNOs from across Europe. Essentially, traffic direction has enhanced the ability of the buyer to determine from which Irish MNO they will purchase wholesale international roaming services.

International groups and alliances

3.16 The above recent developments in traffic direction technologies are behind the formation in 2003 of two strategic mobile alliances among a number of MNOs aiming to retain roaming traffic within the alliance by directing much of their roaming traffic to fellow alliance members only. The alliances counter the perceived threat coming from group companies such as Vodafone which aim to fully retain highly profitable international roaming traffic within the Group[19].

3.17 At the retail level, alliances aim to provide roaming subscribers with seamless mobile services, including GPRS and MMS roaming, as well as access to familiar services such as voice-mail and short-code dialling whilst travelling in other alliance countries.

[18] The introduction of 'Assisted Roaming' and recently the more effective 'Managed Roaming' technologies have also improved traffic direction capabilities even further.

[19] http://europa.eu.int/rapid/pressReleasesAction.do?reference=MEMO/05/44&format=HTML&aged=0&language=EN&guiLanguage=en

In some cases call charges can be network independent so that it doesn't matter which network users roam on. Although independent MNOs also aim to provide such services, the alliances often provide more simplified and consistent call rates for calls made and received when users are roaming anywhere within the footprint of the alliance. Alliance members also co-operate on an ongoing basis to respond to Request for Proposals (RFPs) by multi-national corporations, where services are required in more than one country and thus are purchased centrally. Such customers are able to benefit from simplified contracts and a single set of terms and conditions across the alliance.

3.18 At the wholesale level, alliance members enter into bi-lateral preferential roaming agreements with each other with the aim of accelerating the pace of discount negotiation between member MNOs. Based on evidence gathered by ComReg, members also seem to actively direct international roaming traffic within the alliance (e.g. see Figure 4.5 below).

3.19 The first strategic alliance was created in October 2003 under the brand name of "The Starmap Mobile Alliance". It currently has nine members: Amena (Spain), Eurotel (Czech Republic), O2 (Germany, the UK and Ireland), One (Austria), Sonofon (Denmark), Pannon GSM (Hungary), Sunrise (Switzerland), Telenor Mobil (Norway) and Wind (Italy), with more than 58 million customers across Europe.

3.20 The second competing strategic alliance, the "Freemove Alliance", was launched on 11 December 2003 and currently accounts for 182 million mobile customers in Europe alone. Telefonica (Spain), Telecom Italia (Italy), T-Mobile International (Germany) and Orange (France) and all their respective affiliates, including T-Mobile UK and Orange UK entered into a cooperation agreement for the creation of a strategic alliance. However, Spanish telecommunications operator Telefonica has recently received European Commission approval for the purchase of O2's operations in the UK, Germany and Ireland, under the condition that it leaves the Freemove roaming alliance. Telefonica has committed itself to leave the FreeMove alliance as soon as possible and not to re-enter that alliance without the Commission's prior consent in the coming years.

3.21 Finally, Vodafone Group, which is not a member of either alliance, has ownership interests in 27 countries across 5 continents. In addition, the Group has Partner Networks in a further 31 countries. As at 31st March 2006, the Group had approximately 104 million customers across Europe[20].

The Relevant Product Market

3.22 In assessing whether an undertaking has a dominant position, that is, whether it "enjoys a position of economic strength affording it the power to behave to an appreciable extent independently of its competitors, customers and ultimately consumers", the definition of the relevant market is of fundamental importance since effective competition can only be assessed by reference to the market thus defined[21].

[20] This figure excludes Vodafone Joint Ventures, Associates and Partner Networks.

[21] Case C-209/98, *Entreprenorforeningens Affalds* [2000] ECR I-3743, par. 57, and Case C-242/95 *GT-Link* [1997] ECR I-4449, par. 36.

3.23 According to settled case-law, the relevant product/service market comprises all those products or services that are sufficiently interchangeable or substitutable, not only in terms of their objective characteristics, by virtue of which they are particularly suitable for satisfying the constant needs of consumers, their prices or their intended use, but also in terms of the conditions of competition and/or the structure of supply and demand on the market in question. Products or services which are only to a small or relative degree interchangeable with each other do not form part of the same market.[22]

3.24 The definition of the relevant market concentrates on identifying constraints on the price-setting behaviour of operators brought about by demand side and supply side substitution between relevant products and services. For the purpose of defining the relevant market, ComReg will take into account a range of measures in assessing demand and supply substitution, including the 'SSNIP' (small but significant non-transitory increase in price) test where practicable.[23]

3.25 A relevant geographic market comprises the area in which the undertakings concerned are involved in the supply and demand of products and/or services, in 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.

3.26 Having applied the above procedure to national circumstances, ComReg's proposed market definition, discussed below, is consistent with both the European Commission's views as set out in its *Recommendation*, and the ERG market definition set out in the Common Position[24].

Issues relevant to market definition

3.27 Irish retail international roaming services refer to the ability of Irish subscribers to make and receive calls on their mobile phones abroad, without having to acquire a new SIM card, or enter into another subscription with a foreign GSM operator, while enabling them to keep the number they use on their home network. Roaming is part of a general cluster of retail mobile services which includes domestic calls. Irish wholesale international roaming is the wholesale service provided by Irish MNOs to foreign MNOs allowing their subscribers to roam on Irish mobile networks when travelling in Ireland.

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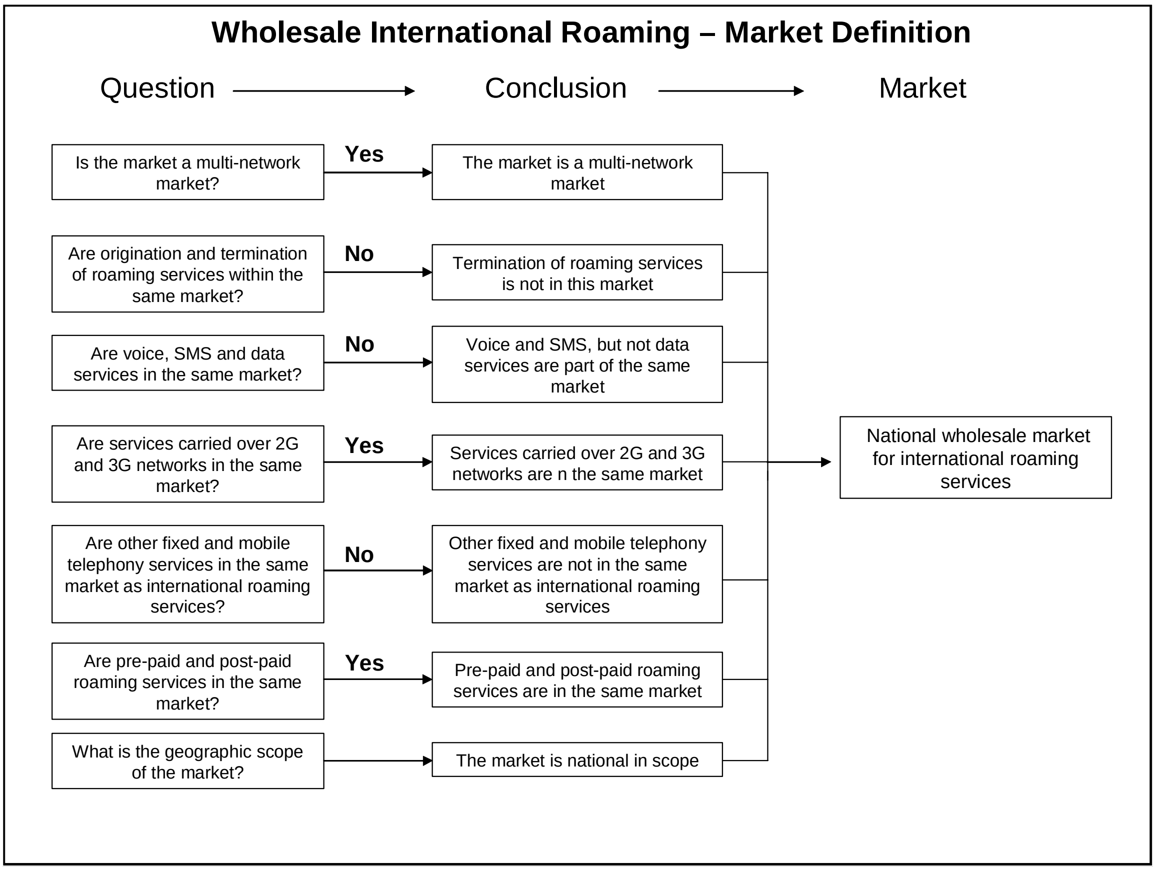
[22] Case C-333/04 P *Tetra Pak v Commission* [1996] ECR I-5951, par. 13, Case 66/86, *Ahmeed Saeed* [1989] ECR 803, paras 39 and 40, *United Brands v Commission* [1978] ECR 207, paras 22 and 29 and 12.

[23] See the Commission Notice on Market Definition, the SMP Guidelines and ComReg's Market Data Information Notice for additional guidance. Applying the SSNIP test, one tries to ascertain whether customers purchasing a particular product or service would switch to readily available substitutes or to suppliers located elsewhere if a hypothetical monopoly supplier were to impose a small (in the range of 5% to 10%) but significant, non-transitory price increase above the competitive level, thereby rendering such a rise in prices as being unprofitable.

[24] http://erg.eu.int/doc/publications/consult_wholesale_intl_roaming/erg_05_20_rev1_wir_common_position.pdf

3.28 In determining the appropriate market definition for wholesale international roaming services in Ireland, ComReg has assessed the following relevant issues:



3.29 As this document is a response to consultation, in this section ComReg sets out its original position in the consultation document on each of the relevant issues relating to market definition, then a summary of the responses received to each consultation question, and finally ComReg's position on each relevant market definition issue having considered all of the views expressed by respondents.

Is the market a multi-network market?

3.30 Considering the wholesale market for international roaming services, the narrowest position to start from is the consideration of each individual network operator as a possible distinct market.

3.31 An absolute barrier to entry into the mobile (network) market exists due to the scarcity of spectrum, although this may diminish over the long term with the development of spectrum trading. Entry into the Irish market is regulated by ComReg, who on the basis of available frequencies determines the number of operators that can be licensed in the relevant frequency bands. In addition, there are high sunk costs involved in building a mobile network. Since Mobile Virtual Network Operators (MVNOs) do not have the right of use of the relevant frequencies they cannot by definition offer wholesale international roaming services to foreign MNOs.

3.32 Traditionally, mobile operators in Ireland endeavoured to sign roaming agreements with as many foreign operators as possible in order to provide the widest choice possible for their customers when roaming abroad, to maximise roaming revenue by having as many roaming partners as possible, and to ensure that they remained competitive in terms of their roaming reach. These roaming agreements are not exclusive, and the home operators have no obligation to use any particular Irish network when providing a roaming service to their end-users.

3.33 As discussed previously, MNOs across Europe are increasingly adopting traffic direction techniques, which allow them to select onto which Irish network their end-users register, typically on a preferred visited network. Reasons for the preference can be that the chosen MNO offers the most attractive tariffs/discounts, or that it is a member of the same group or alliance. When traffic direction is not used or not effectively used, end-users of the home network will be almost randomly distributed on all of the Irish mobile networks[25], with the result that supply side substitutability may have been dampened in the past. However, the majority of Irish MNOs now have national coverage and operate in similar market structures, indicating that they are likely to be suitable substitutes for each other. As a result, MNOs increasingly negotiate discounts within their existing roaming agreements to encourage the direction of traffic onto their networks. Given that the competitive conditions for each operator are similar, the product market is a multi-network market.

3.34 The combination of non-exclusive roaming agreements and the ability to direct traffic should enable MNOs to switch between Irish networks supplying wholesale international roaming services in response to changes in IOTs and/or associated discounts. Where such switching does or can effectively occur, then the networks of national MNOs might be considered to be substitutable to each other as far as the demand side is concerned. Evidence of the success of traffic direction techniques used by foreign MNOs in the Irish market is illustrated in Figure 3.4 below, where the Starmap Alliance members have dramatically increased the percentage of their Irish roaming traffic delivered to O2 Ireland's network.

[25] In this case, registration on an Irish network will usually depend to a large extent on the network coverage especially in the ports of entry to Ireland.

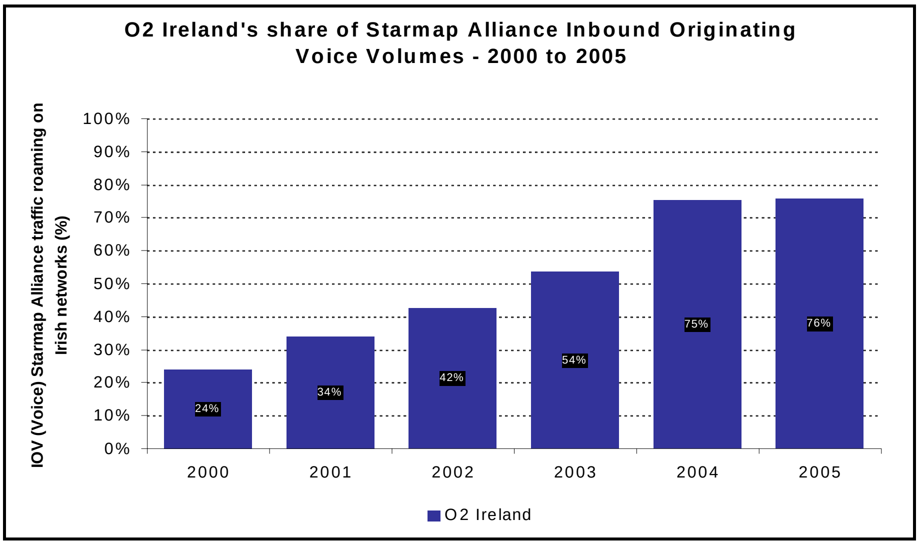


Figure 3.4: Efficiency of traffic direction techniques

3.35On the supply side, foreign MNOs tend to have multiple roaming agreements with Irish MNOs for voice and SMS services. As a general rule, such agreements are never terminated in response to a price increase or better offer from another MNO. Instead, with the advent of improved traffic direction technologies, Irish MNOs are increasingly able to credibly respond to a small but significant increase in the price of a competitor, by offering to supply wholesale roaming services to foreign MNOs in place of their competitor's (this is of course dependent on the foreign MNO's ability to direct traffic away from that specific Irish MNO).

<u>Conclusion</u>

3.36Based on the combination of non-exclusive roaming agreements for voice and SMS services and the ability of foreign MNOs to direct traffic, ComReg proposes that the relevant wholesale market for international roaming services encompasses all MNOs in Ireland and is, thus, a multi-network market.

Q. 1. Do you agree with ComReg's preliminary conclusion that this market is a multi-network market? Please detail your response.

Views of respondents

3.37Of the two respondents who commented on this issue (Vodafone & O2), both agreed with ComReg's conclusion that the market was a multi-network market.

ComReg's position

3.38 ComReg maintains its position that this market is a multi-network market.

Are origination and termination of roaming services within the same market?

Retail level

3.39 At the retail level, roaming includes both the ability to make calls and the ability to receive calls whilst abroad. Consumers subscribe to a services package, which includes, inter alia, the possibility to both make calls and receive calls while abroad. Hence, demand characteristics at the retail level might suggest that originating and terminating a call could be included in the same relevant market at the wholesale level. However, because of the different functions they perform as well as the nature of the charging mechanism at the wholesale level, they should not be considered part of the same market. This is discussed below.

Wholesale level

3.40 On the demand side, origination and termination of roaming services are not substitutes. A wholesale customer will generally not treat termination of inbound calls as a substitute for origination of inbound calls, as each performs a different function. Instead, both services tend to be consumed together. For example, the ratio of origination of inbound calls to termination of inbound calls tends to remain approximately the same at 60:40, despite movements in overall volumes in each period. Further, as a result of the bundled purchase of origination and termination of inbound services by foreign MNOs, any fall in the wholesale price of origination services will result in increased traffic on that visited network (through traffic direction), and, in turn, an increase in demand for termination services. As such, these services could be treated as complements. On the supply side, since voice call termination is associated with a particular network to which the called party is connected, there can be no substitutability from origination to termination.

3.41 As discussed above, WIR agreements comprise both originating and terminating traffic. However, in Ireland, as in most GSM countries, the Inter-Operator Tariff only covers outgoing traffic (calls made by the roaming subscriber) but does not cover incoming roaming traffic (calls received by the roaming subscriber) which terminates on the visited network. Visited networks usually charge an IOT to home networks when end-users of the latter generate originating traffic on their networks. However, roaming traffic terminating on the visited network is usually routed from the home network via an (international) transit operator to the visited network, for which the visited network charges the (international) transit operator the usual mobile termination tariff. For this reason, the visited network generally does not directly charge the home network any tariff for terminating traffic. Instead the home network operator pays the mobile termination tariff plus any extra conveyance charges to the carrier which has delivered the call to the visited network[26]. The visited network treats

[26] This cost is at least covered by a charge at the retail level to the subscriber of the Home Network for receiving the call while roaming, which allows a caller in the home

this terminating traffic as it would any other type of termination. As such, there is no distinction between termination of traffic to foreign subscribers roaming on a visited network and termination of traffic to the actual subscribers of that visited network.

3.42 Thus, inbound terminating calls (receiving voice calls or SMS while roaming in Ireland) are not in the WIR market and should, instead, be treated as regular (inter)national termination services.

<u>Conclusion</u>

3.43 ComReg proposes that origination and termination of roaming services are not in the same market.

Q. 2. Do you agree with ComReg's preliminary conclusion that termination of calls to roaming end-users should be considered part of the national termination market? Please detail your response.

Views of respondents

3.44 Of the three respondents who responded on this issue (Vodafone, O2 & Sokolov), two agreed with ComReg's conclusions. The third (Sokolov) argued that because both origination and termination revenues comprise the calculation basis for the business case for each network, inbound termination and inbound origination should be regarded as parts of the same market.

ComReg's Position

3.45 While the provider of WIR services receives revenue for both origination and termination of inbound roaming services, ComReg does not consider these services to be substitutes. Although the provider of WIR services offers the two services as a bundle, they are priced separately and charged to different parties. In particular, there is no functional difference between termination of traffic to foreign subscribers roaming on a visited network and termination of traffic to the actual subscribers of that visited network. The visited network treats this terminating traffic as it would any other type of termination. It is noteworthy that the Irish network operators who responded also agree with ComReg on this issue. At most these two services should be treated as complements.

3.46 ComReg would also point out that although both origination and termination revenues may comprise the calculation basis for the business case for each network operator (as noted by one respondent), this would not form the basis for assessing the competitive constraint that one product exercises upon another, i.e. whether they are substitutes.

country to contact the roaming subscriber abroad while only having to pay a regular domestic rate.

Instead, when defining a relevant market, there are two main competitive constraints that must be considered when assessing the behaviour of undertakings on the market in question, (i) demand-side; and (ii) supply-side substitution[27]. ComReg has taken such considerations into account when arriving at its conclusions on market definition.

3.47 ComReg maintains its position that termination of calls to roaming end-users should be considered part of the national termination market.

Are voice, SMS and data services in the same market?

3.48 ComReg has considered whether voice calls, SMS and other data services are part of the WIR market.

Retail level

3.49 On the demand-side, voice calls and SMS could be regarded as a natural bundle. At the retail level, there is evidence in Ireland to suggest that consumers treat them as substitutes. In March 2004 ComReg published the results of a consumer survey conducted in January/February 2004 in which 92% of respondents indicated that they regard SMS as an alternative to making voice calls in order to get cheaper mobile rates when using their mobile phone abroad.[28] In addition, an end-user study conducted by FICORA (the Finnish regulator) in spring 2005[29] indicated that 91% of respondents acknowledged that sending SMS messages instead of making voice calls was a viable method of reducing mobile phone usage costs abroad. Further, 87% of respondents had actually sent text messages instead of making voice calls, in order to reduce their mobile phone usage costs abroad. It appears reasonable to conclude that the experience of the average retail customer roaming on mobile networks in Ireland would be similar. Unlike the Irish retail mobile market, which is likely to encompass a broader cluster or services, at the retail level it appears reasonable to conclude that the majority of foreign consumers roaming on Irish mobile networks treat voice calls and SMS as substitutes.

3.50 It is clear from data provided by Irish MNOs that demand for SMS services relative to voice services is increasing. Indeed, the volume of SMS messages as a percentage of voice traffic minutes has more than trebled from 13% in 2000 to 48% in 2005, despite a 60% increase in voice traffic over that period. However, there appears to be little or no demand-side substitutability at the retail level between voice calls and SMS on the one side and other mobile data services (including MMS) on the other. Instead, it is likely that retail mobile data services are demand side complements to basic voice and SMS services, in that demand for such services would rise in response to a rise in demand for voice and SMS services. The use of such services is still fairly limited

[27] See Paragraph 38 of the *SMP Guidelines*

[28] TNS MRBI Residential Telecommunications Survey – ComReg Doc. 04/30c, Quarterly Report, March 2004

[29] Finnish Communications Regulatory Authority – Mobile Phone Usage Abroad, Spring 2005

across Europe, with data services over GPRS (General Packet Radio Services) representing only 2% of overall wholesale roaming revenues across the Joint Analysis Project countries[30] in Q4 2004. This is despite the fact that handsets with the necessary functionality have been on sale across Europe for a number of years and data services have been available in Ireland since the first half of 2003 according to data provided by Irish MNOs.

3.51 On the supply-side, it is evident that all foreign MNOs whose customers roam in Ireland are able to avail of both voice call and SMS services. There is no evidence to suggest that MNOs would experience any additional difficulty, or cost, at the negotiation stage, if they were to add SMS services to the voice service package which they are aiming to offer their subscribers while roaming. It appears that no significant additional investment is required for a supplier of voice services to subsequently offer SMS roaming to its customers. ComReg is of the opinion that, once a foreign MNO has already entered into a roaming agreement with an Irish MNO for the supply of voice roaming services to its customers, the overall (hypothetical[31]) cost of adding SMS to the roaming bundle would be relatively negligible. No significant additional infrastructure investment would be required and any costs (such as administration, invoicing, initial set-up and testing, etc.) of negotiating the additional roaming agreement would, for the most part, already have been facilitated and incurred at the initial agreement stage[32]. Of course, any new entrant wishing to negotiate a roaming agreement for the first time (whether to provide just voice services or both voice and SMS services) would have to incur all of the relevant set-up costs present at the initial negotiation stage.

3.52 While all roaming agreements entered into by Irish MNOs include at least voice call and SMS capabilities, they do not necessarily include data services. A large number of roaming agreements entered into by Irish MNOs do not include these services. However, it appears that most MNOs across Europe are capable of offering at least some data services to their customers, and handsets now sold across Europe have the necessary functionality to receive such services. In addition, all Irish MNOs are capable of offering data roaming services to foreign MNOs. However, it is unlikely that data services on the one hand and voice and SMS on the other, share a common pricing constraint at this point in time. Instead, it is likely that they are, at best, complements.

3.53 It is important to note at this stage that the provision of these mobile services is in an early phase of development, which makes it difficult to establish a more detailed definition in respect of these services. It is too early to say whether other demand-side substitutes will emerge, but it may be that non GSM radio data communications

[30] The ten countries involved in the ERG co-ordinated initiative leading to a Common Position for the coordinated analysis of the markets for wholesale international roaming.

[31] As already discussed, MNOs generally negotiate agreements for the provision of both voice and SMS roaming services together and, unlike data services, for commercial reasons are unlikely to negotiate these separately.

[32] According to submissions made by Irish MNOs, a standard roaming agreement, generally, takes approximately 8-12 weeks to implement (from initial contact to testing and commercial launch).

services, currently used for tracking and telemetry applications[33] will develop as competitors to General Packet Radio Services (GPRS) based data services. For the purposes of this review, ComReg is of the opinion that data services are not in the same market as voice and SMS at the retail level.

Wholesale level

3.54 On the demand-side, Irish MNOs have multiple agreements in 100% of the old EU-15 Member States and in approximately 90% of the EU-25 Member States for the provision of voice and SMS services. While all Irish mobile networks provide GPRS roaming services, it appears that they treat GPRS and other data network services differently to voice and SMS services, in that they tend to negotiate only one agreement with one MNO in each country for the purchase/supply of such services. For example, for one Irish MNO, 64% of its roaming agreements in Europe do not include GPRS roaming, while another Irish MNO has no GPRS roaming agreement in 13 out of 27 European countries. Clearly voice and SMS services on the one hand and data services on the other induce different demand characteristics at the wholesale level. While multiple reciprocal agreements have been concluded for the provision and receipt of WIR services covering voice and SMS, coverage of such agreements for data services has been more limited in practice. This is likely to be influenced by limited demand for such services at the retail level.

3.55 On the supply side, unlike voice and SMS services, there is no distinction between origination and termination for GPRS. GPRS usage is charged per kilobyte, and no distinction is made between sending and receiving data. Further, data revenues account for just 2% (an increase of approximately 1% on the previous year) of wholesale international roaming revenues in Ireland. This figure is almost identical across the Joint Analysis Project countries. As data services are currently not a main source of revenue in the international roaming sector, MNOs do not have an incentive to negotiate multiple agreements for this service in order to boost roaming revenues. Instead, MNOs are selective when negotiating agreements for this service in each country.

3.56 It is appropriate to conclude that GPRS and other data services such as MMS act as complements to voice and SMS at the wholesale level, rather than substitutes. ComReg has no evidence to suggest that the current circumstances will change sufficiently within the timeframe of the review to justify including data services in the same market as voice and SMS.

Conclusion

3.57 ComReg proposes that, based on retail and wholesale demand and supply-side characteristics, it is appropriate to include voice and SMS but not data services in the same relevant market.

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[33] GSM telemetry is the remote measurement or collection of data where the information is transmitted using the GSM mobile phone network.

Q. 3. Do you agree with ComReg's preliminary conclusion that it is appropriate to include voice and SMS but not data services in the same relevant market? Please detail your response.

Views of respondents

3.58 Of the three respondents who responded on this issue (Vodafone, O2 & Sokolov), two disagreed (Vodafone & Sokolov) with ComReg's conclusions on this issue.

3.59 The first respondent noted that:

- Data services were part of the bundle offered at the wholesale level
- There were no significant additional costs or technical difficulties to provide this service in addition to voice and SMS and the service enhances customer utility
- All MNOs across Europe already offered this as part of their domestic cluster of services
- The GSM-A standard roaming agreement expressly included provisions for data services.
- Data services tended to form part of the agreements with all of the largest wholesale roamers in Ireland (i.e. UK MNOs).

3.60 The second respondent argued that voice, SMS and data were substitutes and that it was only the high data roaming tariffs that have prevented data services from unfolding their potential as substitutes.

ComReg's Position

3.61 In response to comments made by respondents, ComReg notes the following important points when considering whether voice and SMS services on the one hand and data services (GPRS & MMS) on the other, are substitutes:

- ComReg has already established that data services do not always form part of the bundle offered by Irish MNOs to each foreign MNO at the wholesale level. The development of wholesale international roaming services in Ireland has, generally, involved the offer of, firstly, voice services, then SMS services and finally data services. Many agreements currently in place do not involve data services at all, while no Irish MNO has ever offered data services alone. Instead, data services have, in the past, been treated as an add-on when negotiating international roaming agreements.
- ComReg notes that, while the service may enhance customer utility where it is taken up, retail and, in turn, wholesale demand for data services in the Irish WIR market is limited. For example, GPRS revenues represent only 2% of wholesale international roaming revenues in Ireland, as is the case across the entire group of Joint Analysis Project countries. This is not expected to change substantially within the timeframe of the review.

- ComReg acknowledges that most, if not all, MNOs across Europe already offer this as part of their domestic cluster of services. ComReg has also acknowledged that Irish MNOs are capable of offering wholesale data services where sought. However, it is clearly incorrect, given the great variations in retail pricing, to assume that roaming customers will exhibit the same demand characteristics when roaming as they do at home. This assumption is not born out by the data provided to ComReg. ComReg has already noted that the cluster of services offered by MNOs in their domestic markets appears to be broader than those demanded by international roaming customers. At the retail level, it is clear that there is little or no demand-side substitutability between voice and SMS on the one hand and other mobile data services on the other. Instead GPRS and MMS services are, at best, complements.
- Although the GSM-A roaming agreement includes provisions for data services, it clearly does not form part of all agreements, and, while some MNOs may have a policy of including terms for data services in new or renewed agreements, others do not necessarily pursue this strategy. For example, for one Irish MNO, 64% of its roaming agreements in Europe do not include GPRS roaming, while another Irish MNO has no GPRS roaming agreements in 13 out of 27 European countries.
- Even though data services may form part of the agreements with UK networks (the largest customers of Irish MNOs), revenues for (demand for) GPRS services remain approximately 2% irrespective of whether larger UK customers or smaller continental EU customers are considered.
- At the wholesale level, GPRS services are priced differently to voice and SMS services. Voice and SMS services are priced on a per minute/per message basis while GPRS services are charged on a per Megabit basis. The price charged for GPRS services might be as much as €10 per Mb, while a domestic voice call at peak time might only be charged at €0.30 per minute, with SMS charged at €0.20 per message. Further, unlike for voice and SMS services, for GPRS no distinction is made between sending and receiving data. These large variations in price structure and price levels further reduce the likelihood of GPRS services exerting a competitive constraint on the pricing of voice and SMS services.

3.62 As a result, ComReg considers it correct to conclude that voice and SMS services on the one hand and data services on the other should not be considered as substitutes in the wholesale international roaming market. This is not expected to change within the timeframe of the review.

Are services carried over 2G and 3G networks in the same market?

3.63 Having regard to Article 8(1) of the Framework Directive, Member States must ensure that, in carrying out regulatory tasks designed to ensure effective competition, NRAs take the utmost account of the desirability of making regulations technologically neutral. As such the market definition for voice and SMS international roaming services should be technology neutral, i.e., based on the nature of the product and services provided, not on the technological platform used to provide them. 3G telephony services, from the perspective of demand-side functionality, are not distinguishable from their 2G equivalents, and in ComReg's view are clearly part of the same relevant product market. ComReg notes that this is consistent with the views expressed by the European Commission in its response, of the 29th August 2003, to Oftel's notification of its decision in relation to the wholesale mobile access and call origination market.

"In general, the Commission considers that market definition should be technology-neutral, i.e. based on the nature of the products or services provided, not on the technological platform used to provide them. 3G voice and SMS services offered at present or in the near future are, from a demand-side perspective, not distinguishable from their 2G equivalents, and appear to be part of the same relevant product market. However, given the current state of this market, the explicit inclusion of 3G telephony would not have a material effect on the results of the analysis at issue. In any event, the inclusion, within the market for mobile network access and call origination of the 3G services currently offered, is without prejudice to any subsequent determination of market definition regarding new "enriched" 3G services that may develop".

Conclusion

3.64 As the voice and SMS services defined earlier by ComReg can be carried over 2G or 3G networks, ComReg believes that it is appropriate to include all technologies in the market definition.

Q. 4. Do you agree with ComReg's preliminary conclusion that both 2G and 3G networks should be included in this market? Please detail your response.

Views of respondents

3.65 Of the two respondents who responded on this issue (Vodafone & O2), both agreed that both 2G and 3G networks should be included in the market.

ComReg's Position

3.66 ComReg maintains its position that both 2G and 3G networks should be included in the market.

Are other fixed and mobile telephony services in the same market as international roaming services?

3.67 On the demand side, a subscriber roaming into Ireland and using a domestic SIM card would be unable to use his home network phone number to make or receive calls, thus making the domestic SIM card a poor substitute for the services to which the roamer subscribes in his own home country. On the supply-side it does not appear that any Irish MNO has ever considered that domestic mobile services constitute an effective substitute for inbound roaming traffic.

3.68 The Explanatory Memorandum to the *Recommendation* notes that national roaming provided to mobile network operators within a Member State is a distinct service from international roaming for two main reasons. First, national roaming arises in most cases from a temporary regulatory obligation imposed on existing mobile network operators to provide roaming to subscribers of a new entrant network operator in the initial phase of its network roll-out, outside of the new entrant's coverage area. Secondly, even if a product of commercial negotiations, national roaming does not involve foreign mobile licensed operators and does not entail a cross-border element, as international roaming always does. In addition, due to the disconnect between the subscriber and operator providing roaming services, the pricing signals are different for domestic roaming and wholesale international roaming.

3.69 Finally, the use abroad of domestic fixed services such as pre-paid calling cards does not constitute an effective substitute for roaming services. Wholesale international roaming is characterised by requirements of coverage (having signal), accessibility (being reached by use of a given number on a particular SIM card) and mobility (ability to be reached when on the move), three features that are important in considering potential demand- and supply-side substitutes. In particular, although a foreign visitor may make use of alternative 'fixed' services cards in the visiting country, what distinguishes a roaming visitor from a non-roaming visitor is the premium paid by the former to be able to enjoy these prerequisites of coverage, accessibility and mobility. As such, the use abroad of domestic fixed services such as pre-paid calling cards, does not constitute an effective substitute for roaming services.

Conclusion

3.70 ComReg proposes that other fixed and mobile telephony services are not in the same market as international roaming services.

Q. 5. Do you agree with ComReg's preliminary conclusion that other fixed and mobile telephony services are not in the same market as international roaming services? Please detail your response.

Views of respondents

3.71 One respondent (Vodafone) considered whether other fixed and mobile telephony services were in the same market as international roaming services. While this respondent agreed that fixed telecommunications services were not in the same market as international roaming services, they did not agree that other mobile communications services were in a different market to international roaming services.

3.72 This respondent noted that WIR services were just one element of a bundle of wholesale services offered by MNOs which were provided over the same networks as domestic services. The respondent focused on supply-side substitution and argued that MNOs who were capable of supplying wholesale domestic services (e.g. national roaming) were able to move to supply WIR within a very short time and without significant cost to render a price increase unprofitable. It was argued that this warranted a wider market definition irrespective of demand-side considerations. In addition, practical considerations should be taken into account, in that it was not economically feasible to construct a network solely to supply WIR services.

ComReg's Position

3.73 In the consultation document it was established that the market is a multi-network market (a view that has not changed). It is also the case that all Irish MNOs provide both domestic wholesale call origination services (e.g. in the form of self-provision to their retail arm and, in some cases, the provision of national roaming services to other MNOs) and wholesale international roaming services. However, it does not automatically follow that domestic wholesale services (e.g. national roaming) are in the same market as wholesale international roaming services, when demand-side characteristics are fully considered.

3.74 In addition to its initial reasons for excluding domestic mobile services from the market (set out in the original consultation), ComReg makes the following further arguments in response to comments made by the respondent.

Characteristics at the wholesale level are ignored by the respondent:

3.75 Foreign networks would not see national roaming as a viable substitute for international roaming. There are clear barriers to a foreign network operator seeking domestic wholesale mobile services in place of WIR services. They would be discouraged from seeking national roaming (in place of WIR) because under national legislation they would first have to obtain a domestic mobile licence. In addition, all licence agreements to date stipulate that a new licensee must have at least 20% population network coverage before it can negotiate a national roaming agreement. This is clearly not a viable option for foreign MNOs.

3.76 Further, a domestic MNO (e.g. Meteor) who purchases national roaming from another MNO (e.g. O2) cannot seek WIR services as a substitute for national roaming, as WIR agreements, by definition, must involve two MNOs from different jurisdictions. For this reason no competitive pressure can be exerted by the pricing of one service on the other.

3.77 Finally, Mobile Virtual Network Operator (MVNO) access would not act as a constraint on the pricing of WIR services in Ireland because, to date, there has been no MVNO entry despite the fact that a number of operators are authorised to provide this service, and mere hypothetical supply-side substitution is insufficient for market definition purposes[34]. As such, domestic wholesale services should not be considered substitutes for wholesale international roaming services.

[34] See paragraph 52 of the *SMP Guidelines*.

Retail characteristics are ignored by the respondent:

3.78 The argument put forward by the respondent ignores demand realities at the retail level (e.g. end user demand for mobile services from their home network operator while in another country). Domestic wholesale mobile services such as national roaming do not involve foreign mobile licensed operators and do not entail a cross-border element, as international roaming always does. In addition, due to the geographical disconnect between the subscriber (foreign subscriber roaming on the Irish network) and operator providing roaming services (the Irish network providing wholesale roaming services to the foreign MNO), the pricing signals are different for domestic roaming and wholesale international roaming. As such, the demand realities at the retail level require that a distinction is drawn between wholesale domestic mobile services on the one hand and wholesale international roaming services on the other.

3.79 As a result, even though Irish mobile operators provide a range of wholesale services including both domestic and international roaming services, the competitive conditions are sufficiently different to justify defining distinct markets. ComReg maintains its position that it is appropriate to conclude that other fixed and mobile telephony services are not in the same market as international roaming services.

Are pre-paid and post-paid roaming services in the same market?

3.80 ComReg notes that quantitative data broken down between pre-paid and post-paid inbound roaming traffic or between corporate and SME inbound roaming traffic was not available for this analysis. However, ComReg has anyway assessed whether wholesale roaming services provided to pre-paid and post-paid subscribers should be considered part of the same market.

3.81 It is clear that pre-pay customers can only roam on foreign networks with which the home network has rolled out CAMEL. Where there is only one CAMEL partner in a country they will receive 100% of the home network's pre-pay outbound traffic. CAMEL technology needs to be incorporated into the networks of both the home network and the visited network before pre-paid roaming can take place. ComReg, therefore, notes that pre-paid roaming services have not been available as long as post-paid roaming and were only introduced in recent years. Instead, MNOs across Europe focused on offering such services to their more lucrative post-paid subscriber base until pre-paid CAMEL roaming technology became available.

3.82 On the demand side, MNOs traditionally negotiated multiple roaming agreements in each territory mainly to ensure adequate coverage for their post-paid subscribers when roaming abroad, as the coverage of many operators across Europe was sub-national in geographic scope. More recently, with the improvement in network coverage across Europe and the significant improvement in traffic direction technology, it is no longer necessary to conclude multiple agreements and MNOs are increasingly more selective with whom they negotiate when launching new roaming services such as pre-paid roaming. ComReg notes this may also in part be due to the inconsistent roll-out of pre-paid CAMEL technology by some MNOs across Europe. However, it is clear that many MNOs continue to conclude more than one agreement in each territory in order to increase their options when negotiating wholesale roaming rates. Further, while there are many examples of MNOs concluding agreements with foreign MNOs which cover post-paid roaming services only, the opposite is not also the case. All pre-paid roaming agreements are concluded with foreign MNOs with which the MNO also has a post–paid agreement.

3.83 On the supply side, all four Irish MNOs are able to provide roaming services to both pre-paid and post paid customers roaming on their networks. ComReg is unaware of any significant additional cost associated with a switch from the provision of post-paid roaming services to the provision of pre-paid roaming services, and vice versa, in response to a small but significant non-transitory increase in price[35]. As a result, ComReg proposes that the provision of post-paid and pre-paid wholesale roaming services are in the same market.

Conclusion

3.84 ComReg proposes that post-paid and pre-paid wholesale international roaming services are in the same market.

Q. 6. Do you agree with ComReg's preliminary conclusion that post-paid and pre-paid wholesale international roaming services are in the same market? Please detail your response.

Views of respondents

3.85 Of the two respondents who responded on this issue (Vodafone & O2), both agreed that post-paid and pre-paid wholesale international roaming services were in the same market.

ComReg's Position

3.86 ComReg maintains its position that post-paid and pre-paid wholesale international roaming services are in the same market.

What is the relevant geographic scope of the market?

[35] However, foreign subscribers roaming on the '3' network must have 3G handsets. As such, '3' is only able to switch from the provision of roaming services to post-paid 3G subscribers to the provision of roaming services to pre-paid 3G subscribers, in response to a small but non-transitory increase in price.

3.87 In the electronic communications sector, the geographical scope of the relevant market has traditionally been defined by reference to the area covered by a network and the existence of legal and regulatory instruments. The fact that MNOs can provide services only in the areas where they have been authorised to and the fact that network architecture reflects the geographical dimension of the mobile licences, explains why mobile markets have been considered national in scope. To illustrate, if there was a single hypothetical monopolist in the supply of roaming services in Ireland, and it raised its price, there are no substitution possibilities for the home network, i.e. on the demand side, the home network cannot source the services from any other countries, because roaming services in another country are not substitutable for roaming services in Ireland. In addition, on the supply side there are no substitutes. An MNO from another country could not easily switch into providing roaming services in Ireland; it would be necessary to build an entire mobile network in Ireland. Therefore, the geographic market is national.

3.88 As ComReg has previously discussed, outbound roaming services are not considered to be part of the Irish wholesale international roaming market, and instead fall within the jurisdiction of other Member States. Further, Irish MNOs price their wholesale roaming services (IOTs) on a national basis and do not differentiate between regions within Ireland.

3.89 For the above reasons, and since only the Irish MNOs can offer wholesale international roaming services enabling subscribers of foreign MNOs make and receive calls while visiting Ireland, the relevant geographical market should be defined as being national in scope and is thus limited to Ireland.

3.90 There is some evidence to suggest that international Groups and Alliances are beginning to negotiate retail roaming agreements at a pan-European level, particularly with regard to corporate contracts. In addition, the market has recently experienced the development of European wide retail tariff structures such as Vodafone Passport. Such developments may in the future require consideration of the possibility of the national wholesale markets across Europe evolving into a pan-European market. However, at this stage ComReg proposes that the market is national in scope and will remain so within the timeframe of the review.

Q. 7. Do you agree with ComReg's preliminary conclusion that the relevant geographic market is national in scope? Please detail your response.

Views of respondents

3.91 Of the two respondents who responded on this issue (Vodafone & O2), both agreed that the relevant geographic market was national in scope.

ComReg's Position

3.92 ComReg maintains its position that the relevant geographic market is national in scope.

Conclusions on Market Definition

3.93 The market for wholesale international roaming services relates to wholesale international inbound calls, provided by Irish mobile operators to foreign mobile operators to allow them to offer retail roaming services to their customers visiting Ireland. ComReg concludes that the market can be defined as follows:

- The relevant market is a multi-network market;
- Termination of international roaming services (i.e. receiving calls or SMS while roaming in Ireland) is not part of this market and should, instead, be treated as regular (inter)national termination as the services are identical;
- Voice and SMS, but not data services, are part of the same market;
- Voice and SMS roaming services carried over 2G and 3G networks are in the same market;
- Other fixed and mobile telephony services are not in the same market as international roaming services;
- Although pre-paid roaming has only been introduced in recent years, wholesale international roaming services enabling the provision of post-paid and pre-paid roaming are in the same market, and
- The relevant geographic scope of the market is Ireland

4 Relevant Market Analysis

Background

Community Law

4.1 Having first defined the national market for wholesale international roaming services on public mobile networks, ComReg is required to assess the level of competition in that market by reference to whether any given undertaking or undertakings are deemed to hold SMP in that market. Because of the interrelationship between the wholesale and retail levels of the market, the question of whether SMP can be found to exist will address both functional levels of the market. Recital 27 of the *Framework Directive* states that a relevant market will not be effectively competitive "*where there are one or more undertakings with significant market power*". Regulation 25(1) of the *Framework Regulations* states that:

> *"A reference in these Regulations ... to an undertaking with significant market power is to an … undertaking (whether individually or jointly with others) [that] enjoys a position which is equivalent to dominance of that market, 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".*

4.2 Accordingly, an undertaking may be deemed to have SMP either individually (single dominance) or jointly (joint or collective dominance) with other undertakings in a relevant market. In addition, where an undertaking has SMP on a relevant market, it may also be deemed to have SMP 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.[36] ComReg is obliged under the *Framework Regulations* to assess SMP in accordance with European Community law and, in doing so, to take "utmost account" of the *SMP Guidelines*.[37]

4.3 The concept of SMP is synonymous with the concept of dominance under Article 82 EC.[38] The classic legal formulation for single dominance can be found in the case of *United Brands v. Commission,*[39] where the European Court of Justice held that a dominant position:

> *"... relates to a position of economic strength enjoyed by a undertaking which enables it to prevent effective competition being maintained on the relevant market by affording it the power to behave to an appreciable extent independently of its competitors, customers and ultimately of its consumers."*[40]

[36] Framework Regulations, Regulation 25(3).

[37] Regulation 25(2).

[38] Refer to the SMP Guidelines, para. 70.

[39] Case 27/76, [1978] ECR 207.

[40] At para. 65. See also SMP Guidelines, at paras. 72-74.

Structure of this section

4.4 As this document is a response to consultation, in the following sections ComReg sets out its original position in the consultation document with regards to the existence of single or joint dominance in this market, then a summary of the responses received to each consultation question, and finally ComReg's position having considered all of the views expressed by respondents.

Single Dominance

Introduction

4.5 According to Article 14 of the Framework Directive 'an undertaking shall be deemed to have significant market power if, either individually or jointly with others, it enjoys a position equivalent to dominance, that is to say a position of economic strength affording it the power to behave to an appreciable extent independently of competitors customers and ultimately consumers'. In an ex-ante environment, market power is essentially measured by reference to the power of the undertaking concerned to raise prices by restricting output without incurring a significant loss of sales or revenues[41].

4.6 In order to establish the existence of a dominant position NRAs are required under the *SMP Guidelines*[42], to undertake a thorough and overall analysis of the economic characteristics of the relevant market before coming to a conclusion as to the existence of significant market power. The *SMP Guidelines* set out criteria to assess dominance.

4.7 Using a combination of these criteria it is possible therefore to evaluate a dominant position. The assessment is structured on a forward-looking analysis based on the existing market conditions. The criteria to be used to measure the market power of the undertaking(s) will depend on the characteristics of the relevant market and may or may not include all criteria set out in the *SMP Guidelines*. The following single dominance assessment is based on the criteria ComReg considers most relevant for the assessment of single dominance in the WIR market.

4.8 Please note that all market share calculations included in this document exclude 'Rest of the World' traffic, i.e. traffic originating from outside the European Economic Area (EEA), because such traffic information was not available from all parties. However, where this traffic was available it is clear that it represented, on average, only 6% of total traffic. This traffic is, however, considered to be part of the Irish wholesale international roaming market as no distinction can be made between traffic originating within or outside the EEA.

Market Shares

4.9 In the *SMP Guidelines*[43] it is suggested that although a high market share alone is not sufficient to establish the possession of significant market power (dominance), it is

[41] See Para 73 of the *SMP Guidelines*

[42] Paragraph 78 of the SMP Guidelines.

[43] Paragraph 75 of the SMP Guidelines.

unlikely that a firm without a significant share of the relevant market would be in a dominant position.

4.10 In any finding of single dominance, it is true that the larger the market share enjoyed by an individual undertaking, the greater the likelihood of a finding of SMP. This is because, at least in the case where they are very high, market shares serve as a proxy for market power. Thus, the Court of Justice in *Hoffman-La Roche v. Commission*[44] held that:

> *"... very large market shares are in themselves, and save in exceptional circumstances, evidence of the existence of a dominant position. An undertaking which has a very large market share and holds it for some time ... is by virtue of that share in a position of strength..."*

4.11 An undertaking will be subject to the rebuttable presumption that it is in a position of single dominance if it holds in excess of a 50% market share.[45]

4.12 Given that both voice calls and SMS could be considered "bulk products"[46] and also given that volumes are most commonly used for determination of market shares in wholesale markets[47], market shares were first calculated for the wholesale international roaming market based on volumes. As SMS traffic volumes for one MNO were unavailable for the periods prior to 2005, ComReg only has SMS market shares for 2005 in its possession. These are illustrated in Figure 4.1 below. As can be seen Vodafone and O2 had similar shares for SMS traffic at 43% and 44% respectively.

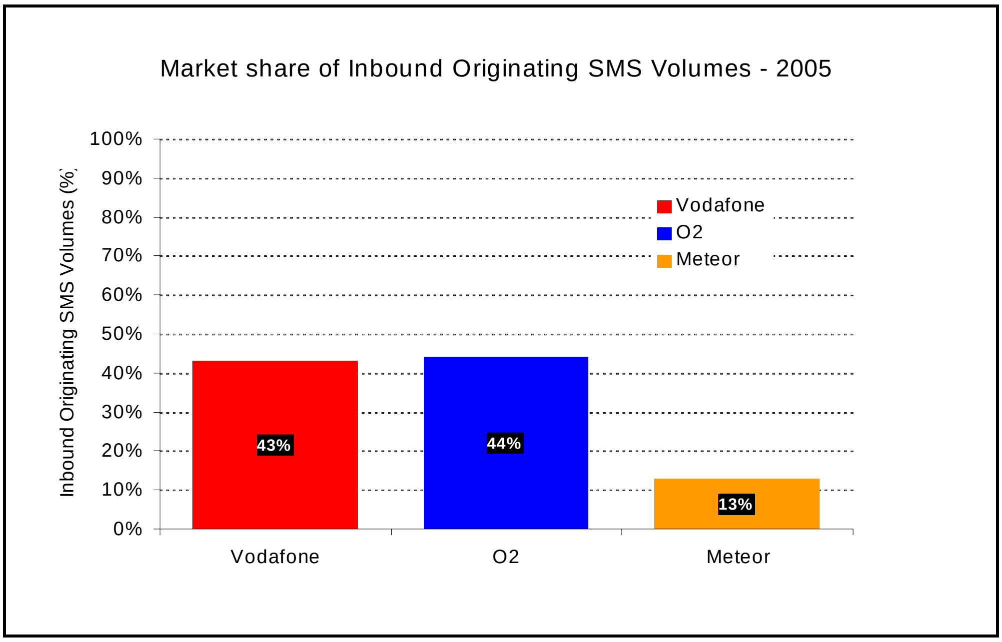
4.13 However, voice traffic consistently accounts for at least 90% of inbound roaming revenues and MNOs acknowledge that voice is the most important part of the service offered. Figure 4.1 below shows the market shares in volumes for voice traffic in the Irish WIR market. Whereas in the past, the dispersion of inbound roaming traffic amongst Irish MNOs was influenced by factors such as network configuration, coverage, etc., it is likely that movements in traffic shares are now principally influenced by increased use of traffic direction technologies. It can be clearly seen that the voice traffic market shares of O2 and Vodafone have converged. While Meteor's market share of inbound originating voice volumes experienced growth in the first two years, this fell off in 2004 but has increased by 9% to 18% in 2005.

[44] Case 85/76, [1979] ECR 461, at para. 41.

[45] See AKZO v. Commission, Case C-62/86, [1991] ECRI-3359; approved in Hilti AG v. Commission, Case T-30/89, [1991] ECR II-1439.

[46] Bulk products are products which are sold in large volumes and not differentiated in any way.

[47] Paragraph 76 of the SMP Guidelines.



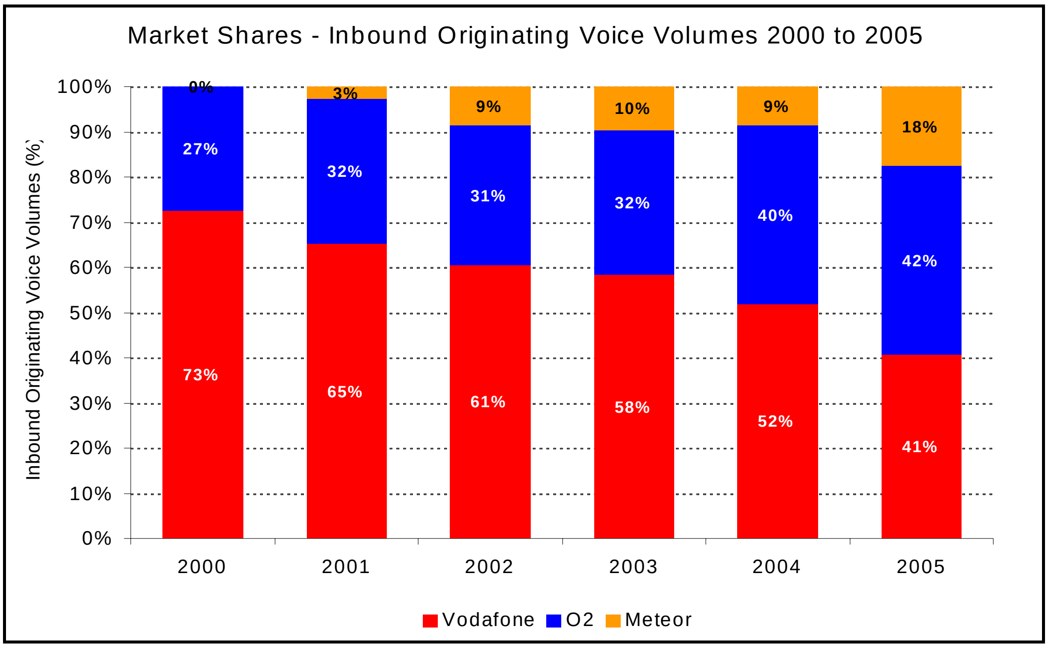


Figure 4.1: Market shares of Inbound Originating Voice and SMS Volumes

4.14 Due to the different units of measurement for voice and SMS roaming traffic, it is not possible to present combined market shares in terms of volumes. However, combined market shares can be provided in terms of revenue. The revenue market shares illustrated in Figure 4.2 below represent inbound originating roaming revenues 'net of discounts', to give a better reflection of the strength of undertakings in the market than would be the case with gross revenues alone. As can be seen, although there has not been as much convergence in revenue market shares as seen for volumes, Vodafone's share of overall revenues has fallen by 10% in two years to just under 50%.

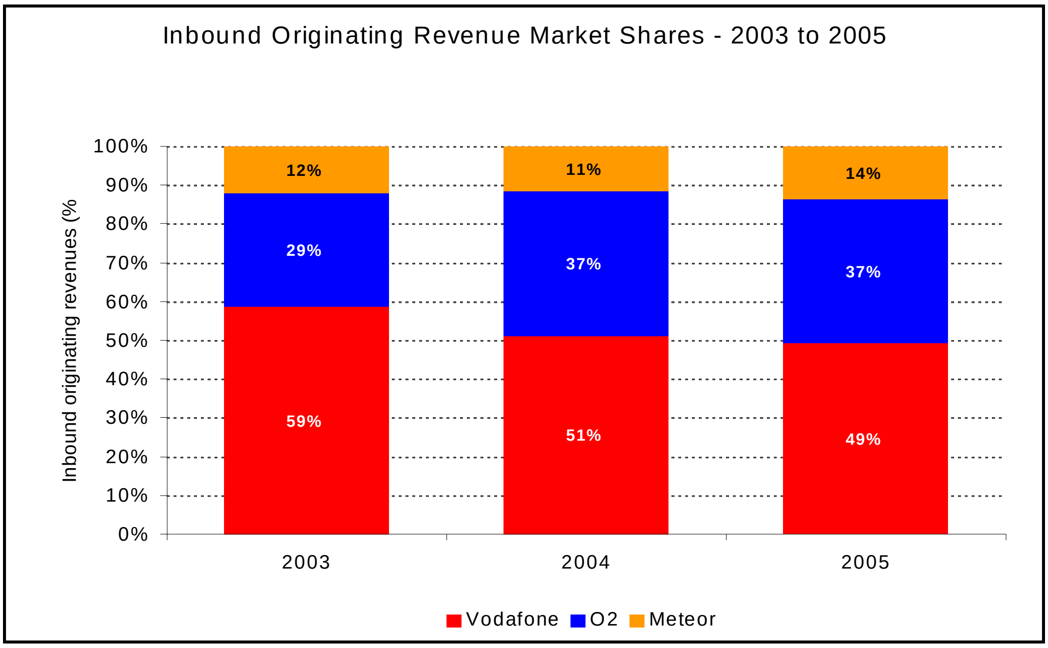


Figure 4.2: Market share of Inbound Originating Voice & SMS Revenues

<u>Conclusion</u>

4.15 The sharp decline along with the current level of Vodafone's market share of volumes and to a lesser extent revenues would appear to indicate that Vodafone does not enjoy a position of dominance in this market. Further, at this stage no other MNO has market share characteristics that would be indicative of single dominance.

4.16 However, the existence of a dominant position cannot be assessed on the sole basis of market shares. As stated previously NRAs are obliged to undertake a thorough and overall analysis of the economic characteristics of the relevant market before coming to a conclusion as to the existence of significant market power. Further, because much of the reduction in Vodafone's share has been caused by the consolidation of own-group and alliance traffic by O2 Ireland[48] rather than the capture of roaming traffic from independent MNOs, it is necessary to assess further SMP criteria relevant to the WIR market.

<u>Ease of market entry</u>

4.17 Access to the Irish wholesale roaming market is limited exclusively to licensed mobile network operators. In addition, the fact that frequencies for mobile networks are limited, the high costs associated with building a mobile network and the absence of effective supply-side substitution through other technologies, limit potential competition on the market. Thus, the wholesale international roaming market is

[48] For O2 Ireland, O2 Group traffic has grown from 11% of its overall inbound originating voice volumes in Q1 2000 to 46% in Q4 2004, while for Vodafone Ireland, O2 Group traffic has fallen from 33% of its overall inbound originating voice volumes in Q1 2000 to 4% in Q4 2004.

characterised by high and persistent barriers to entry and a lack of potential competition.

4.18 Further, the recent entry of '3' is unlikely to have a significant impact on this market within the timeframe of the review, as the '3' network only extends to certain urban locations, with coverage outside the '3' network area, like Meteor, provided through a wholesale national roaming agreement with Vodafone. The impact of entry will be further limited because '3' is only able to offer international roaming services to foreign subscribers with 3G handsets. Thus, the portion of the market in which they are capable of exerting influence is vastly reduced.

Groups and strategic alliances

4.19 As noted in the previous section, there has been a move towards the creation of international groups and alliances by mobile operators over the past number of years. These groups and alliances continue to grow throughout Europe and worldwide. Following transnational cooperation, it has been possible for operators to introduce more simplified retail tariffs. Some MNOs charge averaged retail roaming prices while others set a single retail roaming price for roaming services in a particular country or group of countries and do not differentiate between alternative visited networks (zoned tariffs). While the GSM Association's STIRA continues to govern bilateral roaming agreements between mobile operators, the fact that an increasing number of MNOs are part of either a group or an alliance, together with the implementation of traffic direction techniques, means that the concept of roaming agreements has changed. Roaming partners increasingly agree on discounted IOT revenues based primarily on volume (increase in volume from one year to the next), but also on other criteria such as average expenditure per subscriber, increase in the average expenditure per subscriber, the destination of calls, etc. Therefore, with this in mind and the fact that traffic direction technology has improved, it is clear that there is a move to increasingly direct roaming traffic within these groups and strategic alliances.

4.20 Unlike Vodafone or O2, Meteor is not currently a member of any group or strategic alliance and, as such, it has been unable to capture a significant portion of this lucrative market (although its share of Freemove Alliance traffic has significantly increased in 2005). In addition, Vodafone and O2 are increasingly able to act independently of their competitors in relation to their treatment of traffic from their group/alliance partners. However, it is unlikely that Vodafone and O2 would act to the detriment of their group/alliance members. Further, membership of a group/alliance does not afford either Vodafone or O2 the ability to act independently of their competitors in relation to traffic from independent foreign MNOs.

Conclusion

4.21 Due to international developments and consolidation in the international roaming market over the last few years and the resulting significant effect on traffic flows, it appears unlikely at this stage that the development of transnational groups or strategic alliances will enhance the ability of any one Irish MNO to act to an appreciable extent independent of their consumers, customers or ultimately end users, to the detriment of competition in the Irish market.

Countervailing Buyer Power

4.22 The assessment of countervailing buyer power focuses on whether customers enjoy a strong negotiating position that can be exercised to produce a significant impact on competition, by restricting the ability of providers to act independently of their wholesale customers. A customer will be able to exercise sufficient countervailing buyer power if, within a reasonable period of time, they could find alternative sources of supply when faced with rising prices.

4.23 As discussed previously, traditionally national MNOs negotiated roaming agreements with as many networks as possible in a given country. This was mainly to ensure coverage for their customers when roaming in that country, as many networks across Europe had sub-national coverage. As networks have been rolled out across Europe and the mobile sector has grown rapidly, MNOs have improved their network coverage to such an extent that coverage is no longer an important factor in the negotiation of wholesale roaming agreements. However, it is clear that many MNOs continue to conclude multiple roaming agreements in each territory in order to increase their options when negotiating wholesale roaming rates. The introduction of improved traffic direction techniques and the associated development in discounting has been the most important development relating to countervailing buyer power in this market.

Pricing and discounts

4.24 An important indication of market power is the ability to price at a level that keeps profits persistently above the competitive level. In a competitive market individual firms should not be able to raise prices above costs and persistently sustain excess profits. Therefore, the European Commission in the *SMP Guidelines* stress the importance when assessing market power on an ex-ante basis, of considering the ability of undertakings to raise prices without incurring a loss of sales or indeed revenue.

4.25 The headline wholesale tariffs offered by Irish MNOs do not seem to have changed significantly over the past number of years. However, despite these relatively static headline Inter-Operator Tariff (IOT) offerings, it is possible for Irish MNOs to apply different sales conditions between different groups of customers using discounts. Irish MNOs offer bespoke discounts on their headline IOTs in order to encourage foreign MNOs to direct their roaming traffic as much as possible on to that particular Irish network (this is discussed further below). It would seem that discounts are granted on the basis of increases in annual volumes of traffic sent to the partner network over and above an agreed baseline. Conversely, foreign MNOs are willing and able to direct significant amounts of traffic away from a particular Irish network in response to a price rise or to induce a price reduction. Through movements in traffic flows, ComReg has observed the use of discounting by all Irish MNOs as a tool to encourage the direction of roaming traffic onto their networks. This ability of foreign MNOs to induce Irish MNOs to reduce their wholesale roaming prices through discounting, in return for increased volumes, is a manifestation of countervailing buyer power in the Irish WIR market.

Traffic Direction

4.26 The most important recent development influencing the ability of foreign MNOs to exert countervailing buyer power in the Irish market is the increased effectiveness of traffic direction technology. Without the ability to direct roaming traffic, foreign MNOs are unable to threaten not to purchase or to switch away in response to a price rise. Traffic direction refers to the ability of a home MNO to select the specific foreign (visited) network onto which its subscribers will register in a visited country. The foreign network is often a preferred one, chosen on the basis of membership of a particular Group[49] or Alliance[50] and/or the level of IOTs charged by the foreign network.

4.27 As discussed above, until recently roaming traffic was randomly distributed across all of the mobile networks in a roamed country. However the arrival of technological developments such as advanced SIM cards and Over-The-Air platforms have facilitated the direction of roaming traffic to preferred Irish networks in recent years.[51]

4.28 As traffic direction affords MNOs the ability to determine onto which foreign network its traffic will be directed, its widespread use can have an impact on the overall level of competitiveness in the Irish international roaming market. Foreign MNOs may attain a strong position in negotiating lower charges for wholesale roaming if they are able to generate increased traffic on the visited Irish network. In cases where traffic direction is effective, the home MNO can exert countervailing buyer power on the visited Irish MNO. Where a home MNO has roaming agreements with one or more MNOs in the visited country it can, by using traffic direction techniques, have the power to reduce the market power of the visited MNO.

4.29 One function that may limit the effective use of traffic direction is the manual network selection function on handsets which allows subscribers to bypass automatic network selection and to choose which network their handset registers. Despite this, there does not appear to be strong evidence to suggest the widespread knowledge or usage of this function. However, MNOs actively advertise with SMS messages and at ports of entry to encourage subscribers to use the preferred network in that country.

4.30 From the market data collected by ComReg there is evidence to suggest that the use of traffic direction techniques has grown substantially since 2000. Some foreign MNOs have been able to direct approximately 80% of their traffic to their preferred Irish MNO. There is further evidence to suggest that MNOs that are members of groups have, in general, increasingly been deploying traffic direction techniques to direct traffic towards members of the same group whilst reducing the volumes of traffic directed towards non-group MNOs (see Figures 4.4 and 4.5 below).

[49] For example O2 Group or Vodafone Group

[50] For example Starmap Mobile Alliance or Freemove Alliance

[51] European Commission Memo/04/198 on International Roaming, 26 July 2004

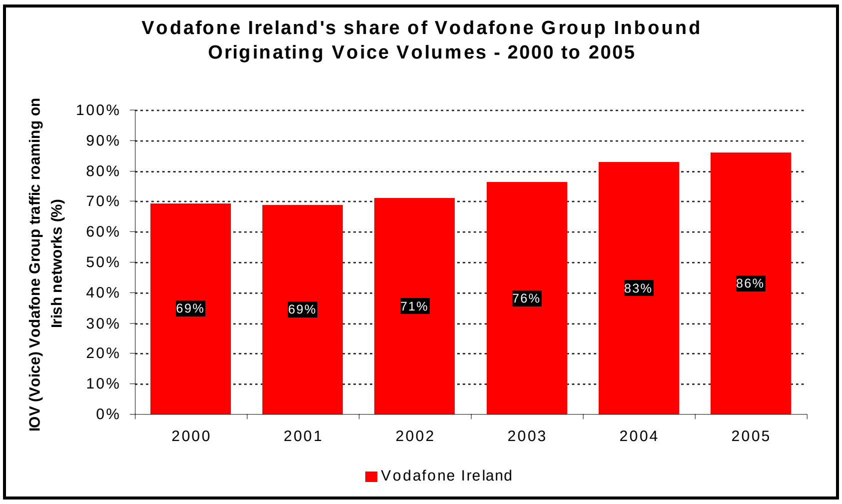


Figure 4.3 – Inbound Originating Volumes (IOV) (Voice) of Vodafone Group[52] operators roaming on the Vodafone Ireland Network between 2000 and 2005

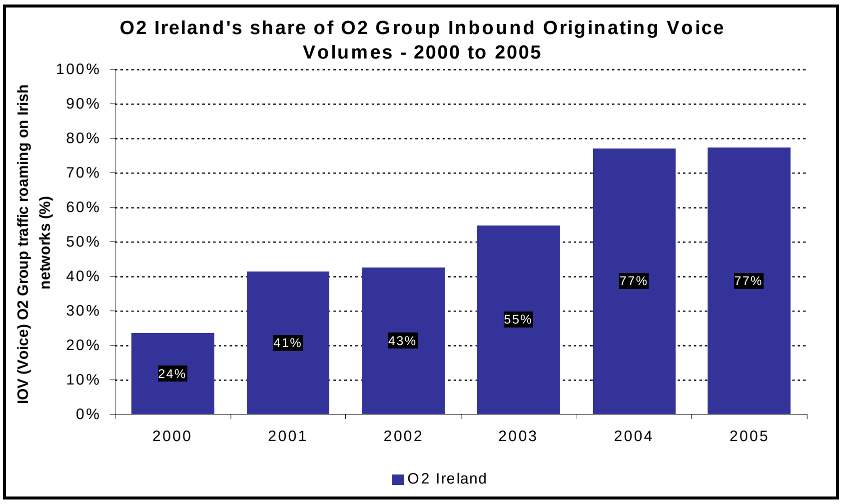


Figure 4.4 – Inbound Originating Volumes (IOV) (Voice) of O2 Group[53] roaming on the O2 Ireland Network between 2000 and 2005

4.31 Concerning alliances, there is evidence to suggest that foreign MNOs that are members of such alliances are gradually directing their roaming traffic away from the Irish MNOs that are non-members in favour of the Irish MNO who is an alliance member (see Figure 4.5 below).

[52] The Vodafone Group is comprised of Vodafone Germany, Vodafone Greece, Vodafone Hungary, Vodafone Italy, Vodafone Ireland, Vodafone Malta, Vodafone Netherlands, Vodafone Portugal, Vodafone Spain, Vodafone Sweden and Vodafone UK.

[53] The O2 Group is comprised of O2 Ireland, O2 UK and O2 Germany.

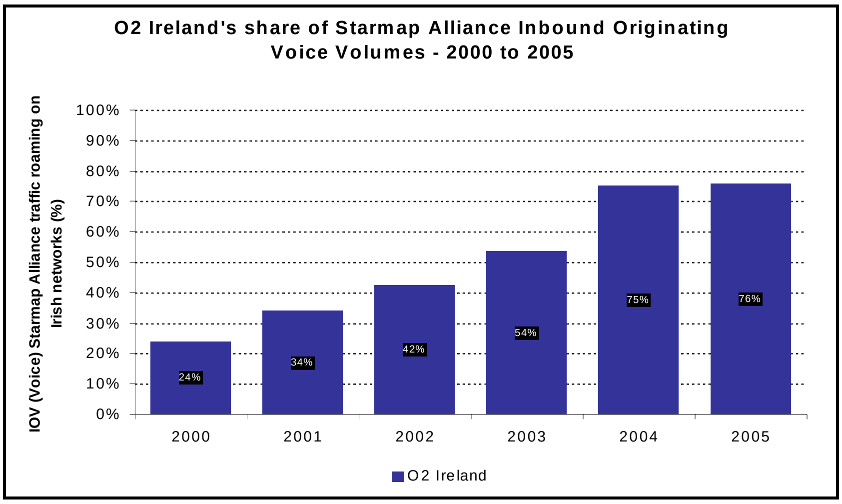


Figure 4.5 – Inbound Originating Volumes (IOV) (Voice) of Starmap Mobile Alliance[54] operators roaming on Irish Mobile Networks between 2000 and 2005

4.32 In summary, it is clear that the use of traffic direction technologies has grown in recent years. Foreign MNOs can increasingly determine onto which Irish network their subscribers roam through the implementation of different traffic direction technologies. The level of IOTs offered and/or membership of a group or alliance appears to influence the choice of roamed network. Traffic direction towards group and alliance members has generally been increasing in recent years. Consequently its effect on competitiveness needs to be recognised in any determination of the existence of single dominance in the mobile market for international roaming.

Conclusion

4.33 ComReg proposes that the improvement and increased use of traffic direction techniques across Europe, has the effect of increasing the ability of foreign MNOs to exert countervailing buyer power in the Irish market. This buyer power manifests itself in the increasing willingness of Irish MNOs to offer foreign MNOs discounts and reciprocal traffic, in order to encourage the redirection of traffic onto their networks. This limits the ability of any one Irish MNOs to behave to an appreciable extent independently of its competitors and consumers.

Conclusions on analysis of Single Dominance

4.34 The wholesale international roaming market is characterised by high and persistent barriers to entry. However, movements in market shares over time do not indicate that any single Irish MNO enjoys a position of single dominance, and foreign MNOs appear to have an increasing ability to direct large amounts of roaming traffic to particular networks in Ireland. As a result, they are able to exert countervailing buyer power when negotiating roaming agreements. This can be seen in the increased

[54] Starmap mobile alliance MNOs: Amena (Spain), Eurotel (Czech Republic), O2 (Germany, the UK and Ireland), One (Austria), Pannon GSM (Hungary), SONOFON (Denmark), sunrise (Switzerland), Telenor Mobil (Norway) and Wind (Italy)

reliance on discounting by Irish MNOs to induce direction of roaming traffic onto their network. Thus, ComReg proposes that no MNO in the Irish market enjoys a position of single dominance allowing it to behave to an appreciable extent independent of its competitors and consumers.

Q. 8. Based on the above analysis, do you agree with ComReg's preliminary view that no undertaking enjoys a position of single dominance in the Irish wholesale international roaming market? Please detail your response.

Views of respondents

4.35 Of the three respondents who provided views on this aspect of the market review (Vodafone, O2 & Meteor), all agreed with ComReg's preliminary view that no undertaking enjoyed a position of single dominance in the Irish wholesale international roaming market. However, one respondent (Vodafone) noted that market share data was of minor significance where there were multiple competing mobile networks that were good substitutes, were not capacity constrained and where foreign MNOs could easily switch traffic between network operators.

4.36 In addition, this respondent disagreed with ComReg's finding that the market is characterised by high and persistent barriers to entry. The respondent based this view on the fact that a 3G licence is available and that the strong interest shown in the licences illustrated that the costs of setting up a national network are not a significant obstacle to market entry.

ComReg's Position

Market share:

4.37 ComReg acknowledges that market shares merely serve as a proxy for market power and that the existence of a dominant position cannot be established on the sole basis of large market shares. However, it should be noted that the *SMP Guidelines*[55] suggest that, although a high market share alone is not sufficient to establish the possession of significant market power (dominance), it is unlikely that a firm without a significant share of the relevant market would be in a dominant position. Further the important judgement of the Court of Justice in *Hoffman-La Roche v. Commission*[56] notes that:

> *"... very large market shares are in themselves, and save in exceptional circumstances, evidence of the existence of a dominant position. An undertaking*

[55] Paragraph 75 of the SMP Guidelines.

[56] Case 85/76, [1979] ECR 461, at para. 41.

which has a very large market share and holds it for some time ... is by virtue of that share in a position of strength...”

4.38 It is accepted by anti-trust authorities all over the world that, in general, there is a positive relationship between market share and market power. As such, ComReg rejects the assertion that the assessment of market shares in this market is of only minor significance in the market power analysis.

Barriers to entry:

4.39 ComReg notes that, where there is a threat of potential entry this may prevent firms from raising prices above competitive levels, leading thereby to a situation in which no market power is exercised. However, if there are significant barriers to entry, this threat may be weak or absent. All new MNOs entering the Irish mobile market must first gain a licence from ComReg prior to entering the market (and in turn the WIR market). Although there are no MVNOs in the Irish market, an MVNO would not require a licence to enter the market. However, the European Commission notes in its *Recommendation on Relevant Markets*[57] that MNOs sell wholesale roaming services to other licensed MNOs only. They do not conclude international roaming agreements with service providers and MVNOs.

4.40 As ComReg’s ability to award new licences is in itself restricted by the limited amount of available radio frequencies, absolute barriers to entering the Irish mobile market will remain high and persistent[58].

4.41 ComReg accepts that a new 3G operator is due to enter the market[59]. However, this licence has a minimum network build requirement which is far below the current network coverage of Vodafone, O2 and Meteor. Also, as was the case for recent entrants, it will likely take a number of years before this entrant has network coverage as extensive as the existing operators.

4.42 In addition, as is the case for ‘3’, only foreign roamers with 3G handsets will be able to roam on the new entrant’s network, which will have a negative impact on the proportion of the wholesale international roaming market that they can compete for. As noted in the consultation, approximately 75% of roaming traffic in Ireland is originated by UK subscribers, so it is reasonable to take a closer look at the take-up of 3G services in the UK. According to the recent Ofcom Interim Report in February 2006[60] only 4 million (6%) out of 62.5 million mobile subscribers in the UK had 3G handsets. In fact Ofcom noted that Carphone Warehouse recently reported significantly fewer 3G handset sales over the Christmas period of 2005 compared to Christmas 2004. ComReg also notes that the total 3G subscriber base in the UK grew by only one million from Q4 2004 to Q3 2005. As such, unlike for Vodafone, O2 and Meteor, it appears that there will be barriers to expansion for ‘3’ and the new entrant in the wholesale international roaming market within the timeframe of the review.

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[57] See page 31 of the Explanatory Memorandum to the Recommendation

[58] As was also the case in *Vodafone/Airtouch* - Case IV/M.1430

[59] ComReg held a competition for this licence in late 2005, but an issue relating to the award of this licence is currently under appeal.

[60] http://www.ofcom.org.uk/research/cm/feb06_report/comms_mkt.pdf

4.43 ComReg is, therefore, of the view that there are both absolute barriers to entry and barriers to expansion (for '3' and the new entrant), in the Irish wholesale international roaming market.

4.44 However, ComReg maintains its position that no undertaking enjoys a position of single dominance in the Irish wholesale international roaming market.

Joint (or Collective) dominance

4.45 Under Article 82 of the EC Treaty, a dominant position can be held by one or more undertakings (collective dominance). Regulation 25(1) of the Framework Regulations also provides that an undertaking may enjoy significant market power, that is, it may be in a dominant position, either individually or jointly with others.

4.46 As illustrated above, the Irish Wholesale International Roaming Market has been characterised by persistently high combined market shares for Vodafone and O2. Their combined market share for Inbound Originating voice volumes has never dropped below 80%. While the European Court of Justice has recognised that "[a] market share of approximately 60% … cannot of itself point conclusively to the evidence of a collective dominant position",[61] the Court has also made it clear that a combined market share as high as [80-90] % will normally provide incentives for anticompetitive parallel behaviour. [62] For this reason, ComReg considers it appropriate and necessary to assess whether a position of collective dominance might exist in the wholesale international roaming market.

4.47 According to the Court of First Instance, in order to show that two or more undertakings hold a joint dominant position, it is necessary to consider whether the undertakings concerned together constitute a collective entity in relation to their competitors, their trading partners and their consumers on a particular market.[63] The European Commission note in paragraph 92 of the *SMP Guidelines*, that this will be the case when:

(i) there is no effective competition among the undertakings in question; and

(ii) the said undertakings adopt a uniform conduct or common policy in the relevant market.[64]

4.48 Only when the above situation exists, is it appropriate to determine whether the collective entity actually holds a dominant position.

4.49 It follows from the *Gencor*[65] and *Compagnie Maritime Belge* judgements that, although the existence of structural links can be relied upon to support a finding of a

[61] France & Ors v. Commission ("Kali und Salz"), Joined Cases C-68/94 and C-30/95.

[62] See, for example, *Rhodia/Donal Chemie/Albright & Wilson*, Case IV/M. 1517, at para. 61.

[63] *Compagnie Maritime Belge Transports and Others v Commission* [2000] ECR I-1365, at paragraph 39, see also, Case T-342/99 *Airtours/Commission* [2002] ECR II-0000, paragraph 76.

[64] *France and Others v Commission* [1998] ECR I-1375, paragraph 221.

[65] *Gencor v Commission* [1999] ECR II-753

collective dominant position, such a finding can also be made in relation to an oligopolistic or highly concentrated market whose structure alone in particular, is conducive to coordinated effects (parallel or aligned anticompetitive behaviour) on the relevant market.

4.50 At paragraph 96 of the *SMP guidelines*, the Commission states 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 makes it conducive to tacit coordination; and

(b) whether such a form of coordination is sustainable, that is, (i) whether any of the oligopolists have the ability and incentive to deviate from the coordinated outcome, considering the ability and incentives of non-deviators to retaliate; and (ii) whether buyers/fringe competitors/potential entrants have the ability and incentive to challenge any anti-competitive coordinated outcome.

4.51 Annex II of the Framework Directive summarises a number of criteria which have been used by the European Commission in applying the above concept of collective dominance. Without prejudice to the case law of the Court of Justice on joint dominance, two or more undertakings operate in a market the structure of which is considered to be conducive to coordinated effects, where the market satisfies a number of appropriate characteristics, in particular in terms of market concentration, transparency and other characteristics mentioned below:

- mature market,
- stagnant or moderate growth on the demand side,
- low elasticity of demand,
- homogeneous product,
- similar cost structures,
- similar market shares,
- lack of technical innovation, mature technology,
- absence of excess capacity,
- high barriers to entry,
- lack of countervailing buying power,
- lack of potential competition,
- various kinds of informal or other links between the undertakings concerned,
- retaliatory mechanisms,
- lack or reduced scope for price competition.

4.52 Annex II notes that the above is not an exhaustive list, nor are the criteria cumulative. Rather, the list is intended to illustrate market characteristics which could be used as evidence to support assertions concerning the existence of joint dominance.

4.53 This list reflects a broad range of issues that have been considered in the developing case-law. The jurisprudence on collective dominance continues to develop. In particular, the Court of First Instance has pronounced, at some length in its *AirTours* judgment, on the elements necessary to meet the legal standard for collective dominance.

4.54 The rest of this section examines, firstly, whether this market is conducive towards co-ordinated behaviour (based on the above criteria set out in the *SMP Guidelines*) and, secondly, whether such co-ordination would be sustainable (based on the three criteria set out in the *AirTours* judgement).

The Irish Wholesale International Roaming Market

Similar Market Shares

4.55 While the relative volume market shares of O2 and Vodafone have converged in recent years (without significantly affecting the combined share), much of this movement has been due to the consolidation of Group traffic, with O2 Ireland capturing most of the O2 UK roaming traffic previously carried by Vodafone. As Group traffic consolidation approaches 100%, one might expect relative market shares to settle, with the combined market share both high and symmetric. However, in 2005 Meteor have doubled their market share of inbound originating voice volumes to 18%, which appears to have had an impact on both the stability of the combined market share and the symmetry of market shares within the combined share. For example, it appears in Figure 4.6 that, in this period, Meteor's gain in traffic share has mostly been at the expense of Vodafone.

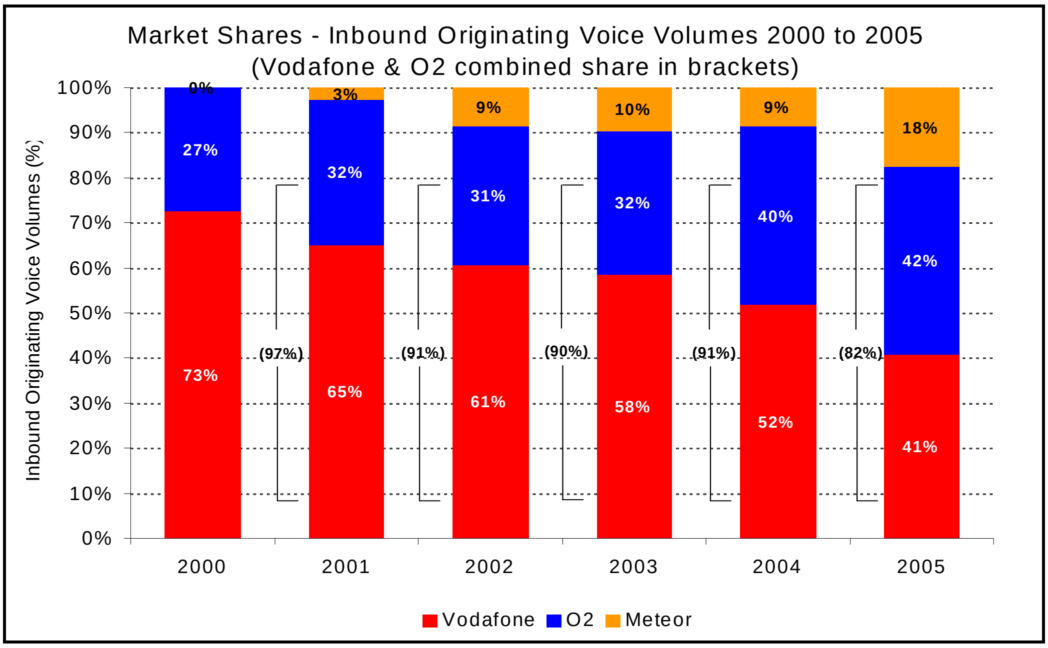

Figure 4.6: Vodafone and O2 individual and combined market shares for inbound originating voice volumes

4.56 The picture is not as clear when dealing with revenues. As can be seen in Figure 4.7 below, there has not been a significant corresponding increase in Meteor's revenues in 2005. However, although the combined market share for revenue appears to be stable, the symmetry of market shares within the combined share is not so, with Vodafone's share of overall revenues falling by 10% over the period.

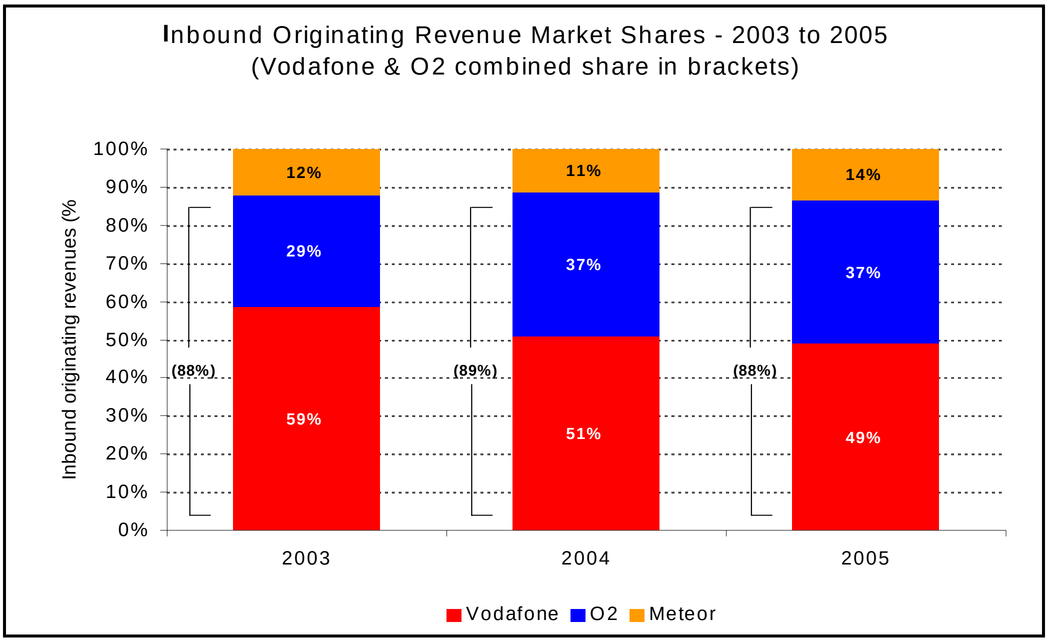

Figure 4.7: Vodafone and O2 individual and combined market shares for inbound originating voice revenues (revenues are net of discounts)

Conclusion

4.57 While, prior to 2005, individual market shares for voice traffic volumes were converging and not symmetrical, there was a strong indication that, following consolidation of group/alliance traffic, they might settle at a symmetric level. Yet in 2005, this new equilibrium appears to have been disrupted. In relation to overall revenues, the symmetry of market shares within the combined share appears to be unstable over the period 2003 to 2005. Such market share characteristics do not point strongly to a position of collective dominance in this market.

4.58 However, the combined market share of Vodafone and O2 for both traffic and revenues remains over 80%, and it is unclear that Meteor could continue with the strong volume growth experienced in 2005. In addition, a market share of 80-90% is not a prerequisite for a finding of collective dominance. As such, it is appropriate to assess whether the market has other characteristics that would be conducive to coordinated behaviour.

Market Concentration

4.59 Other things being equal, collusion is more likely the smaller the number of firms in the industry. This is so, because it is easier to monitor a market with fewer players. In addition, the gains from deviating, where two players share most of the market, are smaller relative to the lower profits resulting from the punishment which follows. For example, in a collusive situation where there are many firms of identical size and of large capacity, each of them will set a high price and get a small share of the total profits. If one of them deviates and sets a lower price than the rivals, it might get all the market for itself, and the gains from deviating would be so high in the deviation period that they would outweigh the collusive profits foregone during the punishment period. For these reasons, high market concentration facilitates firms' coordination on a collusive outcome as well as its enforcement.

4.60 The Herfindahl-Hirschman Index (HHI) is a commonly accepted measure of market concentration. It is given by the sum of the squares of market shares of the firms in the market. It can vary between 0, when the market is entirely fragmented (each firm has a market share close to 0) and 10,000 points, where there is only one firm in the industry which has 100% of the market. It is generally regarded that markets, in which the HHI is in excess of 1800 points, are highly concentrated. As illustrated in Figure 4.8 below, the concentration of the Wholesale International Roaming Market based on traffic volumes was 3,750 points as at end 2005. In the previous four years the HHI had only fallen from 4,750 points and it is highly unlikely that it would reach anywhere near 1,800 points within the timeframe of the review. Thus, the market can be considered highly concentrated and will remain so within the timeframe of the review.

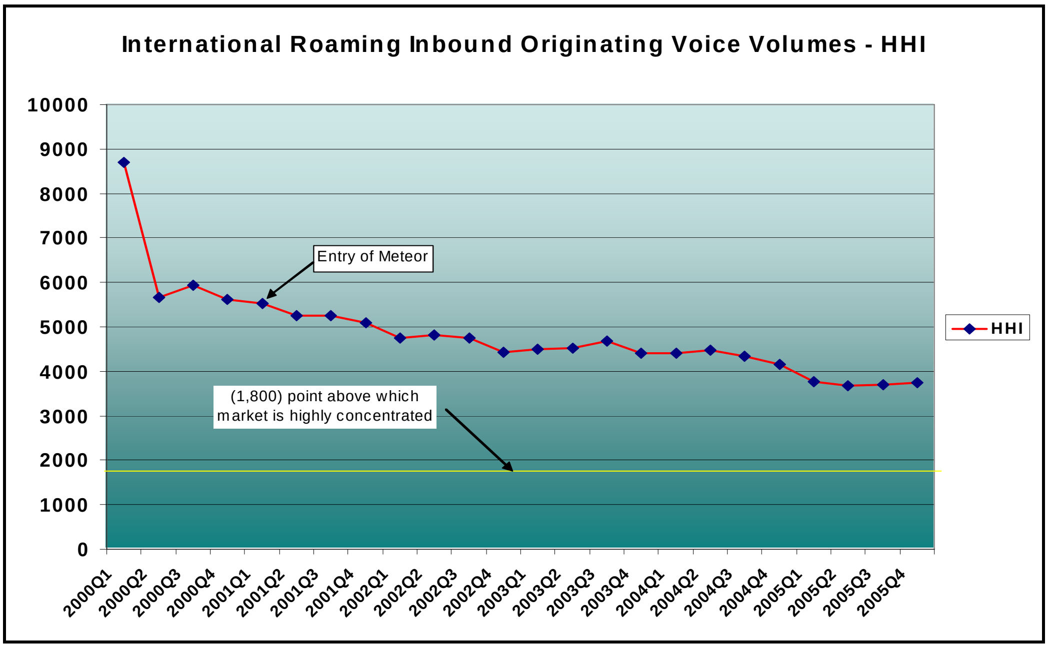

Figure 4.8: Market Concentration (HHI)

<u>Conclusion</u>

4.61 ComReg proposes that the market is highly concentrated and will remain so within the timeframe of the review. Such high concentration facilitates firms' coordination on a collusive outcome as well as its enforcement.

Countervailing Buyer Power

4.62 Economic theory argues that the scope for collusion is limited when there are large and powerful buyers. ComReg has discussed at length in the previous section, whether foreign MNOs are able to exert countervailing buyer power in such a way that limits the ability of Irish MNOs to exercise market power in this market. It is clear that, with the improvement in traffic direction techniques there has been a marked increase in its use by foreign MNOs, as shown in the traffic direction charts above. Although this technology is not perfect, clearly foreign MNOs are increasingly able to choose on which network their subscribers will roam in Ireland. The improved bargaining position enjoyed by foreign MNOs resulting from this traffic direction, is demonstrated by the increased use of discounting by Irish MNOs to encourage the direction of foreign traffic on to their networks.

4.63 Prior to 2005 it appears that, due to a combination of the lower outbound traffic volumes on offer[66], the restricted network coverage available (requiring an additional roaming agreement with either Vodafone or O2 in order to offer complete national coverage in Ireland) and a lack of group membership (for Meteor), Meteor and ‘3’ might realistically constitute a less attractive alternative to Vodafone or O2 for foreign MNOs whose subscribers are roaming in Ireland. Even though foreign MNOs can increasingly use traffic direction to determine on which network their subscribers will roam, it appeared likely that they would choose either Vodafone or O2, in order to offer complete uninterrupted coverage to their subscribers. This appears to be borne out by the respective shares in traffic enjoyed by Vodafone and O2 prior to 2005, as illustrated above.

4.64 However, due to Meteor’s significant gain in market share in 2005, which includes traffic from some of the larger MNOs in Europe, it appears that, if Vodafone and O2 attempted to present themselves as a collective entity in the economic sense, a foreign MNO could indeed credibly threaten not to purchase or direct traffic away from both of them to Meteor in order to secure lower wholesale prices.

4.65 While such practice would be viable for a large foreign buyer such as T-mobile, it is not clear that a smaller buyer could necessarily secure lower wholesale tariffs from Vodafone or O2 by threatening to switch to Meteor, because their small traffic volumes would be relatively less valuable to Vodafone and O2. In fact Vodafone and O2 could conceivably price discriminate between large buyers and small buyers. This would be further facilitated by the lack of transparency of discounting in the market. In this situation the level of countervailing buyer power that can be exerted by a small buyer on the two Irish MNOs may be limited. However, traffic belonging to a small foreign buyer would be more valuable to a seller with relatively small volumes of inbound traffic, such as Meteor. It is reasonable to assume that Meteor could be induced to offer lower rates in order to capture this traffic. As such, the ability of Vodafone and O2 to act to an appreciable extent independently of small buyers is

[66] While Meteor subscribers represent 14% of the Irish pre-paid market, they only account for 2% of the more lucrative post-paid segment, as at Q3 2005. Post-paid roaming includes business roamers who would represent a disproportionately large percentage of roaming traffic. ComReg is aware that when negotiating reciprocal roaming agreements, foreign MNOs value the level of traffic and revenues that they will receive in return as part of such an agreement. As such, Meteor and ‘3’ are at a disadvantage to Vodafone and O2 when negotiating such agreements.

negated by the ability to switch away and secure lower rates from Meteor. In any case, the existence of small buyers would not negate the buyer power of the large buyers in this market.

Conclusion

4.66 It appears that foreign MNOs are, to an appreciable extent, able to exert countervailing buyer power on any one Irish MNO or against both Vodafone and O2 in response to an attempt to act together as a collective entity.

Mature Market

4.67 A mature market is a market characterised by a largely homogenous product and a lack of technological innovations. The Wholesale International Roaming Market involves the provision of voice and SMS services which are mature products for which it could be argued there is little, if any, scope for further significant product differentiation.

4.68 ComReg accepts that there is a steady flow of new products and services flowing into the Irish mobile market (as with many other markets across Europe). However, these are largely incremental and 'generational' technological developments directed towards the provision of services that typically complement the voice and SMS services offered to all foreign network operators. ComReg believes that the pattern of innovation affecting the Irish wholesale roaming market is not unique, and is typical of developments occurring in most wholesale roaming communications markets worldwide. ComReg sees no evidence of likely 'drastic' innovations[67] favouring one mobile operator which might undermine an incentive for coordination. On the contrary, the source of those innovations is an equipment industry whose own economic incentives are to disseminate those 'innovations' over the whole mobile industry, which operates in Europe to common standards.[68]

4.69 Thus, innovations tend not to favour one firm in the market for any particular duration because the most important innovations in the mobile sector are coordinated at an industry level, as evidenced by the introduction of 3G services. The number of suppliers and buyers of wholesale roaming services in Europe has not increased by much in the last few years and is unlikely to increase significantly in the near future. While the development of UMTS has led to the entry of '3' into the Irish market and some new entrants across Europe, average market structures will not significantly change as many GSM 900/1800 licensed MNOs have also acquired UMTS licences.

Conclusion

[67] A drastic innovation occurs when a firm produces an innovation that leads to either a significant ('drastic') reduction in its costs, thus conferring on it a permanent advantage over rivals in a market, or to a significant improvement in quality (or some other strategic variable).

[68] The only form of firm-led 'innovation' which is taking place concerns the customised branding of equipment for particular mobile operators, which does not impact on technological advantage whatsoever.

4.70 In this sense, the Irish wholesale roaming market cannot be considered to be a market driven by one-sided (i.e. single operator) innovation, and therefore it is unlikely that innovation would adversely affect incentives for co-ordination. If there were evidence of potential drastic innovations, co-ordination might unravel over the lifetime of this review. However, ComReg believes that innovation will not provide a substantial competitive advantage to any operator in the Irish market during the lifetime of this review.

Barriers to Entry and Potential Competition

4.71 As discussed under the single dominance assessment, access to the wholesale roaming market is limited exclusively to licensed mobile network operators. In addition, the fact that frequencies for mobile networks are limited, the high costs associated with building a mobile network and the absence of effective supply-side substitution through other technologies, limits potential competition on the market. Thus, the wholesale international roaming market is characterised by high and persistent barriers to entry and a lack of potential competition.

4.72 Further, the recent entry of '3' is unlikely to have a significant impact on this market within the timeframe of the review, as the '3' network only extends to certain urban locations, with coverage outside the '3' network area provided through a wholesale national roaming agreement with Vodafone. The impact of entry will be further limited because '3' is only able to offer international roaming services to foreign subscribers with 3G handsets. Thus, the portion of the market in which they are capable of exerting influence in vastly reduced.

Conclusion

4.73 ComReg proposes that the wholesale international roaming market is characterised by high and persistent barriers to entry, with an associated lack of potential competition.

Stagnant or Moderate Growth

4.74 Existing jurisprudence concludes that the faster demand is growing, the more likely providers are to compete aggressively (undermining any potential collusive behaviour) due to the potentially higher returns available in terms of future market shares and profits. However, recent economic analysis also proposes that the actual effect of demand growth on collusive behaviour depends on the existence of entry barriers (as the prospect of future entry hinders the ability to collude). If entry barriers are so large that entry is highly unlikely to occur, demand growth may foster collusion. If instead, entry barriers are moderate, demand growth may be sufficient to outweigh these barriers and stimulate entry, which would in turn impede collusion.[69] This is so, because in a market characterised by stagnant or moderate growth, where tomorrow's profits (with or without retaliation) will be small anyway, there is limited possibility to induce firms to stick to a collusive conduct. However, ComReg acknowledges that there is, as yet, no jurisprudence to support this economic theory.

[69] See Ivaldi, M. et.al: The economics of tacit collusion, Final report for DG Competition, European Commission, March 2003

4.75 The demand for wholesale international roaming services stems from demand at the retail level, and is therefore linked to the travel pattern of customers at the retail level. Wholesale demand for inbound originating voice calls has witnessed strong growth in recent years, with volumes increasing by 69% from 71 million minutes in 2001 to 120 million minutes in 2005 (with year–on-year growth of 18% and 17% in 2004 and 2005 respectively). This growth in demand does not appear to have been primarily stimulated by an increase in roaming visits to Ireland. For example, total overseas visits to Ireland increased from 6,310,000 in 2000 to 6,574,000 in 2004 (an increase of only 4.2%).[70] It, therefore, appears that demand growth in the Irish wholesale international roaming market has been strong during the period in question, with both an increase in retail users and an increase in average usage.

4.76 The Irish market is, thus, characterised by high growth and high barriers to entry. There has been no significant innovation in this market to induce the significant growth in question. Instead, increased numbers of roaming agreements and changes in travel patterns are more likely to have stimulated such growth. The jurisprudence indicating that a market with growing demand is likely to undermine collusive behaviour, is based on the assumption that increased demand will induce entry. However, such entry is not possible in the Irish market and unlikely to undermine collusive conduct. Therefore, the high growth in demand in this market may also facilitate collusive behaviour.

Conclusion

4.77 ComReg proposes that the high growth in demand in this market may facilitate collusive behaviour due to the existence of high barriers to entry.

Low elasticity of demand

4.78 It is increasingly argued in economic literature, that the effect of demand elasticity on the sustainability of collusion can be regarded as ambiguous, because elasticity of demand will, in general, affect both sides of the incentive constraint for collusion. For example, in *Ivaldi et.al* the view was held that demand elasticity has no impact on the sustainability of collusion. On the other hand, demand elasticity will tend to affect the level of the maximum collusive price, implying that there will be less reason to worry about possible collusion if demand elasticity is high.[71]

4.79 Evidence from consumer surveys conducted in Ireland (in conjunction with Oftel)[72] and in Finland[73], indicates that retail mobile consumers are relatively unaware of the prices charged for international roaming when travelling abroad. In addition, a recent consumer survey conducted by ComReg again indicated that consumers are relatively unaware of the difference in cost of using their mobile phone while abroad. [74] A large

[70] Central Statistics Office – www.cso.ie

[71] See Competition Policy – Theory and Practice, Massimo Motta [2004]

[72] Consumer Awareness of International Roaming – 4th April 2002 - ODTR02/33

[73] Finnish Communications Regulatory Authority (FICORA) – Mobile Phone Usage Abroad, Spring 2005

[74] ComReg Trends Report – Q3 2005 – ComReg Doc. 05/86b

proportion (37%) of those who use their phone while abroad were ‘fairly unsure’ or ‘had no idea’ of the difference in costs when roaming, while only 23% knew the exact costs involved. Such a lack of awareness of pricing might suggest that demand for retail international roaming services across Europe is relatively inelastic. The FICORA survey also indicates that international roaming prices have little or no impact on the choice of mobile subscription. As UK retail demand for roaming services (accounting for 71% of roaming in Ireland) appears to be inelastic, and assuming that demand characteristics in Finland and Ireland are reflective of those across Europe, demand for retail roaming services for travellers to Ireland appears to be relatively price inelastic. As a result, there is little retail pressure exerted on MNOs to seek lower wholesale prices for roaming in Ireland. As such, Irish MNOs face relatively inelastic demand curves at the wholesale level, particularly as increased wholesale prices can be passed on to the retail level with relatively little impact on retail demand. ComReg, therefore, proposes that the demand for wholesale international roaming services in Ireland is relatively inelastic.

Conclusion

4.80 ComReg proposes that, while the presence of elastic demand might undermine collusive behaviour on the one hand, the presence of inelastic demand in the Irish WIR market would have the effect of facilitating any potential collusive conduct.

Homogeneous products

4.81 When considering the potential for collusive behaviour, the more similar the products or the more similar they are perceived by customers, the stronger the incentive to coordinate behaviour. In the Irish wholesale international roaming market, each provider offers both voice and SMS services, while each Irish MNO is also capable of offering full coverage to its wholesale consumers[75]. There is little product differentiation possible in this market, as voice and SMS services are mature products, with a market leader in any innovation (e.g. short-codes) followed closely by its competitors. For this reason, foreign MNOs wishing to purchase voice and SMS services in the Irish market would perceive the products on offer as inherently similar.

4.82 When taking data services (including MMS) into account, there may be more scope for product differentiation amongst Irish MNOs. However, such services are clearly of much less importance to wholesale purchasers and appear to be regarded as complementary to voice and SMS services. Thus, ComReg proposes that the services being offered by Irish MNOs are sufficiently homogenous to increase the incentive to coordinate their behaviour.

Conclusion

[75] Only Vodafone and O2 have complete coverage in Ireland. Both Meteor and ‘3’ have national roaming agreements with O2 and Vodafone respectively. A foreign MNO seeking to offer roaming on either the Meteor or ‘3’ networks must also have a roaming agreement with their national roaming partner, to cover situations where their subscribers travel beyond the network coverage of the former. However, the roaming service offered by ‘3’ will be more susceptible to this scenario, as they only have network coverage in urban areas (approximately 50% population coverage), while Meteor has over 90% population coverage on their own network.

4.83 ComReg proposes that the services being offered by Irish MNOs are sufficiently homogenous to increase the incentive to coordinate their behaviour.

Frequent Interaction

4.84 The incentive to coordinate is also known to be easier where there is frequent interaction between the firms in an oligopolistic market. Interaction between O2 and Vodafone has a structural dimension, insofar as Vodafone and O_2 frequently interact with one another through their common participation in various practices common to a networked industry (e.g. interconnection agreements). Other economic links also exist between O2 and Vodafone such as:

- membership of the GSM Association;
- membership of national groups and committees where they act together; and
- membership of other industry related forums such as the WAP forum and the UMTS forum.

Conclusion

4.85 ComReg proposes that the frequent interaction between O2 and Vodafone in the Irish market would facilitate coordinated behaviour.

Similar Cost Structures

4.86 Operators with similar cost structures are likely to share the same strategic interest in muted competition, or to adopt the same focal point (i.e. collusive outcome). Conversely, economic theory holds that if an operator has a lower operating cost than his competitors it is likely to have a stronger incentive to deviate from a given coordinated strategy. In the WIR market it is unclear whether operators price their services on the basis of marginal or average costs, as this requires a detailed investigation of underlying costs. However, since Vodafone and O2 offer complete coverage, were the comparison to be undertaken on a marginal cost basis, it could be argued that the similar marginal cost structure would make the WIR market conducive to a non-competitive market outcome. At least two Irish MNOs believe that the costs of providing wholesale international roaming services and products are similar for all operators in the Irish market.

Conclusion

4.87 ComReg proposes that Vodafone and O2 have similar cost structures in the provision of wholesale international roaming services in Ireland.

Absence of excess capacity

4.88 Economic commentary on the role played by the presence of large excess capacity tends to lead to varying conclusions. However recent commentary suggests that the higher is industry excess capacity, the less likely that collusion can be sustained[76].

[76] Compte et al. 2002 – *Capacity Constraints, Mergers and Collusion*. European Economic Review. 46: 1-29

Following the national roaming agreements concluded by O2 and Vodafone in recent years, the excess capacity on their networks would likely be reduced. However, any such capacity constraints are likely to arise only in areas not covered by the Meteor and ‘3’ networks. As these geographical areas generally fall outside the urban areas where most roaming would occur, it is unlikely that there is an absence of excess capacity in rural locations. On the other hand, as Irish networks would experience most traffic (both national traffic and international roaming traffic) in urban locations, the available capacity in urban locations would be relatively restricted.

Conclusion

4.89 ComReg is of the opinion that it is unclear whether the market can be characterised as having excess capacity.

Transparency, Retaliatory Measures and Competitive Fringe

4.90 Having established above that the Irish Wholesale International Roaming market has characteristics that would be conducive to coordinated behaviour between O2 and Vodafone, ComReg must also assess whether such a form of coordination would be sustainable. The CFI, in *Airtours*[77], acknowledged three criteria, set out below, that must be at hand for a finding of collective dominance, a so-called tripartite test. The Commission has incorporated the approach adopted by the CFI in *Airtours* in its recent Horizontal Merger Guidelines.[78]

Transparency

4.91 First, there must be sufficient market **transparency** for each member of the dominant oligopoly to be able to know how the other members are behaving in order to monitor whether or not they are adopting a common policy. "*As the Commission specifically acknowledges, it is not enough for each member of the dominant oligopoly to be aware that interdependence market conduct is profitable for all of them but each member must also have a means of knowing whether the other operators are adopting the same strategy and whether they are maintaining it. There must, therefore, be* ***sufficient market transparency*** [emphasis added] *for all members of the dominant oligopoly to be aware, sufficiently precisely and quickly, of the way in which the other members' market conduct is evolving*".[79]

4.92 Although it is not officially possible to see the IOTs charged by their competitors,[80] it is relatively easy for Irish MNOs to gain access to these IOTs through affiliates or friendly networks abroad. If IOTs were the principal method of price competition amongst Irish MNOs, it would be easy for MNOs in the Irish market to monitor each others behaviour in order to ensure that a collusive equilibrium was maintained.

4.93 The introduction of more efficient traffic direction techniques in recent years has, to some extent, reversed the relative bargaining positions of Irish and foreign MNOs. In

[77] T-342/99 *Airtours v. Commission* [2002].
[78] *Commission Notice on the appraisal of horizontal mergers under the Council* Regulation on the control of concentrations between undertakings, OJ 2002 C 331/18.
[79] *Ibid.* Para 62.1.
[80] The GSM Association does not allow Irish mobile operators see the IOTs offered by other Irish operators. This is the same for each country.

the past, roaming traffic was to a large extent randomly distributed on Irish networks, and Irish MNOs were, for the most part, able to act independently of competitors, consumers and end users when setting their wholesale prices. However, as illustrated in the previous section, foreign MNOs are increasingly able to direct traffic to their preferred networks in Ireland. As a result, discounts are increasingly offered by Irish MNOs in order to encourage foreign MNOs to direct traffic onto their network. It appears that such discounts are offered on a confidential bilateral and bespoke basis, and there is no evidence to suggest that they are readily transparent.

4.94 Unlike the Irish retail mobile market where discounts are mainly offered to corporate customers only, ComReg has observed that in the wholesale international roaming market Irish MNOs appear more willing to offer confidential bespoke discounts to any foreign MNO once certain criteria are met (e.g. delivery of a certain volume of roaming traffic above an agreed base line). In addition, ComReg has observed that such discounting appears to have been successful in a number of cases in securing increased levels of traffic from the recipients of these discounts. As such, there is much less transparency of pricing in the Irish wholesale roaming market than in the Irish retail mobile market. Such a lack of transparency also has the effect of undermining any retaliatory mechanism inherent in the market.

4.95 However, it may instead be possible to observe movements in traffic volumes and at least two Irish MNOs acknowledge that it is possible to obtain an estimate of whether their discount offered is competitive vis-à-vis the other Irish operators. Further, Irish MNOs generally acknowledge that they are able to observe the success of traffic direction by variations in volumes being delivered to their network.

4.96 The question then arises, as to whether Irish MNOs would be readily able to observe movements in traffic or changes in commercial agreements (as a proxy for price movements), resulting from a deviation from a coordinated approach. Increased volumes in the overall market and increased use of traffic direction technologies seem to make it more difficult for Irish MNOs to determine the reasons behind fluctuations in traffic levels. However, such uncertainty appears to be limited if one is a member of a group or alliance. For example, almost half of all voice roaming traffic in Ireland is originated by either the Vodafone or O2 Groups, and this percentage is growing. It may be the case that this ‘within-Group’ traffic is becoming increasingly non-contestable as traffic direction technology improves. Therefore, due to their membership of international groups, both O2 Ireland and Vodafone Ireland should have greater transparency than, for example, Meteor, as to the levels of traffic that would be expected in the Irish market.

4.97 There remains a non-group element of the market for which the two MNOs are seemingly on an equal footing. Any coordinated behavior would likely be built around treatment of this non-Group traffic. The vast majority of roaming traffic in Ireland is originated by UK subscribers (75%), so it is reasonable to take a closer look at the pattern of roaming traffic originated by UK subscribers in Ireland. Both O2 Ireland and Vodafone Ireland have group affiliates in the UK, and therefore have greater transparency as to the levels of UK traffic that would be expected in the Irish market. Vodafone UK and O2 UK traffic combined have consistently represented approximately 66% of all UK roaming traffic in Ireland. Whereas, for example, Meteor must monitor movements in the entire market, it may be reasonable to conclude that Vodafone and O2 need only monitor movements in a smaller Non-Group element of the market.

4.98 Further, as illustrated in the previous section, O2 Ireland, the Irish mobile operator in the Starmap Alliance, has dramatically captured over 75% of this alliance traffic in recent years[81]. Thus, the non-group/non-alliance (or unpredictable) element of roaming traffic to be monitored by O2 and Vodafone is clearly further reduced. It is therefore, unrealistic to assume that, because discounts are not published, Vodafone and O2 are unable to monitor the way the other members' market conduct is evolving.

4.99 However, the limited level of transparency described above, is at risk of being undermined by the presence of increased traffic volumes in the overall market, increased use of traffic direction technologies and potential traffic variations from demand shocks. It is, therefore, unlikely that sufficient transparency exists (within the meaning of *Airtours*) so that a dominant oligopoly would be aware, sufficiently, precisely and quickly, of the way in which the other members' market conduct is evolving.

<u>Conclusion</u>

4.100 It is unrealistic to assume that, because discounts are not published, Vodafone and O2 are unable to monitor the way the other members' market conduct is evolving. However, although limited transparency does exist, it is unlikely that all members' of a dominant oligopoly would be aware, sufficiently, precisely and quickly, of the way in which the other members' market conduct is evolving. The uncertainly introduced to the market by increased volumes in the overall market, increased use of traffic direction technologies and potential traffic variations from demand shocks, and its destabilizing effect on the transparency of market conduct, would likely undermine any stable coordinated approach.

4.101 The remaining two criteria referred to in the Airtours Case relate to the existence of adequate deterrents to ensure there is a long term incentive in not departing from the common policy (i.e. retaliatory measures) and that the parties' tacit coordination would not be disrupted by current and future competitors (i.e. competitive fringe). As the three criteria set out in Airtours are cumulative, in that, if one is not met, then collective dominance cannot be sustainable. As such, because the first criteria relating to transparency is not met, it is not necessary to assess the remaining criteria. In any case, it appears that the recent success of Meteor in significantly increasing its market share indicates the presence of a competitive fringe in the market capable of undermining any tacit coordination between Vodafone and O2.

Conclusions on Market Analysis

4.102 ComReg has assessed whether any undertaking (whether individually or jointly with others) enjoys a position dominance in the Irish wholesale international roaming market, 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. ComReg's findings indicate that no undertaking in the Irish market enjoys

[81] It also remains to be seen whether this development in alliance traffic will enhance the level of competition in the market as a whole.

a position of single dominance. This is based on a comparison of market shares over time, and the increasing ability of foreign MNOs to exert countervailing buyer power through traffic direction, which limits the exercise of market power by any one undertaking.

4.103 Due to the similar market shares enjoyed by Vodafone and O2 in the Irish market, and their consistent combined market shares over a three year period, ComReg has also assessed whether undertakings enjoy a position of collective dominance in this market. Despite the fact that the market exhibits some characteristics that would be conducive to coordinated behaviour between O2 and Vodafone, ComReg proposes that it is unlikely that such a form of coordination would be sustainable, when assessed against the three criteria set out by the CFI in *Airtours*. There is insufficient transparency in the market to monitor the way the other members' market conduct is evolving, also leading to inadequate retaliatory measures. Further, it is likely that the competitive fringe could undermine a coordinated outcome with respect to non-Group / non-Starmap Alliance traffic.

4.104 Thus, ComReg proposes that no undertaking enjoys a position of dominance in the Irish market for wholesale international roaming. ComReg is, however, obliged to monitor developments in this market, as it is not clear that the substantial internalisation of traffic by transnational groups and alliances will enhance the level of competition. Instead, it appears that non-aligned operators such as Meteor and '3' may be competing for a decreasing share of the market. Further, there is little evidence across Europe that lower wholesale rates are being reflected in retail tariffs. It is unlikely that Ireland is the only Member State that is experiencing such developments.

Q. 9. Based on the above analysis, do you agree with ComReg's proposal that no undertakings in the wholesale international roaming market enjoy a position of joint dominance? Please detail your response and reference your comments to appropriate sections of the market analysis where relevant.

Views of respondents

4.105 Of the three respondents who expressed views on this area of the market review, two agreed with ComReg's conclusion that no undertakings in the market enjoyed a position of joint dominance, while one respondent disagreed due to the high and persistent combined market share enjoyed by Vodafone and O2. This respondent also noted that because much of this traffic came from "sister" networks (subsidiaries in other countries), this traffic was essentially non-contestable and Vodafone and O2 had no incentive to reduce their IOTs.

4.106 Another respondent, although agreeing with ComReg's overall conclusion, stated that some characteristics of the market interpreted by ComReg as facilitating coordinated behaviour did not in fact materially increase the potential for tacitly collusive behaviour in this market. In particular, the respondent disagreed with ComReg's findings in relation to the existence of barriers to entry, the existence of economic links between Vodafone and O2 and ComReg's assessment of elasticity of demand.

4.107 In relation to economic links, this respondent argued that, for economic links to facilitate co-ordinated behaviour, ComReg must demonstrate that information transmitted must be such as to be of significant assistance in the task of tacitly co-ordinating outcomes and that ComReg did not provide any such evidence. In relation to elasticity of demand, the respondent argued that ComReg's analysis did not support the conclusion that it facilitates collusive behaviour because:

- The significant movements in market shares over a short period of time due to discounting indicated price sensitivity at the wholesale level.
- The consumer survey evidence cited by ComReg was inconclusive.
- The literature on the subject concluded that the effect of elasticity of demand is ambiguous.

4.108 Another respondent also disagreed with ComReg's conclusions in relation to the existence of economic links between Vodafone and O2 for the same reasons as cited above.

ComReg's Position

4.109 In relation to the respondent that disagreed with ComReg's overall conclusions on the dominance assessment, ComReg would agree that the combined market shares were indeed high and stable over the period and, prima facie, indicative of a position of joint dominance[82]. However, the internal balance of the combined market shares enjoyed by Vodafone and O2 were not symmetrical over the period which is a market characteristic that is less conducive to the development of tacit collusion as highlighted in the consultation. In any case, it cannot be concluded from high combined market shares alone that Vodafone and O2 can or will act to an appreciable extent independently of competitors, consumers and end users. Instead, it is appropriate to assess whether the market has other characteristics that would be conducive to coordinated behaviour. In relation to the assertion that "sister" traffic was essentially non-contestable and Vodafone and O2 had no incentive to reduce their IOTs, ComReg notes that it is unlikely that Vodafone and O2 would act to the detriment of these sister companies. In fact a significant advantage in the formation of international groups is that it facilitates the reduction in wholesale international roaming tariffs within the group and further cooperation in wholesale services with sister companies.

4.110 ComReg has already dealt with the question of the existence of barriers to entry in the previous section.

4.111 Responding to the specific issue of structural or other links, ComReg is of the view that the most current and accurate characterization of the relevance and importance of structural links can be found in the EU framework and case law. As indicated under

[82] See Cases COMP/M.1838 — BT/Esat , COMP/M.2111 — Alcoa/British Aluminium , COMP/M.2499 — Norske Skog/Parenco/Walsum

Annex II of the Framework Directive, various kinds of informal or other links between undertakings is but one factor that can be considered from a range of criteria as possible evidence when applying the concept of collective dominance. In *Gencor*, for example, the Court of First instance concluded that:

" Furthermore, there is no reason whatsoever in legal or economic terms to exclude from the notion of economic links the relationship of interdependence existing between the parties to a tight oligopoly within which, in a market with the appropriate characteristics, in particular, in terms of market concentration, transparency and product homogeneity, those parties are in a position to anticipate one another's behaviour and therefore strongly encouraged to align their conduct in the market, .."

4.112 It also follows from European Jurisprudence that this factor is not of itself crucial to an assessment of joint dominance:

"the existence of an agreement or of other links in law is not indispensable to a finding of a collectively dominant position; such a finding may be based on other connecting factors …."

4.113 In determining whether any given market structure is conductive to coordinated effects, one may examine therefore whether any "links" between undertakings, given the "structure" of the particular market under review, facilitate a greater commonality of interests, the ability to monitor a competitor's activities and so forth. Seen in this context, the nature and intensity of the links will inevitably vary depending on the particular market involved. Moreover, ComReg would not support the notion that any structural links identified further to an economic analysis are required to be more formal in nature or of themselves be anti competitive in nature.

4.114 Rather, what is of importance is that the existence of any structural links can reinforce the overall conclusion that the market structure under review is conducive to coordinated effects. Clearly, because of the electronic communications sector relies on interconnectivity in many different form, this affords market operators a range of opportunities in which they can become aware of common interests. In light of the foregoing, ComReg believes the suggestion by one respondent that ComReg must demonstrate and provide evidence that information transmitted must be such as to be of significant assistance in the task of tacit collusion is inappropriate.

4.115 In relation to ComReg's analysis of elasticity of demand in the wholesale international roaming market, ComReg acknowledges that there has recently been a fluctuation in market shares resulting from increased price competition in the market (through discounting). ComReg maintains that demand at the retail level appears to be relatively inelastic and that consumer surveys conducted across Europe support this finding. However, ComReg accepts that the recent activity at the wholesale level may not support the conclusion that demand characteristics at the retail level are influencing demand elasticities at the wholesale level. This may be a direct result of the disjunctive relationship between the upstream and downstream markets for international roaming services where wholesale purchasers are not necessarily being pressured at the retail level to seek lower wholesale rates. In fact, it was noted by the European Commission that, despite claims by the industry that the wholesale market is becoming more competitive, the evidence suggests that if savings are being made at wholesale level these are in many cases not being passed through to the consumer at retail level.[83] If this is the case, then it appears that MNOs across Europe have to some extent increased the margin between wholesale and retail charges by reducing their wholesale costs through negotiating more favourable wholesale roaming rates.

4.116 In any case, ComReg accepts that the economic literature on the subject suggests that the appropriate application of demand elasticity to the question of the existence of joint dominance is somewhat uncertain[84].

4.117 Thus, ComReg maintains its conclusion that no undertaking(s) enjoys a position of single or collective dominance in the Irish market for wholesale international roaming.

[83] Second Phase Public Consultation on a Proposal for a Regulation (EC) of the European Parliament and of the Council on mobile roaming services in the Single Market - http://europa.eu.int/information_society/activities/roaming/docs/comments/public_consultation_2nd_phase.pdf

[84] See Ivaldi, M. et.al: *The economics of tacit collusion, Final report for DG Competition, European Commission,* March 2003 and -*Competition Policy – Theory and Practice,* Massimo Motta [2004]

5 Designations of Undertakings with Significant Market Power

5.1 ComReg does not propose to designate any undertaking as having SMP in the Irish wholesale international roaming market.

Q. 10. Do you agree with ComReg's proposal that no undertaking in the wholesale international roaming market should be designated with SMP? Please detail your response.

Views of respondents

5.2 Three respondents agreed that no undertaking should be designated with SMP while one respondent noted that Vodafone and O2 should be designated with SMP.

ComReg's Position

5.3 The respondent that disagreed with ComReg's conclusions set out its reasoning in response to question 9. ComReg has already addressed these issues above.

5.4 ComReg, therefore, maintains its position that no undertaking in the wholesale international roaming market should be designated with SMP.

Annex A – Consultation Questions

Annex B – Glossary of Terms

Assisted Roaming: Assisted roaming is a traffic direction tool. A handset with an Assisted Roaming SIM card will go directly to its preferred list of networks and will ignore the last network it was on each time it is turned off and on. Therefore, subject to coverage, Assisted Roaming re-directs the handset to the preferred network each time it is turned on.

Customised Application Mobile Enhanced Logic (CAMEL): CAMEL is a network feature and not a supplementary service. It is a tool which allows the network operator to provide its pre-pay subscribers with operator specific services even when roaming on another network. CAMEL is a relatively inexpensive method of allowing telecom operators to add new services to the existing network infrastructure.

Enhanced Data GSM Environment (EDGE): EDGE, a faster version of the GSM wireless service, is designed to deliver data at rates up to 384 Kbps and enable the delivery of multimedia and other broadband applications to mobile phone and computer users. The EDGE standard is built on the existing GSM standard.

Freemove Alliance: On 11 December 2003, Telefonica (Spain), Telecom Italia (Italy), T-Mobile International (Germany) and Orange (France) and all their respective affiliates, including T-Mobile UK and Orange UK entered into a cooperation agreement for the creation of a strategic alliance, “The Freemove Alliance”. Spanish telecommunications operator Telefonica has recently received European Commission (EC) approval for the purchase of O2's operations in the UK, Germany and Ireland, under the condition that it leaves the Freemove roaming alliance.

General Packet Radio Services (GPRS): GPRS is a packet-based wireless communication service that provides data rates from 56 up to 114 Kbps and continuous connection to the Internet for mobile phone and computer users. GPRS is based on GSM communication and complements existing services such circuit-switched cellular phone connections and the Short Message Service (SMS).

Global System for Mobile communication (GSM): GSM is a digital mobile telephone system that is widely used in Europe and other parts of the world. GSM uses a variation of time division multiple access and is the most widely used of the three digital wireless telephone technologies (TDMA, GSM, and CDMA). GSM digitizes and compresses data, then sends it down a channel with two other streams of user data, each in its own time slot. It operates at either the 900 MHz or 1800 MHz frequency band.

Groups & Alliances: In the context of international roaming, transnational groups (e.g. Vodafone) and alliances have entered into cooperation agreements with the aim of providing roaming subscribers with seamless mobile services, including GPRS and MMS roaming, as well as access to familiar services such as voice-mail and short-code dialling whilst travelling in other group or alliance countries.

GSM Association: The GSMA is the industry body responsible for the development, deployment, evolution and promotion of the GSM standard.

Herfindahl-Hirschman Index (HHI): The Herfindahl-Hirschman Index (HHI) is a commonly accepted measure of market concentration. It is given by the squares of market shares of the firms in the market. It can vary between 0, when the market is entirely fragmented (each firm has a market share close to 0) and 10,000 points, where there is only one firm in the industry which has 100% of the market. It is generally regarded that markets, in which the HHI is in excess of 1800 points, are highly concentrated.

Home network: Home network' refers to the foreign mobile network to which the foreign customer roaming in Ireland subscribes.

Inbound roaming: Inbound roaming refers to the wholesale service provided by Irish MNOs to foreign MNOs allowing their subscribers to roam on Irish mobile networks.

Incoming roaming traffic: Traffic received by a foreign subscriber roaming in Ireland

Inter Operator Tariff (IOT): From 1998, a new wholesale roaming tariff was introduced by the GSM Association, the "Inter-Operator Tariff" ("IOT"), which is the tariff the visited network levies on the home network for the use of the visited network. The introduction of the IOT dissociated wholesale roaming prices from the standard retail tariffs applied by the visited network. Thus, the competitive conditions prevailing on the retail market were no longer reflected on the wholesale market for international roaming.

Managed Roaming: When Managed Roaming is applied to a customer, his/her handset will go through the same process as a handset with Assisted Roaming, however, if it attempts to register with a non-preferred network, that request will be denied by the Managed Roaming application. It will then go back to the preferred list and attempt to register with the preferred network. Managed Roaming has an advantage over assisted roaming in that it can be implemented in such a way that is not handset or SIM dependent.

Memorandum of Understanding (MOU): The Memorandum of Understanding provides the general basis for the establishment of international roaming services.

Mobile Virtual Network Operator (MVNO): A MVNO is a mobile operator that does not own its own spectrum and usually does not have its own network infrastructure. Instead, MVNO's have business arrangements with traditional mobile operators to buy minutes of use (MOU) for sale to their own subscribers.

Multimedia Messaging Service (MMS): MMS is an extension to the SMS protocol. MMS defines a way to send and receive, almost instantaneously, wireless messages that include images, audio, and video clips in addition to text.

Outbound roaming: Outbound roaming refers to the wholesale service provided by foreign MNOs to Irish MNOs allowing Irish mobile subscribers to roam on foreign mobile networks when travelling abroad.

Outgoing roaming traffic: Traffic originated by a foreign subscriber roaming in Ireland

Over-The-Air (OTA) programming: Over-the-air programming is a traffic direction tool. It enables the MNO to change the networks on its subscribers' preferred lists and/or re-order those networks for commercial or strategic reasons such as a new discount arrangement or partner, without the need to swap-out subscriber SIMs.

Retail international roaming: Retail international roaming services refer to the ability of Irish subscribers to make and receive calls while roaming abroad. The relevant upstream market (inbound roaming) for retail roaming services used by Irish mobile subscribers when travelling abroad (outbound roaming) falls within the jurisdiction of each destination country and outside the Irish wholesale market.

Standard International Roaming Agreement (STIRA): The STIRA is the standard contract used by all network operators to establish roaming partnership agreements. The STIRA was drafted by the GSM Association and defines all the technical and financial conditions under which roaming-in services are exchanged between operators.

Starmap Alliance: This strategic alliance was launched in October 2003 under the brand name of "The Starmap Mobile Alliance". It currently has nine members: Amena (Spain), Eurotel (Czech Republic), O2 (Germany, the UK and Ireland), One (Austria), Sonofon (Denmark), Pannon GSM (Hungary), Sunrise (Switzerland), Telenor Mobil (Norway) and Wind (Italy).

Telemetry: Telemetry is typically used to gather data from distant, inaccessible locations. In telemetry, specialized instruments perform measurements of physical quantities, and store or transmit the resulting signal - sometimes after some initial signal processing or conversion. GSM telemetry is the remote measurement or collection of data where the information is transmitted using the GSM mobile phone network.

Traffic Direction: Traffic direction refers to the ability of a home MNO to select a specific foreign (visited) network onto which its subscribers will register in a visited country. The foreign network is often a preferred one, chosen on the basis of membership of a particular Group or Alliance and/or the level of Inter-Operator Tariff (IOT) charged by the foreign network.

Universal Mobile Telecommunications Service (UMTS): UMTS is a third-generation (3G) broadband, packet-based transmission of text, digitized voice, video, and multimedia at data rates up to 2 megabits per second.

Visited network: Visited network refers to the Irish mobile network on which a foreign subscriber roams.

Wholesale international roaming: The appropriate wholesale international roaming market in Ireland relates to the roaming services provided by Irish MNOs to foreign MNOs, allowing foreign inbound roamers use their mobile phones while travelling in Ireland (inbound roaming).

Annex C – Opinion of Competition Authority

The Competition Authority
An tÚdarás Iomaíochta

Isolde Goggin,
Chairperson,
Commission for Communications Regulation,
Abbey Court,
Irish Life Centre,
Lower Abbey Street,
Dublin 1

7th July 2006

Re: Commission for Communications Regulation ("ComReg") Market Review – Wholesale International Roaming

Dear Chairperson,

I have been asked, in my capacity as a Member of the Competition Authority, to provide the Competition Authority's view with respect to the outcome of the Commission for Communications Regulation's ("ComReg") review and analysis of the market for *"wholesale international roaming"* in Ireland.

As an initial matter, I would note that in previous market analyses, Competition Authority staff have participated in the Steering Group involved in recommending market analysis decisions to ComReg. The Competition Authority was not invited to participate in the Steering Group in relation to this market analysis and as such it has not participated in the process of drafting the market proposals. However, it was provided with a copy of ComReg's draft decision on the 27th June 2006 and now submits its comments in accordance with Regulation 27.1 below.

The Market Recommendation

The EU Commission recommends, in its *Relevant Markets Recommendation*, that NRAs should analyse the wholesale national market for international roaming within their Member States.[1] ComReg has concluded that the market for wholesale international roaming services relates to wholesale calls provided by Irish mobile operators to foreign mobile operators to allow them to offer retail roaming services to their customers visiting Ireland, and that it has the following characteristics:

- The relevant market is a multi-network market.
- Origination and termination of international roaming services are not in the same market.

[1] This market corresponds to that referred to in Annex I (4) of the Framework Directive.

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- Voice and SMS, but not data services, are part of the same market.
- Roaming services carried over 2G and 3G networks are in the same market.
- Other fixed and mobile telephony services are not in the same market as international roaming services.
- Wholesale international roaming services enabling the provision of post-paid and pre-paid roaming are in the same market.
- The relevant geographic scope of the market is Ireland.

The Competition Authority believes that ComReg has defined this wholesale market in accordance with competition law and taken utmost account of the SMP Guidelines issued by the EU Commission in accordance with Regulation 27.1 of the Framework Regulations. The Competition Authority believes that it is reasonable to accept that the market identified by ComReg is appropriate, at least for the period under review.

Market Analysis

ComReg proposes that no undertaking enjoys a position of single dominance given that there is evidence of countervailing buyer power illustrated by the ability of foreign mobile network operators to direct traffic away from particular networks in response to a price increase as well as the ability of foreign MNOs to induce discounting on the Inter Operator Tariffs charged by Irish MNOs.

ComReg also proposes that while the market appears to have some characteristics which might be conducive to coordinated effects, that Vodafone and 02 do not enjoy a position of collective dominance when assessed against the three criteria set out by the CFI in *Airtours*[2], and will not do so within the timeframe of the review. ComReg proposes that due to the prevalence of confidential bespoke discounts, there is a lack of transparency in pricing which would undermine any retaliatory mechanism inherent in the market. In addition, ComReg notes that Meteor appears to have doubled its share of wholesale voice roaming traffic within a year through IOT discounting, suggesting that fringe competition exists on the market. Thus none of the three criteria set out in *Airtours* has been met.

The Competition Authority has no reason, at this time, to disagree with ComReg's conclusions.

Notwithstanding the above, it should be noted that the Competition Authority's comments are made in the context of the specific provisions of the SMP guidelines relating to the relationship between the markets defined for the purposes of ex ante regulation vis-à-vis competition law enforcement. I would note, in particular, that the Competition Authority's conclusions are drawn having regard to, *inter alia*,

- The specific regulatory framework in which ComReg conducts these market reviews;

[2] 99 Airtours v. Commission [2002]

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- The *ex ante* nature of the reviews; and
- The 2-year time period of the review

As provided for by the Regulation and in case law, the Competition Authority reserves the right to re-examine any or all of the issues underlying these recommendations in the light of facts and evidence that may arise in specific future cases before it.

Yours sincerely,

Dr. Stanley Wong
Member & Director of the Monopolies Division
The Competition Authority

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Annex D: Notification of Draft Measures Pursuant to Article 7(3) of the Directive 2002/21/EC

In accordance with Article 16 of the Directive 2002/21/EC, ComReg has conducted an analysis of the market for wholesale international roaming services.

In accordance with Article 6 of the Directive 2002/21/EC, ComReg has conducted a national consultation, contained in ComReg document 06/20. This consultation ran from 13th April 2006 to 31st May 2006. The responses to this consultation have been taken into consideration and ComReg has now reached decisions relating to market definition and the SMP assessment, which are contained in ComReg Document 06/35.

ComReg hereby notifies the Commission of its conclusions in accordance with Article 7(3) of Directive 2002/21/EC. These conclusions are set out in the attached summary notification form. Under Regulation 27(1), ComReg is required to liaise with the Competition Authority in its definition and analysis of markets. The views of the Competition Authority are attached in Annex C.

Section 1 - Market Definition

Please sate where applicable:

1.1	The affected relevant product/service market (s). Is this market mentioned in the Recommendation on relevant markets?	ComReg proposes to define a national market for wholesale international roaming services This market is market number 17 in the Recommendation on relevant markets.	Section 3
1.2	The affected relevant geographic market (s)	Ireland	Pages 32-33
1.3	A brief summary of the opinion of the national competition authority where provided;	The Authority supports the approach and findings of this market definition exercise.	Annex C
1.4	A brief overview of the results of the public consultation to date on the proposed market definition (for example, how many comments were received, which	Four responses to the consultation were provided by : ▪ O2 ▪ Vodafone	Section 3

	respondents agreed with the proposed market definition, which respondents disagreed with it)	▪ Meteor ▪ Mr. Daniel Sokolov There was general agreement among respondents on the market definition and conclusions reached. Two respondents argued that data services should be included and one of those respondents argued that mobile access and call origination services and wholesale international roaming services were in the same market. The other respondent argued that termination services should be included in the market. However, overall, the proposed conclusions remain unchanged after the consultation.	
1.5	Where the defined relevant market is different from those listed in the recommendation on relevant markets, a summary of the main reasons which justified the proposed market definition by reference to Section 2 of the Commission's Guidelines on the definition of the relevant market and the assessment of significant market power[85], and the three main criteria mentioned in recitals 9 to 16 of the recommendation on relevant markets and Section 3.2 of the accompanying Explanatory Memorandum[86].	Not Applicable	

Section 2 - Designation of undertakings with significant market power

Please state where applicable:

2.1	The name(s) of the undertaking(s)	Not Applicable	

[85] Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications and services, OJ C 165, 11.7.2002, p. 6.

[86] Commission Recommendation of 11.2.2003 on Relevant Product and Service Markets with the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for ECNs and ECSs, C (2003) 497

	designated as having individually or jointly significant market power. Where applicable, the name(s) of the undertaking(s) which is (are) considered to no longer have significant market power		
2.2	The criteria relied upon for deciding to designate or not an undertaking as having individually or jointly with others significant market power	In single dominance assessment: • Market Share • Barriers to Entry • Countervailing Bargaining Power In joint dominance assessment: • Similar Market Shares • Market Concentration • Lack of Countervailing Buyer Power • Mature Market • Barriers to Entry and Potential Competition • Stagnant or Moderate Growth • Low elasticity of demand • Homogeneous products • Frequent Interaction • Similar Cost Structures • Absence of excess capacity • Transparency of pricing	Section 4
2.3	The name of the main undertakings (competitors) present/active in the relevant market.	Meteor, O2, Vodafone	Section 4
2.4	The market shares of the undertakings mentioned above and the basis of their calculation (e.g., turnover, number of subscribers)	Call Volumes: • Meteor (18%_ • O2 (42%) • Vodafone (41%) SMS Volumes: • Meteor (13%) • O2 (44%) • Vodafone (43%) Revenues: • Meteor (14%) • O2 (37%) • Vodafone (49%)	Pages 37-39

Please provide a brief summary of:

2.5	The opinion of the national competition authority, where provided	The Authority supports the approach and findings of this market analysis exercise.	Annex C
2.6	The results of the public consultation to date on the proposed designation(s) as undertaking(s) having significant market power (e.g., total number of comments received, numbers agreeing/disagreeing)	Four responses to the consultation were provided by : • O2 • Vodafone • Meteor • Mr. Daniel Sokolov There was general agreement among respondents on the analysis and conclusions reached. One respondent argued that Vodafone and O2 had joint dominance due to the fact that much of their traffic was 'sister' traffic. Overall, the proposed conclusions remained unchanged after the consultation.	Pages 63-65

Section 3 - Regulatory Obligations

Please state where applicable:

3.1	The legal basis for the obligations to be imposed, maintained, amended or withdrawn (Articles 9 to 13 of Directive 2002/19/EC (Access Directive))	Not Applicable	
3.2	The reasons for which the imposition, maintenance or amendment of obligations on undertakings is considered proportional and justified in the light of the objectives laid down in Article 8 of Directive 2002/21/EC (Framework Directive). Alternatively, indicate the paragraphs, sections or pages	Not Applicable	

	of the draft measure where such information is to be found		
3.3	If the remedies proposed are other than those set out in Articles 9 to 13 of Directive 2002/19/EC (Access Directive), please indicate which are the 'exceptional circumstances' within the meaning of Article 8(3) thereof which justify the imposition of such remedies. Alternatively, indicate the paragraphs, sections or pages of the draft measure where such information is to be found	Not Applicable	

Section 4 - Compliance with international obligations

In relation to the third indent of the first subparagraph of Article 8(3) of Directive 2002/19/EC (Access Directive), please state where applicable:

4.1	Whether the proposed draft measure intends to impose, amend or withdraw obligations on market players as provided for in Article 8(5) of Directive 2002/19/EC (Access Directive)	Not Applicable	
4.2	The name(s) of the undertaking(s) concerned	Not Applicable	
4.3	Which are the international commitments entered by the Community and its Member States that need to be respected	Not Applicable	