04

INTERNATIONAL MOBILE ROAMING

a scenario for wholesale market definition and remedies

REGULATORY POLICY NOTE

Onafhankelijke Post en Telecommunicatie Autoriteit

INTERNATIONAL MOBILE ROAMING
a scenario for wholesale market definition and remedies

Explanatory note

The Dutch Independent Post and Telecommunications Authority (OPTA) regulates the postal and telecommunication markets in The Netherlands. OPTA is an independent executive body that commenced its activities on 1 August 1997. OPTA's mission is to stimulate sustained competition in the telecommunications and post markets. In the event of insufficient choice OPTA protects end-users. OPTA regulates compliance with the legislation and regulations on these markets.

In terms of market conditions, market structure and regulatory framework, telecommunications and postal markets present a continuously changing landscape. In this environment, OPTA has committed itself to improving the economic reasoning on which strategic choices are made in such a way that market parties can contribute to and have a clear understanding of the development of OPTA-policies, now and in the future. In 2003 the OPTA bureau was complemented with the Economic Analysis Team (EAT) headed by the Chief Economist. EAT is responsible for developing economic reasoning and stimulating discussion on key issues within the telecommunications and postal markets. To achieve this, EAT produces two kinds of policy notes - short discussion papers. Economic Policy Notes focus on economic issues and principles. Regulatory Policy Notes focus on strategic economic issues in specific regulatory fields. To stimulate discussion EAT organises roundtables. With its products and activities the Economic Analysis Team expects to add value to the economic debate in Dutch telecoms and post.

Often, lessons can be drawn from past cases. Policy Notes will try to benefit from analysing such cases. These Notes, however, are aimed at contributing to the development of future OPTA policies and are focused on providing sound economic reasoning to that effect. For the purpose of these Notes it is not necessary to take into account other considerations, either of a factual or of a policy nature that may have played a role in these past cases. These Notes, e.g., do not set out to identify or evaluate short term benefits service providers may offer to end consumers but primarily aim to look into long term benefits of competition between service providers. As a consequence, discussion of these cases should not be considered or construed as an attempt to revise or evaluate these cases. Furthermore, Policy Notes are not aimed at reviewing past policies or expressing future policies. They are solely intended to stimulate discussion and critical comment within as well as outside of OPTA, thus laying a basis for the development of future policies.

The analyses and conclusions expressed in Economic and Regulatory Policy Notes of the Economic Analysis Team (EAT) do not necessarily reflect the opinions of the Commission of OPTA. As such, the opinions of EAT, in whatever shape or form, do not have a legal status. Quotes from and references to these Notes can be made freely, provided that such quotes and references sufficiently express the preliminary character and purpose of the Notes.

Content

Abstract

This paper gives a concise scenario analysis on the subject of IMR in terms of market definition, possible competition problems and remedies. This paper does not describe the current view of OPTA on international mobile roaming, but should be understood as an exploratory as well as discussion paper of the subject. It identifies several competition problems, but questions if these problems are the result of SMP under the New Regulatory Framework (NRF). Single or joined dominance will be difficult to determine and even if this can be done the available remedies in the NRF are ill-fitted. The RPN raises the question if general competition law is not a more logical starting point to address the competitive problems in the international mobile roaming markets.

1 Introduction

Wholesale International Mobile Roaming (IMR) is included in the Commission Recommendation as relevant market number 17 that is susceptible to ex-ante regulation. This means that European National Regulatory Authorities (NRAs) need to define the relevant market, need to asses Significant Market Power (SMP) on this market and, if SMP is found, need to find appropriate remedies to competition problems on this market.
The goal of this paper is to give a concise scenario analysis on the subject of IMR in terms of market definition, possible competition problems and remedies. This paper does not describe the current view of OPTA on international mobile roaming, but should be understood as an exploratory as well as discussion paper of the subject. The paper will result in more insight in the market. Furthermore, the RPN raises the question if dominance as defined in the New Regulatory Framework (NRF) is the root of the competitive problems. In that sense, this RPN not only functions as a scenario analysis but also serves as a discussion document and guidance document for further research.

As will become clear throughout this paper, international mobile roaming is a subject of interest to NRAs; however, since it has many international aspects, it is a subject that is part of the working programme of the European Regulators Group (ERG) for 2005. OPTA contributes to the market analysis of IMR in the ERG.

1.1 Structure

This RPN is structured as follows: Section 2 discusses the retail side of IMR services. Since market number 17 is defined as a wholesale market, it is important to know which retail services are related to this wholesale market and which competition problems exist on the retail side. Section 3 discusses this relation between retail and wholesale markets. Section 4 addresses the market definition of the wholesale market. This section gives a first impression of the perceived competition issues on the wholesale IMR markets. Section 5 gives indicative remarks on dominance, while section 6 describes possible ex-ante remedies applied to the wholesale market and assesses their effectiveness. The conclusions are presented in section 7.

2 Retail International Mobile Roaming services

In this section the retail market definition is discussed as are retail competition problems.

2.1 The retail IMR services

The EC makes the following statement on international mobile roaming (IMR) services in the Recommendation on relevant markets: "*Retail services for roaming to other national networks: Retail international roaming services include the ability to make and to receive calls whilst in a country other than the one where the end-user has established his or her network subscription.*" [1]

Another definition of retail roaming services is one in which international roaming refers to the situation in which a mobile subscriber can use his mobile phone on a network in another country in order to obtain a "seamless" mobile phone service internationally. This second definition is closer to the real IMR services currently being offered. The industry is currently trying to make all services that are available to customers within the domestic home network, commercially available to roaming customers as well. This means that the definition of international mobile roaming services could also include messaging services (e.g. SMS, EMS, MMS) as well as data roaming services (e.g. GPRS and UMTS roaming).[2]

The following sections focus on IMR services in terms of voice calls since, at first sight, it appears that IMR data services (except for SMS)[3] are not yet being used very frequently and therefore are not expected to cover a significant part of the IMR market(s).

This scenario mainly focuses on International Mobile Roaming (IMR) voice services.

2.2 Competition issues on the retail side

A number of competition issues on the retail side of IMR services have been identified by e.g. the EC and INTUG.[4] [5]

a) For example, the EC and INTUG have mentioned the fact that retail roaming prices have been very high for a number of years. Often, before summer holidays, newspapers or consumers' associations address the level of roaming prices. If the retail side of roaming is becoming effectively competitive, a common commercial practice would be to compete on price. MNOs would use roaming prices, in addition to product quality and branding to market their services. Moreover, MNOs would try to attract new customers or retain current subscribers by lowering IMR prices or offering IMR packages which resemble consumers' requirements more closely. However, competition on retail roaming price does not appear to be the case.

b) Limited transparency of retail tariffs; many types of destinations exist for roamed calls, originated and terminated calls are billed differently, calling within the foreign country is charged differently from calling home, et cetera. Furthermore, tariffs can differ within one country between the networks to which the consumer roams and call-setup charges can vary (e.g. the first 30 or 60 seconds are always billed fully).

c) Inelastic retail demand for roaming services; the end-user mainly appears to make the choice

[1] EC Recommendation, page 29

[2] MMS services use a GRPS network to transmit data. This means that MMS roaming uses GRPS roaming.

[3] It needs to be investigated whether consumers use SMS messages whilst roaming abroad to avoid high roaming retail charges.

[4] INTUG (2003)

[5] Hylkema R.M., *Competition in International Mobile Roaming*, TU Delft, thesis, July 2003. pg.26

for his subscription on the basis of domestic mobile rates. However, the type of subscription or pre-paid determines the level of roaming tariffs abroad. Currently it does not appear likely that many end-users will examine roaming tariffs before selecting an operator or a subscription.

d) Roaming tariffs are part of a bundle; buying unbundled roaming services is currently not possible. If a consumer does not want to be able to use his phone for roaming, it is generally not possible to buy a lower priced subscription for domestic calling only. However, it is starting to occur more often that a user can pay an additional monthly fee for getting cheaper roaming rates (e.g. Vodafone). If roaming services would be offered in an unbundled way, transparency would be increased and consumers would have an incentive to become more price sensitive with regard to IMR tariffs.

e) Averaged retail tariffs; depending on the wholesale roaming agreements that the MNO has with foreign MNOs, an end-user is able to roam to multiple foreign networks in one country. However, more and more operators are introducing averaged retail tariffs that completely remove the price differences between roaming to the various foreign networks. This would remove the incentive of a roaming user to manually select the cheapest network to roam to.

More qualitative and quantitative information is required to reach the conclusion that the retail side of international roaming is not effectively competitive. However at first sight it does appear justified to conclude that little competition on retail roaming services has developed thus far.

A number of possible competition problems on the retail side have been identified. These include high roaming prices, limited transparency of retail tariffs and inelastic retail demand.

3 Relationship between retail and wholesale

The above mentioned retail IMR services (except for UMTS roaming services)[6] are generally offered by all MNOs in The Netherlands. These roaming services are always sold together with other services offered by this MNO. Consumers buy a domestic post-paid subscription or pre-paid SIM-card that includes domestic services such as, for example, making/receiving calls, sending SMS messages or the facility to access data services over GPRS. MNOs generally sell the IMR services for roaming to other countries in combination with these domestic services.

MNOs in The Netherlands need (wholesale) services from foreign MNOs before they can sell retail IMR services. The MNOs need to have roaming agreements with foreign MNOs, they need to conduct technical tests for interoperability, they need to exchange billing information, et cetera. The services which are being sold by foreign MNOs are wholesale IMR services. Dutch MNOs are also selling wholesale MNOs for IMR services; namely when foreign operators buy wholesale IMR services from the Dutch MNOs. Foreign consumers can roam to Dutch networks when foreign operators buy wholesale IMR services from Dutch MNOs.

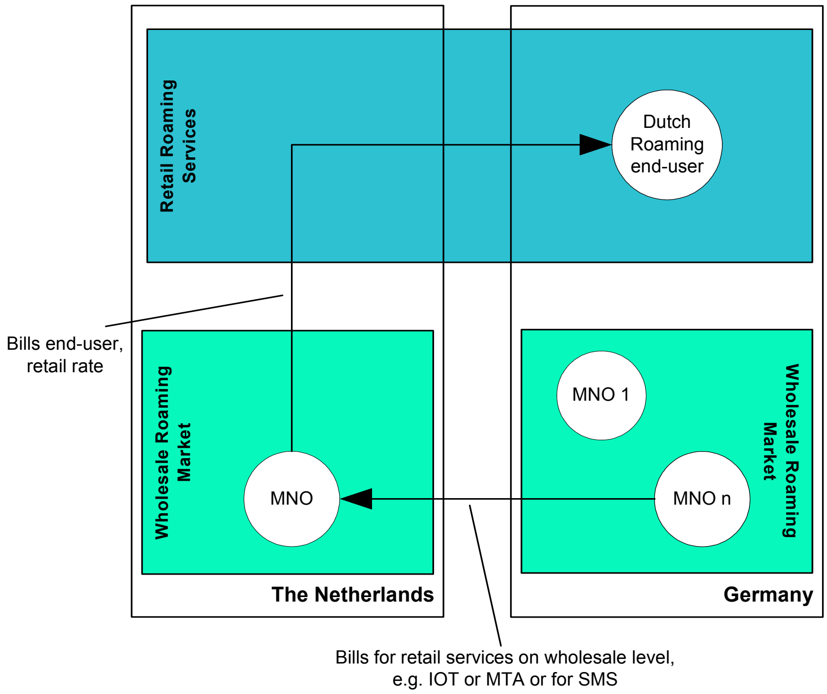

Figure 1. High-level overview of wholesale and retail side of IMR.

Figure 1 shows a Dutch consumer roaming to Germany.[7] This consumer could, for example, originate a call (e.g. to Holland or to Germany or to a third country), could receive a call or could send an SMS. On a non-technical level, in order for IMR to work, the Dutch and the German MNOs need to have a roaming agreement in place. The Dutch MNO could have roaming agreements with all German MNOs (MNOs 1 through n in Figure 1). The German MNO is the MNO who sells at wholesale level. Once the Dutch consumer originates a call, the Germany wholesaler bills the Dutch MNO with an IOT (Inter

[6] Since November/December 2004, domestic UMTS services are being offered on the Dutch retail market. This means that UMTS roaming services are also gradually being introduced. However, not all MNOs are offering UMTS/UMTS roaming services at this moment.

[7] Germany and The Netherlands have been selected as examples.

Operator Tariff, see below). If the Dutch consumer receives a call, the German wholesaler will bill the Dutch MNO (or an intermediary such as an international transit carrier) with a Mobile Terminating Access tariff (MTA). Finally, if the Dutch consumer sends an SMS the German wholesaler could bill the Dutch MNO with a wholesale SMS tariff.

Many differentiations could be added to this scenario for different services (e.g. GRPS roaming), different destinations and different times of the day (e.g. peak and off-peak) et cetera. However, for the purpose of this RPN, the diagram shown in figure 1 demonstrates the link between the retail and wholesale side of IMR.

4 Wholesale International Mobile Roaming Services

After having investigated the retail side of IMR services and the relation between wholesale and retail, this section addresses the wholesale market.

4.1 A possible wholesale product market definition

The EC uses the following definition of wholesale international mobile roaming services in the Explanatory Memorandum to the Recommendation on Market Definitions: "*Wholesale international roaming services provide access and capacity (airtime minutes) to a foreign mobile network operator for the purposes of enabling its subscribers to make and receive calls while on another operator's network abroad. International wholesale roaming services are thus provided by a domestic mobile network operator (visited network) to a mobile network operator in another country (home network).*"

The EC, in its Recommendation, mentions that "*it appears that there is a very limited scope for either demand or supply side substitution for wholesale international roaming.*" The Recommendation underpins the existence of a separate market for wholesale IMR in the following way:

a) "*Domestic wholesale mobile services involving access and provision of airtime ("wholesale airtime access"), provided by licensed mobile operators to service providers in their home country, cannot be viewed as alternatives to international roaming by foreign mobile operators. The main reason is that such services do not include the service that enables identification and recognition of a foreign operator's subscribers. If the foreign operator entered into a wholesale airtime agreement with an operator in the territory which its customers were visiting, that would require the foreign operator's subscriber to acquire a new SIM card and a new mobile number issued by the visited operator's network.*"

b) "*Wholesale international roaming cannot be substituted by any other form of access to fixed telephone services abroad because such access cannot ensure accessibility (in being reached on the usual mobile number) and mobility.*"

c) "*Indirect access through carrier selection (i.e. wholesale call origination and access) would not be an effective supply substitute on the supply side, because in the current state of technology and commercial reality this service cannot provide the features of coverage, accessibility and mobility inherent to international roaming provided by mobile operators. This conclusion is likewise valid for carrier pre-selection on a call by call basis and wholesale airtime access for the same reasons.*"

d) "*Service providers and mobile virtual network operators (MVNOs) could not viably switch to providing wholesale international roaming of their own, as for the time being mobile network operators sell wholesale roaming services to other licensed mobile network operators only. They do not conclude international roaming agreements with service providers and MVNOs." Thus, "there are entry barriers to this market because only licensed mobile network operators are able to supply international roaming services in any given national market*", and therefore supply side substitutes are not available.

This scenario considers there are no reasons to deviate from the arguments mentioned above.

To define the relevant product market as the wholesale market for IMR services seems logical. No arguments are seen against such a market definition.

4.2 Geographical market definition – national wholesale market

According to the EC guidelines,[8] the relevant geographic market comprises an area in which the undertakings concerned are involved in the supply and demand of the relevant products or services, where the conditions of competition are similar or sufficiently homogeneous, and can be distinguished from neighbouring areas in which the prevailing conditions of competition are appreciably different.

Starting from the assumption that all MNOs in a given Member State have national coverage, a foreign MNO wanting to buy wholesale roaming services can buy these services from all national MNOs (see figure 1 above). Foreign MNOs that want to buy wholesale roaming services in a certain Member State, e.g. Germany, in order to offer retail roaming services to their subscribers while roaming in Germany, cannot buy wholesale roaming services in another Member State (e.g. Belgium) because this would not allow their subscribers to roam to Germany. Belgian operators have no coverage in Germany and therefore cannot offer wholesale roaming services that cover the German geographical area. This straightforward argument speaks in favour of defining a national wholesale IMR market.

In cases where certain areas of the country are not covered by all MNOs in that national market, a choice could be made to define this region as a separate geographical market. However, it should first be analysed if conduct in this region with regard to wholesale IMR is different from the other regions (e.g. price differences). If, for example, the price of wholesale IMR services in one region is constrained by the prices for wholesale IMR services in other regions of the country, then this would justify defining one national market.

The EC has recently sent two “Statement of Objections” to Vodafone and O2 in the UK, in which it alleges that: “*on the basis of the evidence gathered during inspections carried out in July 2001, the Commission concluded that each individual UK network constituted, at least with regard to the period from 1997/1998 until the end of September 2003, a separate market.*” [9] The market analysis of the wholesale IMR product market should start from the narrowest possible market, meaning that every operator could form a separate product market for offering WIR services.

On the demand side (from the point of view of a foreign MNO buying roaming services in country A), each operator may be a substitute for every operator on the national wholesale market in country A. However, this could depend upon technical and commercial considerations such as the ability of operators to (re)direct traffic onto selected networks or whether the operator belongs to a group or alliance.[10]

Traffic (re)direction gives a home MNO the possibility to select the foreign network on which a roaming user registers; e.g. based on membership of an alliance, the level of the IOT/discount or supported services. As long as the mobile phone can receive the signal of this network, the phone will stay

---

[8] Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services (2002/C 165/03), Section 2.2.2.

[9] Commission Press Release, 26 July 2004, “Commission challenges UK international roaming rates”

[10] It is conceivable that if a foreign operator is a member of group of operators or an international alliance, roaming traffic should be kept within the group/alliance and that, as a result, wholesaling MNOs that are no part of the group/alliance become less of an alternative.

registered with the network the home MNO has selected. If coverage proves insufficient, by means of traffic direction, the phone will try to switch back to the network selected by the home MNO as soon as coverage is sufficient.[11]

The reasoning in the press release related to the Statement of Objections is that if traffic direction is not used to a great extent, or does not work well, this means that incoming roaming traffic will be distributed almost equally among national MNO wholesalers[12]. Each of these MNOs will then be able to independently price its wholesale IMR services. In that case the wholesale market could be defined on the level of each individual operator/network.
However, if traffic direction is used often, at first sight it does not appear likely that an individual MNO can set its prices independently from other national MNOs. Furthermore, foreign MNOs can select which MNO wholesaler they will use for roaming. This results in the fact that national MNOs are becoming more substitutes of each other and that the wholesale IMR market could be defined to include all national MNOs. The ability to direct, and its impact on the conduct of firms on the wholesale market, should be analysed before defining the geographical market.

> The basic notion is that the wholesale market for IMR services should be defined as **the national market** for wholesale international mobile roaming services. Depending on the efficiency of (re)direction of traffic and its impact, the market could also be defined on an operator specific level.

4.3 Competition issues on the wholesale market

A number of papers have been written on competition issues on the wholesale roaming market. Each of these papers arrives at more or less the same impediments to competition[13]. All these impediments ultimately seem to lead to price rigidity and few incentives to compete on the wholesale market. The impediments are:

a) High entry barriers into the wholesale market;
b) Non-discriminatory discounting;
c) Oligopolistic market structure;
d) Transparency of the wholesale market;
e) Technical impediment;
f) Low elasticity of demand on the retail market leading to price rigidity on the wholesale market;
g) Retail pricing structures.

High entry barriers and non-discrimination
The competition issues a), b) and c) mentioned above are mainly caused by the framework for wholesale IMR that the GSM Association (GSMA) has designed. All operators that want to conclude roaming agreements must be a member of this association and must have a full licence (e.g. GSM900, DCS1800). This means that MVNOs are not allowed to conclude roaming agreements with foreign MNOs or foreign MVNOs. Furthermore, the framework by the GSMA (largely laid down in the

[11] Direction of traffic in the current market is not effective for 100%. This results in 'lost' traffic which could not be directed onto the preferred foreign wholesaling MNO.
[12] Assuming coverage of operators is approximately equal.
[13] Hylkema R.M., *Competition in International Mobile Roaming*, TU Delft, thesis, July 2003.

Standard International Roaming Agreement, STIRA) requires that Inter Operator Tariffs (IOT, the wholesale tariffs charged to foreign MNOs when their users originate calls while roaming) are published transparently on a website available only to members. The following has been said about the GSMA roaming framework: [14]

a) “Roaming agreements are usually made reciprocal in terms of access. Meaning that if customers of MNO A are allowed to roam to the network of MNO B, customers of MNO B will be allowed to roam to the network of MNO A as well. Prices discussed in the roaming agreement are, however, usually not applicable two-way.
b) There is a non-discrimination clause: each operator applies the same terms and conditions in its international roaming agreements to provide roaming to its network.
c) Changes in IOTs can be monitored very easily. An IOT is valid for at least 6 months and changes should be announced to other operators 60 days in advance. This is done by means of the GSMA’s Infocentre website where all IOTs are published.
d) The same IOT is valid for all foreign operators wanting to conclude a roaming contract with the home operator.
e) The STIRA does not speak about possible discounts on IOTs. This should be arranged separately by operators in an Annex to the contract. These discounts are not published on the website.
f) It does not allow for roaming agreements to be made between market parties other than the official GSM operators. Thus, a roaming agreement between an MVNO and a GSM operator is not allowed. The same applies to a roaming agreement between a service provider and an MNO.
g) The ultimate result of this system is that IOTs tend to be very similar across operators within a given country.”

The points mentioned above on the STIRA are likely to lead to high entry barriers for the wholesale market. Service providers or MVNOs are foreclosed from the market by the STIRA. However, it is not only the STIRA that makes entry difficult. The fact that the number of licences for PLMNs are limited logically also limits the number of competitors in a domestic wholesale market. As was discussed in the section on market definitions, other types of operators (e.g. fixed operators) cannot enter the market; wholesale substitutes are not available.

“Under the 'no discrimination' clause there is no major incentive for a visiting network operator to look for cheaper wholesale prices. Of course, cheaper roaming has a direct benefit on the firm’s profit. However, in a competitive context, lower costs are usually pursued in order to achieve an edge over rival operators (as the firm in question will be able to offer cheaper retail charges) and capture a larger share of the customer base. This ‘healthy’ mechanism breaks down in international roaming: any discount will also accrue to all visiting network operators from the same country. Hence the firm that put some effort into bargaining a cheaper roaming agreement will not achieve any competitive advantage over the national rivals, since these rivals will also be able to benefit from the same roaming conditions. In the end, the benefits will be the same for its own as well as for rival customers; hence the deviant firm will have no particular reason to put resources into finding better deals.”[15]

[14] Valletti, T, *Obligations that can be imposed on operators with significant market power under the new regulatory framework for electronic communications Access services to public mobile networks,* 2003, pg. 36
[15] Valletti (2003)

These characteristics of the wholesale IMR market could change once discounts on the above mentioned 'list prices'/IOT are being offered. Incentives to compete could become obvious once these discounts are being offered and once there's no need to offer these discounts on a non-discriminatory basis to others. When analysing this market for competition issues, the extent of discounting and the impact which it has are important factors.

Transparency and oligopolistic market structure

Transparency of the wholesale market is caused by the fact that IOTs are transparent to all MNOs. If one MNO lowers its wholesale price, this behaviour can be easily monitored by all other parties in a given national wholesale market. Valletti identifies the fact that there are multi-market contacts via the GSMA and that there is information sharing as IOTs are highly transparent. He asserts that this facilitates tacit collusion. "Many contractual clauses, such as reciprocity, also offer a system of retaliation that can be used to sustain high wholesale roaming charges." [16]

Technical impediment for competition

There is a technical impediment to competition in IMR that is equivalent to the argumentation as presented above. This argument is mentioned in EC, Valetti and DotEcon.[17] Salsas and Koboldt assert:

"…the limited ability of mobile network operators (MNOs) to direct the roaming traffic of their subscribers to a particular network may be the main reason for the remarkable failure of competition to bring down roaming charges. The reason for this is that, in the absence of roaming traffic being directed to the cheapest network, the effective price perceived by roaming customers is based on an average of all wholesale charges. This implies that:

a) the impact of a price cut on demand will be diluted, causing only a very limited impact on the level of demand faced by that network;
b) if one operator reduces its wholesale charges, other MNOs may benefit from increased demand without having reduced their prices; and
c) it may even be possible that other MNOs respond by increasing their wholesale charges."

However, technical solutions to this problem have been available for a number of years. Over-the-air programming of SIM-cards would allow MNOs to direct outbound roaming users to specific foreign networks based on the IOTs that those networks charge, based on the discounts that these networks give or based on the services that they offer. OTA requires SIM-cards that support this technology and requires an OTA gateway in the network of the operator. The question is whether operators already have this capability at the moment and why operators are/are not using these possibilities.

Another technical solution that exists is to use MNO customised mobile handsets that, whilst roaming, search more frequently for a certain network. E.g. Vodafone could use mobile handsets that search for foreign Vodafone networks more often (instead of searching for the last known functioning network) whilst abroad.

Together with more and more consolidation among European MNOs, directing of outbound roaming traffic could lead to stronger competition on the wholesale market. More data is needed on how many

[16] Valletti (2003)
[17] Salsas, R., Koboldt, C., DotEcon, *Roaming free? Roaming network selection and inter-operator tariffs*, August 2002.

MNOs use OTA-like technologies to direct traffic to foreign networks. The expectation is that traffic direction could be a solution to introduce more competition on the wholesale markets; however, if a large percentage of MNOs currently already direct traffic, the effect on competition seems to be limited.

Low retail elasticity of demand and retail pricing structures

The assumption has always been that end-users who buy roaming services are price insensitive. However, if this is the case then this would mean that users do not select the cheapest foreign network whilst roaming. It is possible to manually select the network to which a user roams abroad. Furthermore, all operators have information available that gives tariff information for all countries and networks.[18] [19] This information enables the price sensitive user to find the cheapest way of roaming abroad. However, only few people actually manually select their network when abroad; this could be due to the complexity of the handsets or simply because end-users are not price sensitive.

Although price sensitivity of end-users is thought to be low, this might not even be of large importance to wholesale competition. Many operators now use averaged retail tariffs for roaming services. Whereas wholesale networks might charge different IOTs, the retail tariffs depend on a certain “zone” or “region”. For instance, if a Dutch consumer enters Germany, the retail tariff that this end-user pays is equal on all German networks. This applies to the retail roaming tariffs of many domestic operators. These retail pricing structures seem to have a weakening effect on wholesale competition.

A number of possible competition problems on the wholesale market have been identified. These include: price rigidity, few incentives to compete, entry barriers, low retail elasticity of demand and retail pricing structures, technical impediments for competition and possibilities for tacit collusion.

[18] GSM Association, *GSM Europe Code of Conduct for Information on International Roaming Retail Prices*

[19] OVUM, *GSM Europe Code of Conduct for Information on International Roaming Retail Prices Monitoring: Results for first year of implementation (December 2001-October 2002),* 29 October 2002.

5 IMR and dominance

Wholesale International Mobile Roaming (IMR) is included in the Commission Recommendation as relevant market number 17 which is susceptible to ex-ante regulation. Therefore a NRA needs to define the relevant market, determine if there is dominance and remedy competition problems within this market. In the previous chapters in this paper a possible wholesale market definition has been given and competition problems on that market as well as the retail side of IMR have been defined. Now dominance is shortly addressed.

5.1 Remarks on dominance

This paper does not strive to give a complete dominance analysis on the wholesale IMR market, because a careful dominance assessment can only be performed once the relevant product markets have been defined and once data on trends in market shares, traffic volumes and (wholesale) prices have been collected.[20] However some indicative remarks on dominance will be made in this paragraph.

The regulatory framework requires NRAs to conduct a dominance analysis. Three possibilities exist. Firstly, if no firm can behave independently from competitors and consumers, no firm is dominant. Secondly, if a single firm can behave independently from competitors and consumers, this firm is considered dominant. This happens if one firm has, inter alia, a market share in excess of 50% or e.g. in case the market is defined as network specific (which automatically leads to a market share of 100%). Thirdly, it could also be the case that a number of firms is considered dominant together; this group of firms is then considered collectively dominant. The EC mentions that: "*a collective dominant position can be held by two or more economic entities, legally independent of each other, provided that from an economic point of view they present themselves or act together on a particular market as a collective entity vis-à-vis their competitors, their trading partners and consumers*".[21] Valetti mentions that joint dominance is a possible source of concern in the wholesale market: "*To the extent that a roaming customer perceives no differentiation between foreign networks (which is likely), then all visited networks in a given country can be seen as a collective entity by both the home network and the consumer. Such a collective entity then has a dominant position in the wholesale market*."

In the case of IMR, this dominance analysis would have to focus on the wholesale IMR market; in this scenario that would be the national wholesale IMR market. Based on the scenario of the wholesale market definition in section 4, it does not appear likely to reach the conclusion that there is a firm which holds a single dominant position since foreign wholesalers could select more than one foreign wholesaler to buy their IMR services from and e.g. coverage of networks has been increasing which lead to a smaller imbalance between operators.

Joint dominance in the form of tacit collusion could be a more logical outcome (given the above described market definition). Under joint dominance in the form of joint dominance, multiple firms in the market reach a common market outcome (e.g. high prices) without making explicit agreements.

---

[20] As was mentioned above, this data together with qualitative data on market dynamics and behaviour would need to show whether firms are capable of behaving independently from their competitors and customers. As the EC demonstrated in the Statement of Objections, this also depends on the efficiency of directing traffic and wholesale prices/discounts that MNOs are or have been using.

[21] EC, *Working Document on the initial findings of the sector inquiry into mobile roaming charges*, December 2000.

This common market outcome can be reached because of, inter alia, high transparency in the market and the existence of a mechanism to punish firms that deviate from the common strategy. According to article 14(2) of the Framework Directive national regulatory authorities shall, when assessing joint dominance, use criteria set out in Annex II of the directive. These criteria are: 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.

At first sight most of these criteria are likely to be met. However, in order for an oligopoly to reach a sustainable and common market outcome in the form of tacit collusion, case law has given three necessary conditions for collective dominance. The three criteria listed below are mentioned in the Airtours case:

- Each member of the dominant oligopoly must have the ability to know how the other members are behaving in order to monitor whether or not they are adopting the common strategy. It is therefore necessary for sufficient transparency for all firms in the oligopoly to be aware, sufficiently precisely and quickly, of the way in which the other firms' market conduct is evolving.
- Secondly, a retaliatory mechanism is necessary, so that any firm that deviates from the co-ordinated practice would be met by competitive reactions (not necessarily only addressing the cheating firm) by other firms.
- Thirdly, it is necessary that existing and future competitors, as well as customers, do not undermine the results expected from the common policy. Important criteria to be considered in this context are the existence of high barriers to entry, differences in cost structures and demand elasticity.

In the current scenario, transparency on the level of IOTs (list prices) is present. However transparency on the level of discounts to IOTs might not be sufficiently precise and quick for firms to tacitly collude on. Secondly, even if the first criterion would be met, how could a firm retaliate in the case of a deviation? For establishing whether the current scenario would fit the above mentioned criteria, detailed information on behaviour of firms would be needed.

Both single dominance and joint dominance in the form of tacit collusion on the wholesale IMR market might not be easily determined. On the other hand the competitive problems appear to be considerable. This raises the question if dominance as defined in the New Regulatory Framework is at the root of the competitive problems in both wholesale and retail IMR markets. It seems that several competitive problems are related to the structure of the market (e.g. low price elasticity and few incentives to compete) that could be of a transitional nature. Other problems might be related to market behaviour not related to dominance. For these conduct issues, the application of general competition law could be more logical and appropriate. For the Wholesale International Mobile Roaming (IMR) market the presumption that *ex ante* regulation is appropriate[22] if a position of SMP is found, is questionable. Before remedies are applied it should be clear that the source of the

[22] The European Commission has predefined a list of 18 markets based on three cumulative criteria: high and non-transitory entry barriers; the dynamic state of competitiveness behind entry barriers; and the sufficiency of competition law (absent *ex ante* regulation).

competitive problems is related to the dominant position. The next section assumes that dominance can be established and discusses the effectiveness of the available remedies.

Single and joint dominance will be difficult to determine. It is questionable if the competitive problems in the market are the result of dominance under the NRF.

6 Possible ex-ante wholesale remedies

Now that both retail competition issues and wholesale competition issues have been discussed it becomes possible to describe the remedies that could resolve these impediments. This scenario will assume that a position of SMP has been found on the wholesale market. In that case, NRAs are required to apply remedies to the firm(s) with a dominant position.

6.1 Possible remedies applied to the wholesale IMR market

This paragraph focuses on the remedies that are mentioned explicitly in the Access Directive. It will assess whether these remedies could be used by NRAs to introduce more competition on the wholesale market, and as a result improve competition on the retail side.

The ERG "joint approach on remedies in the new regulatory framework"[23] lists the remedies that NRAs can apply. However, the question is whether using one or more of these remedies will introduce more competition on the wholesale market and eventually on the retail market. A "perfect" remedy on the wholesale market would be easy to implement, would be non-intrusive to operators, would increase wholesale competition and as a result would lower retail roaming tariffs.

The joint approach mentions the following possible remedies:

Transparency obligations

a) Obliging operators to be more transparent on the wholesale market will introduce more competition. As was discussed before, the wholesale market is already very transparent regarding standard IOTs. Discounts to IOTs are listed. However the impact of discounts on the competitive situation on the wholesale market is unclear. The current amount of transparency is thought to contribute to possible tacit collusion; to increase transparency could even strengthen this effect. In the current scenario, applying a transparency obligation to for example the discounts between operators could make an even stronger contribution to a possible tacit collusion outcome of the market.
Under the given knowledge of the market dynamics of the wholesale IMR market, a wholesale transparency obligation does not seem to be an effective remedy.

Non-discrimination

b) Non-discrimination has been introduced by the sector itself (GSMA). Wholesale prices (IOTs) and discounts are valid for all other MNOs and are, therefore, non-discriminatory. The existence of these non-discrimination clauses is thought to contribute to possible tacit collusion. Under the given knowledge of the market dynamics of the wholesale IMR market, a remedy consisting of non-discrimination does not seem to be an effective remedy. Abolishing the non-discrimination condition which may be imposed by the GSMA may have positive effects on competition. However, removing non-discrimination from a market might not be feasible under the current regulatory framework.

[23] EC, ERG, *Common Position on the approach to appropriate remedies in the new regulatory framework*, 1 April 2004.

Accounting separation

c) The joint approach mentions: "Accounting separation should ensure that a vertically integrated company makes its wholesale prices and its internal transfer prices transparent, especially where there is a requirement for non-discrimination."[24] This remedy is primarily aimed at supporting the non-discrimination remedy and for supplying information to the regulator (see also point b). <u>Under the given knowledge of the market dynamics of the wholesale IMR market, accounting separation would not increase incentives of MNOs to compete on the wholesale level.</u>

Obligations for access to and use of specific network facilities

d) Under the Access and Interconnection Directive, an NRA can impose an obligation on the operator to supply access (wholesale roaming) to any other entity (e.g. MVNO) whenever this entity makes a reasonable request. The operator has to offer these access services at reasonable, non-discriminatory terms and conditions. <u>Under the given knowledge of the market dynamics of the wholesale IMR market, access obligations might be a partial solution. This remedy could be used to lower the entry barriers to the wholesale IMR market.</u>

The framework drawn up by the GSMA restricts roaming agreements to be concluded only between full MNOs; this excludes MVNOs or service providers. By imposing an access obligation, an MVNO could gain access to a mobile network in order to start offering IMR services. However, the MVNO would still use the roaming agreements of the MNO to which it has access. Imposing access for MVNOs will only result in a real competitive pressure if these MVNOs are able to conclude their own roaming agreements and if MVNOs would attract significant numbers of (roaming) consumers. Secondly, the total customer base of MVNOs in Europe is relatively small compared to that of full MNOs. The competitive impact which MVNOs could have on wholesale roaming therefore appears to be limited.

Price control and cost accounting obligations

e) A possible remedy that NRAs could impose on MNO wholesalers would be some variant of price control. Many different possibilities and models exist for this type of regulation. However, the main idea should be that a remedy is proportionate to the competition problem(s) and that the remedy itself should remove or substantially reduce the competition problems and thereby increase competition in a market. Two ways of price control/cost orientation have been suggested.

One approach would be to regulate wholesale prices in relation to prices on another market, e.g. the retail market. INTUG identified a number of problems to this approach. "The use of retail prices would require proof that the markets are truly competitive…Given the enormous complexity of retail tariffs, it would be essential to use a basket of prices. Moreover, it would be necessary to deduct marketing costs and the savings made from the absence of credit risks. A further complication is that many retail prices contain cross-subsidies, notably for handsets, which should also be eliminated."

[24] EC, ERG, *Common Position on the approach to appropriate remedies in the new regulatory framework*, 1 April 2004., pg 47.

Another approach would be the Long Run Incremental Cost (LRIC) model for roaming. A Long Run Incremental Cost (LRIC) model could be built for roaming. Building such a model would take a long time and would be a burden for both regulated firms as well as NRAs.
<u>In the current scenario it appears that price control is the most appropriate remedy on the wholesale market. Other remedies are not likely to introduce more competition. Price control will at least remove the negative results for consumers due to a lack of incentive to compete on prices.</u>

To conclude:

- Increasing transparency and/or more non-discrimination on the wholesale market would lead to even more price rigidity and possibly facilitate tacit collusion.
- It is unclear how accounting separation could introduce more incentives to compete.
- Access obligations could be a partial solution. This remedy could be used to lower the entry barriers to the wholesale IMR market by allowing MVNOs to enter the wholesale market. The effectiveness of this remedy seems to be limited due to the relative small size of the customer base of MVNOs.
- Price controls/cost orientation would lower wholesale prices and would remove the negative market outcome on the wholesale market and perhaps on the retail markets.

In the current scenario, the remedies (obligations) listed in the Access Directive are not likely to introduce (much) more sustainable competition on the wholesale IMR markets. However, they could indeed remove the negative outcomes of a lack of incentives to compete. The fact that remedies are mostly ineffective and can partly address the negative market outcome without addressing the underlying problems, again raises the question if ex-ante regulation is the way to proceed.

Remedies are mostly ineffective. At best a price control remedy can prevent consumer harm. The ineffectiveness of remedies again raises the question if general competition law should not be the starting point for analysis.

7 Conclusions

This RPN has investigated the retail side as well as the wholesale product market definition. The products offered on the retail side enable an end-user to make and receive calls while roaming abroad.
The wholesale market delivers the inputs for the retail products and can be considered a national wholesale market. It includes only those wholesale services which are required for offering retail voice roaming services and SMS. The geographical scope is limited to the national borders since wholesale IMR services offered in a different country are not considered to be substitutes in the scenario of this RPN.

Before looking at the wholesale market as the New Regulatory Framework demands, this scenario mentioned that the retail side of IMR is not likely to be effectively competitive. If this is indeed the case, this could justify applying ex-ante remedies on the wholesale market so that ultimately the consumers benefit. A number of possible competition problems on the retail side have been identified in this scenario. These issues include high roaming prices, inelastic retail demand and limited transparency of retail tariffs.

On the wholesale IMR market, a number of competition issues have been identified as well. The following impediments to more effective competition seem to be present: price rigidity, little incentive to compete, entry barriers, low retail elasticity of demand and retail pricing structures, technical impediments to competition and possibilities for tacit collusion.

The analysis of this scenario concluded by describing possible remedies that NRAs could apply on the wholesale IMR market. The regulatory framework requires NRAs to first apply remedies on the wholesale market before analysing possibilities for retail remedies. Wholesale remedies should reduce competition problems on the retail side and should benefit consumers. For the IMR markets, this would mean that retail prices would become more transparent, MNOs would have more incentives to compete on retail IMR prices and retail tariffs would ultimately start to decline. As was shown in this RPN, the only remedy which would really have a significant impact on the wholesale IMR market, and as a result perhaps on the retail side, would be price control/cost orientation for wholesale tariffs.

There are several competitive problems in the wholesale IMR market, but dominance is difficult to determine. This raises the question if the competitive problems are the result of single dominance or joint dominance in the form of tacit collusion. Even if dominance can be established, the ineffectiveness of remedies under the New Regulatory Framework seems to support this point. So, the NRF seems inappropriate to solve competitive problems in the wholesale IMR market. A concluding question is if an article 81 investigation under general competition law could be an alternative to deal with competitive problems in the wholesale IMR market.

References

- EC, Working Document on the initial findings of the sector inquiry into mobile roaming charges, December 2000.
- EC, ERG, Common Position on the approach to appropriate remedies in the new regulatory framework, 1 April 2004.
- GSM Association, GSM Europe code of conduct for information on international roaming retail prices.
- Hylkema, R.M., Competition in International Mobile Roaming, TU Delft, thesis, July 2003.
- Ivaldi, M., Jullien, B., Rey, P., Seabright, P., Tirole, J., The Economics of Tacit Collusion, Final report for DG Competition, European Commission, March 2003, IDEI Toulouse.
- NERA, The Emerging Pan-European Mobile Communication Services Market, A white paper, February, 2004.
- OVUM, GSM Europe Code of Conduct for Information on International Roaming Retail Prices Code of Conduct Monitoring: Results for first year of implementation (December 2001-October 2002), 29 October 2002.
- Salsas, R., Koboldt, C., DotEcon, Roaming free? Roaming network selection and inter-operator tariffs, August 2002.
- Valletti, T., Obligations that can be imposed on operators with significant market power under the new regulatory framework for electronic communications Access services to public mobile networks, 2003.

E C O N O M I C   A N A L Y S I S   T E A M

The Dutch Independent Post and Telecommunications Authority (OPTA) regulates the postal and telecommunications markets in The Netherlands. OPTA is an independent executive body that commenced its activities on 1 August 1997. OPTA's mission is to stimulate sustained competition in the telecommunications and postal markets. In the event of insufficient choice OPTA protects end-users. OPTA regulates compliance with the legislation and regulations on these markets.

OPTA has committed itself to improving the economic reasoning on which strategic choices are made so that market parties have a clear understanding of what to expect from OPTA now and in the future. In 2003 the OPTA bureau was complemented with the Economic Analysis Team (EAT) headed by the Chief Economist. EAT is responsible for developing economic reasoning and stimulating discussion on key issues within the telecommunications and postal markets. To achieve this, EAT produces two kinds of policy notes - short discussion papers. Economic Policy Notes focus on economic issues and principles. Regulatory Policy notes focus on strategic economic issues in specific regulatory fields.

With its products and activities the Economic Analysis Team expects to add value to the economic debate in Dutch telecoms and post. For further information visit www.opta.nl from where you can download EAT publications.

OPTA

Contact: EAT@opta.nl