**ECC REPORT 021**

Electronic Communications Committee (ECC)
within the European Conference of Postal and Telecommunications Administrations (CEPT)

# FIXED TO MOBILE INTERCONNECTION

**Luxembourg, November 2002**

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# 1 INTRODUCTION

The purpose of this report is to consider the issue of 'fixed to mobile termination' in the European context. Fixed to mobile relates to a call which originates on a fixed network and is passed to a mobile network being intended for termination on a mobile handset.

Concern has been expressed in a number of countries and in a number of international fora that mobile network operators are charging too much for terminating mobile calls, see papers in Annex A.

The core issue is whether it is appropriate for mobile network operators to be completely free to set the charges for termination or whether the charges should be subject to a form of regulatory control and if so whether they should be subject to cost orientation. This requires consideration of the mobile market, the regulatory framework and the economic conditions in the relevant market.

This report first considers the current position of mobile markets in Europe and the European Framework. It then analyses the appropriate market definition, issues of market power, the impact of calling party pays and the relevance of handset subsidies. The report concludes by considering various options for regulation.

# 2 BACKGROUND

## 2.1 The Growth of European Mobile Markets

Many European countries now have a well developed mobile telephony market. In total, there are over 330 million mobile subscribers in the whole of Europe, 40 million of which are in Central and Eastern European.

In Western Europe, mobile penetration exceeds 75% of the population in fourteen Western European countries[1]. Subscriber growth in 2001 was 19% albeit much lower than that witnessed in recent years, reflecting the fact that many Western European mobile markets are getting close to saturation.

Mobile networks have also made major advances in Central and Eastern Europe. This is in part due to the difficulties that fixed line services have in meeting growing demand for telephony but also mobile phones provide a viable and speedily available alternative to fixed phones. Mobile penetration is now very close to, or exceeds, 50 per cent of the population or more in six Central and Eastern European countries[2]. Overall annual subscriber growth was very high here in 2001 at 60%.

Mobile telephony is now having a major impact on international telephony. Thirty per cent of incoming minutes of international traffic in Europe terminate on a mobile handset. However, because of the higher cost of mobile termination, these costs represent 65% of the total costs of terminating incoming international calls in Europe.

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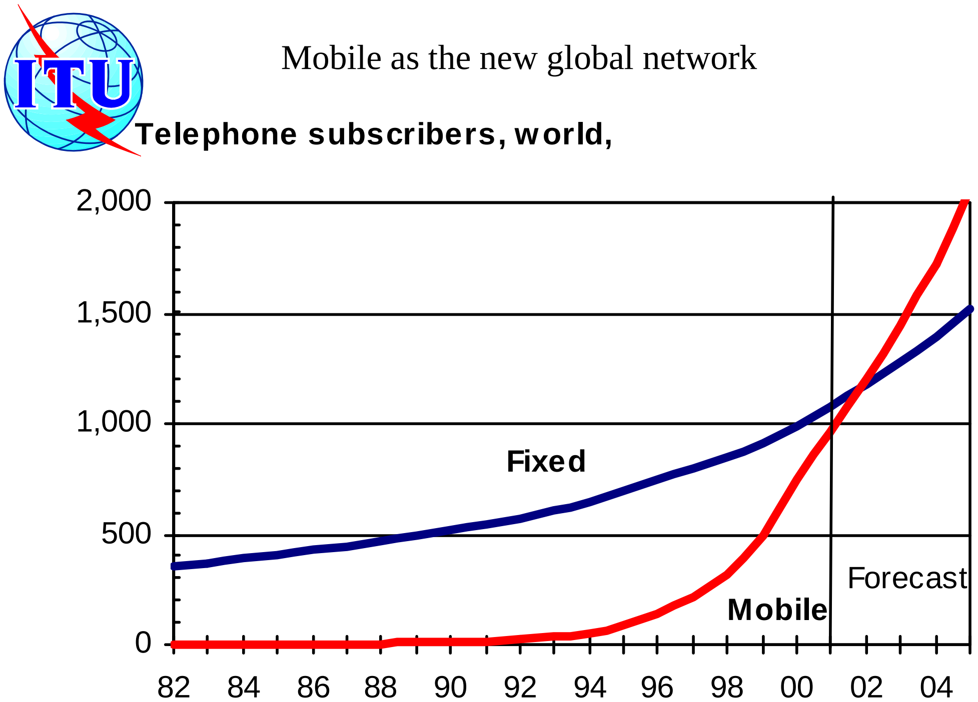
[1] Austria, Denmark, Ireland, Iceland, Finland, Italy, Luxembourg, Netherland, Norway, Portugal, Spain, Sweden, Switzerland and UK.
[2] Hungary, Czech Republic, Slovenia, Croatia, Slovakia and Estonia.

The potential impact of mobile telephony can be seen from the fact that the ITU forecasts that global revenues from mobile services will overtake revenues from fixed services in 2004, see chart below:




*Mobile and fixed telephone subscribers worldwide, 1982-2005*

**Figure 1: Mobile as the new global network**

## 2.2 The Roles of Telecommunications Regulators

The main aim of the national regulatory authority (NRA) for telecommunications is to ensure that electronic communication network markets operate for the benefit of users and economies overall. Regulators should be independent from day to day politics and the industry so that their actions and decisions are completely impartial. An important aspect of the regulator's role is to regulate markets which are not competitive to safeguard the interests of competitors and consumers.

## 2.3 EU Directives

The EU has recently revised its regulatory framework in a suite of new Directives which came into force in April 2002 and have to be implemented in July 2003. Under Article 8 of the Framework Directive[3], NRAs in Member States are required to abide by a number of Policy Objectives. These include the requirement to promote competition by:

- ensuring that users derive maximum benefit in terms of choice, price and quality;
- ensuring that there is no distortion or restriction in competition in the electronic communications sector;
- encouraging efficient investment in infrastructure and promoting innovation; and
- encouraging efficient use and management of the radio frequencies and numbering resources.

[3] European Parliament and Council Directive on a common regulatory framework for electronic communications networks and services (2002/21/EC).

The Framework Directive requires NRAs to review telecommunication markets to identify those markets where there are operators with significant market power (SMP[4]) on whom it is necessary to place ex-ante obligations to allow a competitive market to develop. The Directive requires that NRAs review electronic communication network markets[5] and where a market is not competitive to impose specific regulatory obligations on SMP operators.

A further Directive (the Access Directive[6]) relates to regulation of access and interconnection. The Access Directive, inter alia, imposes specific powers and responsibilities on NRAs. NRAs must encourage and ensure adequate access and interconnection and interoperability of services in a way that promotes efficiency, sustainable competition and gives maximum benefit to end users. The obligations that NRAs impose on operators must be objective, transparent, proportionate and non-discriminatory. NRAs are also empowered to intervene in access and interconnection negotiations or agreements, either of their own initiative or at the request of either party where there is a failure to agree, in order to secure the policy objectives in the Framework Directive.

Under Article 8 of the Access Directive, NRAs may impose obligations on operators who are designated as having SMP in a relevant market. These obligations may include:

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

The obligations imposed must be based on the nature of the problem identified, proportionate, be in accordance with the Framework Directive Objectives and be subject to prior consultation.

### 2.4 Why Regulation?

Regulation involves intervening in markets that are not competitive to achieve the same outcomes as if the market was competitive. It redresses the imbalance of power between the consumers and new entrants when dealing with operators with SMP. Regulators seek only to intervene where there is market failure. One major sign of market failure is where an operator can charge excess prices. However, regulation can involve a number of different types :

- The prevention of anti-competitive behaviour;
- Promoting competition;
- Protecting consumers;
- Achieving social objectives (such as provision of emergency services);
- Dealing with negative externalities; and
- Managing scarce resources (such as spectrum).

Regulation needs to be:

- objective (that is based on the facts and designed to tackle the underlying problem);
- proportionate to the size of the problem,
- consistent; and
- transparent.

Regulation involves making judgements based on the precise circumstances in the relevant market. In Europe, mobile markets have grown up independently in each country and at different speeds. Different countries have different market structures, different patterns of take up and use and different types of services. As a result, NRAs in Europe have adopted different approaches to regulation of mobile markets to take account of the different circumstances.

[4] Although the EU directives refer to SMP, the concept is fully aligned with the concept of dominance in EU jurisprudence.
[5] The European Commission published the Recommendation its list of the product and service markets which need to be reviewed in June 2002. The Recommendation is expected to be finalised in October 2002.
[6] The European Parliament and Council Directive relating to access to and interconnection of electronic communications network and associated facilities (2002/19/EC).

# 3 AN ANALYSIS OF THE SPECIFIC ISSUES OF MOBILE TERMINATION

## 3.1 Market Definitions

In order to analyse the issue of mobile termination properly it is necessary to define the relevant market in which mobile termination resides. Only having done this, can a proper assessment of market power be made and consideration given to the appropriate regulatory response.

This paragraph considers the market definition in the situation in almost all European countries where the calling party pays the full price of the call to the network to which he is connected. The effects of this arrangement known as Calling Party Pays (CPP) is explored in paragraph 3.3 below. The market definition may be different where arrangements other than CPP applies.

In order to establish in which market a service is, it is necessary to consider the constraints on the price setting behaviour of the service provider. There are two main competitive constraints to consider. The first is the extent that it is possible for customers to substitute other services for those in question (demand-side substitution). The second is the extent existing suppliers could increase their existing levels of production or new suppliers enter the market and supply the same or similar services at short notice (supply-side substitution).

The European Commission recommend[7] the use of the so called "hypothetical monopolist test"[8] to test the extent of demand and supply side substitution. Under this, the NRA considers the effect of a small but significant, non-transitory rise in price by a hypothetical monopolist supplier of the product.

First, the issue can be considered from the perspective of persons calling a mobile handset. If the mobile operator raises the price of calling a person on their network that the call originator wants to contact, what alternative would he use? He could call the person on a fixed line but this would only be possible if the person was at the place where the fixed phone was and, if that was the case, given the much higher price of calling a mobile compared to fixed, he would have likely to have done that in the first place. If the call originates on a mobile, the call originator may choose to use a text message. However, a text message is a short one-way message not a conversation and so not an adequate substitute. Similarly, a fax may be considered. But, again, this has shortcomings compared to a voice conversation.

Second, can other suppliers provide a substitute to termination? This is not a possibility. The call originator can only contact the person via his mobile number and this means using the network chosen by the handset owner.

Does the mobile handset owner respond to an increase in price for inbound calls to him by seeking to switch networks? This is unlikely as the mobile handset owner makes decisions on which network to join based on the charges he pays rather than the cost of someone else contacting him.

This analysis suggests strongly that there is little prospect of substitution for mobile termination and there are no countervailing factors. Accordingly, the application of the hypothetical test leads to a conclusion that the market is effectively the termination service of each single operator. However, it should be noted that market structures in certain countries may be different and other market definitions may be appropriate on a case by case basis.

In addition, it should be noted that the European Commission has itself identified the single market of mobile termination as a separate market in a press release about a competition investigation into mobile termination in the Netherlands[9] (and it is included in the European Commission's draft Recommendation on Relevant Product and Service Markets).

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[7] Commission Guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications network and services dated 08.07.02.
[8] This test is also known as "SSNIP" (small but significant non-transitory increase in price).
[9] Commission suspects KPN of abusing its dominant position for the termination of calls on its mobile network Press Release (IP/02/483) dated 27 March 2002).

### 3.2 Market Power

An undertaking has market power if it is not constrained effectively by competition. In practice, an undertaking with market power will be able to raise prices consistently and profitably above the competitive level. To determine whether an undertaking has market power, it is necessary to consider a range of factors including:

- the undertaking's market share and changes in share over time; and
- whether there are any constraints that would prevent the undertaking from acting competitively even when it has a high market share.

Having defined the relevant market as a call termination on each separate mobile network, in Paragraph 3.1, it follows that each mobile network operator has a 100% market share, ie that it is a monopoly, in this market.

However, whether each mobile operator has market power still depends on the existence of countervailing power by purchasers of mobile termination, ie fixed operators and other mobile operators, which would render unprofitable any attempt to implement a small but significant non-transitory increase in price.

This would be a matter of fact in each separate country but in countries where mobile operators are themselves well established, their bargaining power is likely to be sufficiently strong to resist other operators' buyer power. Furthermore, fixed operators have to complete calls originating on their networks, so any threat they make to mobile operators not to pass on calls to a particular mobile network, in response to an 'unacceptably' high termination charge, would not be credible.

### 3.3 Calling Party Pays

Subscribers to mobiles purchase a mobile phone in order to both make and receive calls. In most countries, mobile owners pay charges for periodic subscription fees and outgoing calls and services charges. Note that if a mobile owner does not pay a subscription fee (as in 'Pay as You Go' arrangements – then the unit prices for outgoing calls and services are generally higher.

For calls *to* mobile phones, the usual arrangement is for the person initiating the call to pay the full cost of the call, whether he is calling from a mobile or a fixed line telephone. This arrangement is known as Calling Party Pays (CPP). In a few countries in Europe (eg Albania ) the Receiving Party Pays (RPP) arrangement applies where the recipient, (ie the mobile phone owner) pays the higher cost of receiving the call via a mobile. RPP tends to apply where historically the fixed subscriber benefits from free local calls. However, it has been observed that RPP holds back call volumes as mobile subscribers avoid turning on mobiles rather than pay the cost of calls to them.

The overall effect of CPP in the retail market is that, whereas mobile networks have an incentive to keep the price of those services required and paid for by the mobile owner at a low enough level to attract and retain customers, they have little incentive to keep the price of calls to mobiles low. This is because callers cannot take their business elsewhere if dissatisfied with the price as the caller has to use the network chosen by the mobile owner to reach the particular mobile handset number.

### 3.4 The Asymmetry of Termination Charges

There is generally a wide margin between the interconnection charge for terminating a call on a fixed network and for terminating a call on mobile network. As at August 2001, the EU average (ie across all 15 Member States) for terminating a national call was 1.86 euro cents per minute. The equivalent average interconnection charge for terminating a call on a mobile network is 18.86 euro cents, see Annex 1 of the EU Seventh Implementation Report[10]. The tenfold difference between these average charges is staggering and is unlikely to be explained alone by the higher network costs faced by mobile operators.

However, such wide differences do not occur in countries where RPP applies. Samarajiva and Melody in a briefing paper for an ITU fixed-mobile workshop[11] interconnection workshop report that in Hong Kong, Canada and US, where RPP applies, fixed and mobile termination charges are broadly equivalent. Furthermore, in some countries, eg Singapore and Sri Lanka mobile termination charges are zero.

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[10] See www.europa.eu.int/information_society/topics/telecoms/implementation/annual_report/documents/finalannex1.
[11] www.itu.int/osg/spu/ni/fmi/workshop_briefing_Final1.doc.

### 3.5 Handset Subsidies

Mobile operators, like fixed operators, incur costs in attracting users to networks. However, for mobile operators these marketing costs can include a subsidy[12] to keep the price the new subscriber pays for a handset to a level much lower than it otherwise would have been.

Additional mobile subscribers mean not just that more outgoing calls are made but customers of others networks benefit by having the opportunity to contact the new subscriber at times when previously they could not. This benefit is an externality. An externality is a cost or benefit that flows from a decision where this cost or benefit is not taken into account by the decision maker. Arguably, as the customer of other networks benefit from the additional subscriber joining the network, they should contribute to part of the cost, ie the handset subsidy.

From a cost orientation perspective, there are no grounds for allocating any marketing costs to the interconnection charge for call termination. Further, no similar allowance is made for the termination charge made by fixed operators. However, there may be a case for an additional allowance for externalities in the individual circumstances of different countries.

### 3.6 Mobile Termination

In Paragraph 3.4, the wide difference between mobile and fixed termination charges and fixed prices was highlighted. The majority of European NRAs have had to step in to reduce mobile termination charges. In 2001/02, the NRAs of France, the Netherlands, the UK, Portugal and Sweden have intervened in relation to mobile termination charges.

Concern has also been expressed internationally that the price of calling mobiles is too high particularly when compared to the price of calling a fixed phone. The issue has been discussed at a number of international fora and conferences, for example, the ITU workshop on “Fixed-Mobile Interconnection” in September 2000[13] and at meetings of ITU-D Study Group 3 (the latter has set up a Rapporteurs Group to examine the position).

In addition, in the US, the United States Trade Representative (USTR) in its 2002 review of trade agreements complained that mobile termination charges in Europe are too high and say that they are concerned that US callers are paying too much to call European mobiles[14].

As indicated in paragraph 2.2, EU Member States must review the mobile termination market by July 2003 in order to identify those operators with SMP and then impose appropriate obligations on them. As indicated in Paragraphs 3.2 and 3.3, in most countries, all mobile operators will have SMP in the market for call termination on their networks. Accordingly, it will be necessary to consider what the appropriate ex-ante obligations to be applied to them. Chapter 4 considers the use of cost orientated rates and examines some alternative regulatory solutions.

## 4 METHODS OF REGULATION

### 4.1 Regulatory Intervention

In the case that the market definition is that of a separate market for termination on each operator’s network, it would be appropriate – except perhaps in the case of a completely new mobile operator to seek a solution to the fixed to mobile termination problem. The following are a number of potential solutions.

### 4.2 Tying calls to retail services

The Australian Consumer and Competition Commission have introduced a control whereby fixed to mobile charges are tied to the average change in the prices for retail mobile services. The assumption is that the market for outgoing retail calls is competitive and as retail prices fall the charges for calls to mobiles will fall as well.

This measure is quite interventionist and assumes that the outgoing retail market is effectively competitive. Further it could have undesired effects. It could cause distortions in the more competitive retail market to which fixed to mobile charges were tied or it could reduce competitive pressures in the more competitive market.

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[12] Finland is an excemple of a country where handsets are not subsidised.
[13] www.itu.int/osg/spu/ni/fmi/index.
[14] See http://www.ustr.gov/sectors/industry/Telecom1377/2002review.

### 4.3 Increasing transparency

By improving consumer information and price transparency more pressure could be brought to bear on the fixed to mobile charges. If consumers who own mobiles are more aware of the costs of calling mobiles it might incite them to choose a network based on that which it was cheaper to call them and for consumers calling mobiles it might change their behaviour sufficiently to put competitive pressure on the charges.

In Finland, there is a unique arrangement of CPP where the call originator pays the full cost of the call to the mobile network but does so via two bills – one from the fixed operator on whom the call originates and one from the mobile operator on whose network the call terminates. There is some evidence that the Finnish example does provide for lower prices.

But it is unlikely that many other countries could at this stage of their development adopt these arrangements and there is no evidence that the arrangement leads to an effectively competitive outcome. The issue with transparency is that even if a customer knows a call is more expensive they still have no choice of but to use the mobile network to which the network is connected.

### 4.4 Imposition of cost oriented charges

The setting of charges at cost orientated rates is an attractive solution as it directly and most effectively ensures that fixed to mobile rates are set at a level which would apply in a competitive market. There are questions whether costs should be based on fully allocated cost (FAC) or full long run incremental costs (LRIC). From a theoretical point of view, LRIC is the optimal approach but difficult to implement in practice.

At least one NRA has imposed a price charge cap of fixed to mobile calls. This has the advantage that mobile operators have some flexibility to set charges, that it offers incentives to mobile operators (to the extent they can be more efficient than the NRA has estimated they can keep the benefits of that efficiency), it provides certainty for the period of the charge cap regime and relieves NRAs and mobile operators in detailed work each year on reviewing the level of the charge.

### 4.5 Benchmarking rates

The easiest regulatory tool to use is to benchmark rates. This provides a check against the situation of a country or an operator and its position compared to the other actors of a specific market. It gives a first and preliminary view which has to be a balanced view taking into account the national context.

Assuming that the way of collecting information is the same and that the analysis is done taking into account the particular context of a country (size, number of inhabitants, level of development, GDP, it is a simple and useful tool.

However there is a risk of circularity. That is if all countries use benchmarks the base then becomes suspect. So it is important that benchmarking is only adopted as an interim measure (ie pending assessment of the actual cost of mobile termination) and the base taken reflects those countries which have examined mobile costs and set charges on that basis.

## 5 CONCLUSION

Mobile telephony is now a major part of the telephony environment and growth in mobile services is the highest of all communications services in Europe. This report has reviewed one area of mobile services which has been problematic and controversial in many countries throughout the world and for which different solutions have been found. That is the level of the charge made by mobile operators to fixed operators for terminating a call on the mobile network. This report is intended to inform CEPT administrations and regulators in their analysis of the matter in their own countries.

The Project Team has undertaken an analysis of the extent of competition in the market in a general way taking into account the EU Commission's draft proposals of market definition and its Guidelines on market analysis. The Project Team considers that one possible market definition is that of a separate market for termination on each individual mobile operator's network.

The report notes that the arrangement in most countries is that the person making the call pays the full cost of the call and the effect is that whilst mobile operators have an incentive to keep the prices for outgoing calls made its customer low it has no such incentive for calls made to its network.

However, the Project Team recognises that the structure of the mobile market is not the same in every European country and that different market definitions may be appropriate in some countries.

It follows from the definition of a separate market for each operator that the mobile operator has a monopoly position, ie 100% of the market, on mobile termination. Accordingly, the Regulator needs to consider, less whether intervention is justified, than what. The report considers a number of possible forms of regulation and considers that the requirement of cost orientated charges are likely to be the most appropriate solution.

# ANNEX A

## RELATED DOCUMENTS

- Fixed mobile interconnection Report - ITU workshop on fixed mobile interconnection (September 2000);
- Briefing Paper – ITU Fixed mobile interconnection workshop (September 2000);
- Presentation by Sonera – PT4 (February 2002);
- FCC Documents on streamlining procedures and reporting (2002).