Ofcom
OFFICE OF COMMUNICATIONS

Mobile Call Termination

Market Review

Consultation

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Contents

Section 1

Summary

1.1 Wholesale mobile voice call termination is the service necessary for a network operator to connect a caller with the intended mobile recipient of a call on a different network. If call termination was not available a network operator could only terminate calls to other customers on its own network. This service is referred to as wholesale because it is sold and purchased by network operators rather than retail customers.

Process

1.2 On 7 June 2005 Ofcom published a consultation document *Wholesale mobile voice call termination – a preliminary consultation (*"the Preliminary Consultation"). That consultation ran in parallel with a proposal, since implemented, to extend the existing charge controls on wholesale mobile voice call termination for a further 12 months to 31 March 2007. The Preliminary Consultation was intended to initiate consideration of the issues which would need to be addressed during the next review of the wholesale mobile voice call termination market, to be completed before the extended charge controls expire.

1.3 Non-confidential responses were received from Vodafone, O2, Orange, T-Mobile, H3G, BT, UKCTA, C&W, MCI and Mr S Jackson. One further response was received from an individual who requested that his identity should remain confidential. Several respondents also submitted additional confidential information.

1.4 Having considered responses to the Preliminary Consultation, Ofcom is setting out in the present consultation document its views on market definition and the prima facie evidence of Significant Market Power ("SMP"), and intends that this document should move forward the discussion of future options for regulation after 31 March 2007. Ofcom intends to publish its final consultation document (the 'Final Consultation') in Summer 2006.

Ofcom's proposed view

1.5 In Sections 3 and 4 of this document Ofcom sets out its proposed view that:

- There are separate markets for mobile voice call termination supplied by each of the UK MNOs (ie Vodafone, O2, T-Mobile, Orange and Hutchison 3G UK ("H3G"), and
- The prima facie evidence indicates that each of these mobile operators has Significant Market Power ("SMP") in the market in which they supply wholesale mobile voice call termination.

1.6 The remainder of the document sets out Ofcom's proposed view that these market definitions and the existence of SMP are unlikely to change during the timeframe of this review (4 years from March 2007). Section 5 explores the detriment likely to be caused by excessive termination charges (including inefficient allocation of resources and equity concerns with respect to certain groups of consumers) and Section 6 considers whether there are actions which Ofcom could take to remove the underlying causes of SMP in this market. That section presents Ofcom's current view that neither of the two key options considered in the Preliminary Consultation for effecting fundamental change are practicable at this time: namely

- A mandated change to a Receiving Party Pays ("RPP") billing arrangement, under which called parties would pay to receive calls, might be relied on to remove the causes of SMP, but would be likely to cause unacceptable levels of disruption to retail markets and be extremely unpopular with consumers,
- Technical change to enable more than one mobile operator to compete to terminate a call on any mobile phone, while perhaps conceptually feasible, is not practicable at this time without very significant modification to mobile networks and/or mobile phones.

1.7 Given that neither Ofcom nor stakeholders have been able to identify any other means by which Ofcom could reasonably address the underlying causes of the prima facie SMP in the market, the remainder of the document considers a variety of remedies for preventing MNOs from exploiting their SMP to the detriment of consumers. Ofcom's proposed view is that, while reliance on competition law or ex ante obligations to ensure that charges are fair and reasonable or cost-oriented may appear "light touch" in comparison with direct charge controls, the absence of any consensus view on what is the appropriate level of charges for mobile voice call termination in a world where such termination is variously provided using 2G and 3G networks, is almost certain to result in early disputes. While Ofcom could choose not to determine the appropriate level of charges until a dispute is brought for resolution, such an approach would result in a period of regulatory and commercial uncertainty, and might not facilitate full and transparent consultation on the basis on which charges should be set. Therefore, it is Ofcom's proposed view that;

- Charge controls appear to offer the most efficient and proportionate means to ensure that charges are set at the appropriate level.

1.8 As discussed in Annex 5, Ofcom is continuing to work with the industry to develop a new cost model for mobile voice call termination (including the costs of delivering voice call termination on both 2G and 3G networks). Ofcom is not, therefore, attempting to indicate in the present consultation document what is the appropriate level of charges for wholesale voice call termination (Ofcom expects to address that question in the next consultation exercise to be published during the summer of 2006). Nevertheless, all 5 UK Mobile Network Operators ("the 5 MNOs") are now terminating some voice calls on 3G networks, and the volumes can reasonably be expected to increase sharply over the period to 2011. Charge controls, such as those in force today, which apply only to termination on 2G networks, are likely to present artificial incentives for the charge-controlled MNOs to develop the means to use unregulated 3G networks to terminate traffic in preference to 2G networks.

1.9 Furthermore, the present system of blending regulated 2G charges and unregulated 3G charges to set a weighted average charge to apply to all forms of termination (distinction on a call by call basis not being possible) provides MNOs with both the incentive and opportunity to set high unregulated underlying charges for 3G and so above-cost blended charges. Ofcom notes that Vodafone's termination charges now include underlying charges for the proportion of calls which are terminated on its 3G network which are more than twice the underlying regulated charges for 2G termination within the blend and this has increased beyond the regulated 2G level, the blended charge levied for all forms of termination. Furthermore, the reasons in the last market review for not regulating 3G (that only H3G was terminating voice calls on a 3G network and H3G had at the time less than 1% of the UK subscribers) have less weight in the context of the current review. Ofcom is proposing therefore, that

- Any SMP conditions, including any charge controls, should apply to termination on both 2G and 3G networks

1.10 Ofcom has noted that, currently, MNOs are unable to determine on a call by call basis which network type (2G or 3G) should be used to terminate any given call; 3G capable phones are programmed to standby to receive and make calls in 3G mode whenever within a 3G coverage area (as, otherwise, they would be unable to make or receive advanced 3G services – standing-by in both modes simultaneously is not currently possible). Any call to a 3G capable phone which is in a 3G coverage area will, therefore, be terminated using the MNO's 3G network, and all other calls will be terminated using the 2G network. Consequently, callers and operators which originate calls to a mobile have no choice in how the call is terminated and would, in any event, be unlikely to have a preference, unless on price grounds, as the quality of voice call termination on 2G and 3G networks is indistinguishable. In summary, the choice of whether termination is achieved using a 2G or 3G networks is currently determined by technical considerations, and callers and originating operators have no means to influence the decision. For these reasons, and those more fully explained in section 7, Ofcom currently holds the view that

- There would seem to be good reasons, subject to Ofcom's work developing a new cost model, for applying the same charge cap to termination on an MNO's 2G and 3G network, but Ofcom will need to ensure that the approach does not adversely affect prospects for future investment

1.11 As noted in Section 5, where an MNO with SMP is able to set wholesale mobile termination charges above the competitive level, excessive revenue may be used to compete with other MNOs in the competitive mobile retail markets (as well as perhaps more widely with providers of fixed network services). This competition may take the form of reduced outgoing call or subscription prices subsidised by excessive termination charges, or may even include a direct sharing of excessive termination charges with the called party in the form of credits based on incoming call volumes. Such offers are likely to increase the attractiveness of the MNO's retail offers relative to those of other MNOs. For this reason, Ofcom is proposing that

- It is essential that any differences between any controls imposed on different MNOs are based on a clear and unambiguous analysis of costs as, otherwise, Ofcom risks distorting the competitive retail mobile markets.

1.12 Ofcom also proposes that where SMP charge control conditions are imposed, such conditions should be supplemented by other SMP conditions, including an obligation to meet reasonable demand for mobile voice call termination on fair and reasonable terms, a prohibition of undue discrimination and an obligation to notify charges and certain other information variously to Ofcom, interconnected parties and other stakeholders.

Next steps

1.13 Ofcom is inviting detailed comments on the issues raised in the present consultation document by 25 May 2006. Ofcom expects to consult further on estimating the cost of mobile termination and on countervailing buyer power. Furthermore, as Ofcom considers it important to conclude this market review well before the present charge controls expire in March 2007 Ofcom is asking for responses within 8 weeks.

1.14 After considering responses, and after completing the cost modelling work, Ofcom will publish its final consultation document on this issue. At that time Ofcom will also publish the text of a set of proposed conditions, if appropriate. Ofcom anticipates that it will publish this proposal during the summer of 2006, and Ofcom will invite the European Commission and other National Regulatory Authorities ("NRAs") to comment at that time (as Ofcom is required to do by the EC Communications Directives).

Section 2

Background

Market reviews and regulation today

2.1 As provided for in the Framework Directive (Directive 2002/21/EC), the European Commission has adopted a Recommendation on relevant products and services markets ("the Recommendation") which identifies markets within the electronic communications sector, the characteristics of which may be such as to justify the imposition of regulatory obligations. NRAs such as Ofcom are obliged to take the utmost account of the Recommendation when defining markets appropriate to national circumstances. If Ofcom considers a market reviewed is not effectively competitive, NRAs must consider imposing remedies where appropriate on undertakings with SMP within that market. The Recommendation's Market 16 is the market for voice call termination on individual mobile networks.

2.2 Ofcom last conducted a full review of the market for voice call termination during 2003/4. Ofcom concluded in the statement *Wholesale Mobile Voice Call Termination* published on 1 June 2004 ("the June 2004 statement") that, as envisaged by the European Commission, there are separate markets for mobile termination of voice calls on the network(s) of each of Vodafone, O2, T-Mobile, Orange and H3G ("the 5 MNOs") (plus Inquam which has since ceased to trade). Those markets were considered to include voice call termination on both 2G and 3G networks, but they excluded termination of data and SMS. The June 2004 statement also found that each of the 5 MNOs (plus Inquam) had SMP in their respective market. The formal Notifications to each of the MNOs defined the markets as follows:

- wholesale voice call termination provided by 3 (such termination being provided via 3's mobile network);
- wholesale voice call termination provided by Inquam (such termination being provided via Inquam's mobile network);
- wholesale voice call termination provided by O2 (such termination being provided via O2's 2G and 3G mobile network);
- wholesale voice call termination provided by Orange (such termination being provided via Orange's 2G and 3G mobile network);
- wholesale voice call termination provided by T-Mobile (such termination being provided via T-Mobile's 2G and 3G mobile network); and
- wholesale voice call termination provided by Vodafone (such termination being provided via Vodafone's 2G and 3G mobile network).

2.3 As a consequence of those SMP designations, SMP conditions were imposed on all of the 5 MNOs (and on Inquam), but these varied between the MNOs. Vodafone, O2, T-Mobile and Orange (the "2G MNOs") were made subject to a charge control on 2G voice call termination (but not 3G termination). The Target Average charge for Vodafone and O2, which operate networks at 900 MHz and 1800 MHz, was set at 5.63ppm and for T-Mobile and Orange, which operate networks at 1800 MHz, at 6.31 ppm. These Target Average Charges were also subject to a Weights Adjustment Factor which makes small adjustments for changes in traffic profiles. No charge control was imposed on any form of termination by H3G (or by Inquam).

2.4 The 2G MNOs were also made subject to further conditions which prohibit undue discrimination in the supply of 2G voice call termination, require supply of 2G voice call termination on fair and reasonable terms, and require publication and notification of contracts and charges for 2G voice call termination.

2.5 The charge controls imposed on the 2G MNOs in June 2004 were time-limited and unless extended would have expired at the end of March 2006. Following consultation with stakeholders, the charge control conditions were amended in December 2005 such that they will now expire at the end of March 2007 (*Wholesale Mobile Voice Call Termination – statement and notification extending the charge controls* published by Ofcom on 16 December 2005).

2.6 H3G was made subject only to an obligation to notify 2G voice call termination volumes and total voice call termination volumes to Ofcom and to supply, 28 days before implementation, details of 2G charges (and charge changes) to those with whom it had entered into contracts for the supply of 2G voice call termination.

2.7 In summary, therefore, the SMP conditions imposed on the 2G MNOs in June 2004, and which are in force today, are as follows;

- Requirement to provide network access on reasonable terms
- Requirement not to unduly discriminate
- Control of fixed to mobile interconnection charges
- Control of mobile to mobile interconnection charges
- Requirement to publish access contracts
- Requirement to notify charges

2.8 In respect of H3G, Ofcom imposed only one condition as follows;

- Requirement to publish charges and call volumes

2.9 In respect of Inquam, Ofcom imposed only one conditions as follows

- Requirement to notify charges

2.10 In July 2004 H3G challenged Ofcom's determination, attached to the June 2004 statement, that H3G has SMP. On 29 November 2005 the Competition Appeals Tribunal ("the CAT") found that Ofcom had made an error in its SMP determination since it did not conduct a full assessment of the extent to which BT had CBP and had also misinterpreted its dispute resolution powers and obligations. The CAT therefore required Ofcom to reconsider whether there was sufficient CBP in the market to negate the finding of SMP.

2.11 In June 2005, in parallel with the proposal to extend the present charge controls for a further 12 months to 31 March 2007, Ofcom published a preliminary consultation document *Wholesale mobile voice call termination – a preliminary consultation (*"the Preliminary Consultation"). which was intended to initiate consideration of the issues which would need to be addressed during the next review of the wholesale mobile voice call termination market, to be completed before the extended charge controls expire. Non-confidential responses were received from Vodafone, O2, Orange, T-Mobile, H3G, BT, UKCTA, C&W, MCI and Mr S Jackson. One further response was received from an individual who requested that his identity should remain confidential.

2.12 Having considered responses to the Preliminary Consultation, Ofcom is setting out in the present consultation document its proposed views on market definition, the existence of SMP and appropriate remedies, and intends that this document should move forward the discussion of future options for regulation after 31 March 2007. The proposed period covered by this market review is the 4 years from 31 March 2007. While this period is longer than the 2-3 year horizon more commonly adopted by Ofcom when conducting market reviews, Ofcom considers, for the particular reasons given in sections 3 and 4 below, that fundamental change in this market is unlikely during the period to 2011. Also, in the event that Ofcom decides to impose a charge control, there may be merit, as discussed in section 7 below, in imposing a control to apply for a period of longer than 2 to 3 years. The decision to review a 4 year period to 2011 does not necessarily mean, however, that any remedies for SMP, such as a charge control, would apply for the full extent of the period reviewed; this is a matter for further consideration as discussed in section 7 below.

Commercial context

2.13 Wholesale mobile voice call termination is the service necessary for a network operator to connect a caller with the intended mobile recipient of a call on a different network. If call termination was not available a network operator could only terminate calls to other customers on its own network. This service is referred to as wholesale because it is sold and purchased by network operators rather than retail customers. It is an essential wholesale component of any retail call to a mobile phone, except for calls between mobile phones on the same network.

2.14 Annual revenue from wholesale mobile voice call termination is of the order of £2 billion, which is equivalent to approximately 15% of revenue from mobile outbound retail services; as such, this is a significant revenue source for the mobile industry.

2.15 Each of the 2G MNOs reports similar volumes of subscribers, at around 14 million (although these figures are believed to be somewhat inflated by churn management practices which, for a period of time, leave some non-active subscriptions on an MNO's subscriber records). H3G reports that it has a little over 3 million subscribers. Volumes of voice call minutes terminated by each of the 5 MNOs are roughly proportionate to the volume of subscribers, although there is some material variation between MNOs. For reasons of commercial confidentiality, Ofcom is not able to disclose these figures.

2.16 Termination revenues are, of course, affected by the different charges levied for mobile termination; the unregulated charges levied by H3G (see figure 1 below) materially narrow the termination revenue gap between H3G and the 2G MNOs despite the fact that H3G terminates for its 3 million customers far fewer call minutes than each of the 2G MNOs terminate for their 14 million customers.

2.17 In addition to receiving revenue for mobile voice call termination, each MNO also makes payments to other MNOs for voice call termination on their networks. Although, as might be expected, the flow of termination minutes between MNOs is broadly in balance, there are some MNOs which are material net providers of inter-MNO termination minutes (and, therefore, net receivers of inter-MNO revenue).

2.18 Technical arrangements, devised by the industry, for delivering calls to phones with mobile numbers ported from other mobile networks are such that the termination charge billed is that set by the MNO which had originally been allocated the relevant number range, rather than that set by the MNO to whom the user currently subscribes. In total a little over 15% of mobile numbers currently in use have been ported from another MNO, and this proportion can be expected to grow as mobile penetration plateaus and MNOs rely increasingly on competing for their rivals' subscribers to increase market share. The proportion of incoming call minutes terminated on ported-in numbers varies significantly between MNOs, resulting in further adjustment to the overall average price per minute received by each MNO for call termination.

Termination charges

2.19 All 2G MNOs now terminate some voice calls using their 3G network, and H3G continues to use national roaming to terminate some calls on O2's 2G network (see paragraph 2.21 below). However, the five MNOs' wholesale billing systems do not distinguish on a call by call basis between calls terminated on 2G and 3G networks (and a call may even switch between the two networks while in progress if the called party is moving). All MNOs charge the same or a blended charge for both forms of termination, although that charge may vary by time of day and week. The 5 MNOs currently levy the following charges for wholesale voice call termination.

Figure 1 Wholesale termination charges at 30 March 2006 (ppm)

	Daytime	Evening	Weekend
O2	6.373	6.310	3.140
Orange	7.601	5.447	4.354
T-Mobile	8.146	4.000	4.000
H3G	15.620	10.780	2.510
Vodafone (blended charge)	8.500	3.450	2.830

3G termination volumes and underlying charges

2.20 Volumes of termination on 3G networks by the 2G MNOs remain low. Some MNOs are not yet able to determine the precise volume of 3G termination minutes and at least one MNO, which is able to count such minutes, has asked that the proportion should not be divulged publicly. An understanding of the order of magnitude can be gained by noting that no 2G MNO has more than about 5% of its customers connected to 3G phones (the proportion of voice minutes terminated on 3G will be lower as calls to 3G phones which are outside the MNO's 3G coverage area will terminated using the 2G network). However volumes are growing.

2.21 H3G has a national roaming agreement to provide coverage for voice, SMS and certain GPRS services when H3G customers are not somewhere they can connect to H3G's own 3G network. The proportion of calls which are received and made in this way has been falling and is expected to continue to do so as H3G further rolls out its network. H3G has stated that its 3G network now provides 88% population coverage.

2.22 In the case of the 2G MNOs, which are subject to a charge control, the charges referred to in Figure 1 above reflect a blend of underlying regulated 2G and unregulated 3G charges weighted by volumes of each over a measurable period. Of these charge-controlled MNOs, only Vodafone has adopted underlying charges for the 3G proportion which differ from the regulated 2G charges; Vodafone's blended charges specified in figure 1 above are a weighted blend of the following charges;

	Day	Evening	Weekend
Vodafone underlying 2G charge	7.89ppm	3.20ppm	2.61ppm
Vodafone underlying 3G charge	18.80ppm	8.30ppm	6.26ppm

2.23 As the proportion of traffic terminated by Vodafone on its 3G network increases, so Vodafone's blended charge, applicable to all forms of voice call termination, can be expected to rise (absent changes in the underlying 3G charge). If the regulatory framework remains unchanged, it may be expected that other 2G MNOs will adopt the same approach.

The European context

2.24 When Ofcom published the June 2004 Statement which imposed the charge controls and other SMP conditions currently in force, the UK was the only NRA to have completed a review of this market under the new European regulatory regime which was brought into force on 25 July 2003. Subsequently, all EU NRAs (with one exception) which have formally notified their market definition for mobile call termination have, like Ofcom, adopted the Commission's technologically-neutral definition which does not distinguish separate markets for 2G and 3G termination. The one recent exception, Cyprus, has been invited by the European Commission to reconsider its position (there are currently no 3G networks in Cyprus).

2.25 All NRAs which have considered the issue so far, have also found that all MNOs have SMP (including, in some cases, MVNOs which have control over termination charges). This too was Ofcom's approach in the June 2004 Statement, and this is the approach being proposed by Ofcom in the present consultation.

2.26 No NRA, other than Ofcom, however, has imposed different remedies in respect of 2G and 3G termination (and no NRA has set different charge caps to apply to 2G and 3G termination by the same MNO). It should be noted that in June 2004, when Ofcom imposed charge controls only on 2G voice call termination, no 2G MNO was using 3G networks to terminate voice calls and H3G, which was using its 3G network to terminate voice calls, still had less than 1% of the mobile subscribers in the UK. Consequently, Ofcom concluded that there was insufficient evidence to conclude that regulation of 3G termination charges was a proportionate approach, as any adverse effects on consumers were likely to be small given H3G's very small subscriber base relative to the wider mobile sector. As noted above, all 2G MNOs now terminate some voice calls on their 3G network and H3G's subscriber volumes have increased ten-fold.

Section 3

Market definition

Introduction

3.1 The service considered in this review is wholesale voice call termination on individual mobile networks. This is market 16 in the Commission's *Recommendation on relevant product and service markets within 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 electronic communication networks and services*[1].

3.2 Call termination is the service necessary for a network operator to connect a caller with the intended recipient of the call on a different network. If call termination was not available a network operator could only terminate calls to other customers on its own network. This service is referred to as wholesale because it is sold and purchased by network operators rather than retail customers.

3.3 This review considers only wholesale voice call termination on mobile networks in the UK. At present there are five suppliers of wholesale voice call termination on mobile networks in the UK. These are Vodafone O2, Orange, T-Mobile and H3G. These suppliers currently use 2G and 3G mobile networks. In the future it is possible that they may use other mobile network technologies to supply wholesale mobile voice call termination. This review only considers wholesale voice call termination provided by these suppliers on their 2G and 3G mobile networks. In the future, and potentially within the forward looking period of this review it is also possible that there will be additional suppliers of wholesale voice call termination on mobile networks. For example, BT may become such a provider in the near future (this is discussed in paragraph 3.87 below). Moreover, the programme of liberalisation of spectrum in the UK (including auctions of vacant spectrum bands) may result in the emergence of new mobile network operators and also, potentially, new providers of public wireless local access networks (WLANs). Ofcom will monitor such developments and consider whether further markets should be defined and reviewed.

Approach to product market definition

3.4 The narrowest possible market definition is wholesale voice call termination to a specific mobile number (or subscriber). In the rest of this section, a discussion of demand-side substitution, supply-side substitution or the existence of common pricing constraints is presented in order to see whether this narrow market definition should be expanded to include other products. Ofcom's approach to market definition follows that set out in the Commission's Guidelines on market analysis and assessment of significant market power.[2]

Demand-side substitution

3.5 To assess whether there are any demand-side substitutes that should be included in the relevant market, it is necessary to examine the effect on the profitability of a

[1] OJ L114 2003

[2] "*Commission Guidelines on market analysis and assessment of significant market power under the Community regulatory framework for electronic communications networks and services*" (See http://europa.eu.int/eur-lex/pri/en/oj/dat/2002/c_165/c_16520020711en00060031.pdf)

terminating operator of an increase in its termination charge. To perform this exercise Ofcom has assessed the effect on both retail consumers and wholesale customers.

Retail demand-side substitution

3.6 Demand for termination is a derived demand in that it comes from a fixed or mobile originating network operator on behalf of a customer who has originated a call. Therefore changes in termination charges will feed through, to some extent, to fixed and mobile retail prices for calls to mobiles.

3.7 In principle, the greater the degree of competition in retail fixed and mobile call origination[3] and the greater the cost of termination within the fixed and mobile retail call cost stack[4], the more increases in termination charges will feed through to fixed and mobile retail prices respectively. Where retail operators offer a broad basket of retail services, and where competition (or regulation) drives out excess profits, there may be a diluting effect in the relationship between the marginal costs of calls to mobiles (which includes the wholesale mobile termination charge) and the retail price of calls to mobiles. The extent of pass-through of increased termination charges to retail prices could well be less than one-for-one, even for retail operators without SMP.

3.8 The extent of pass through of changes in wholesale mobile termination charges to retail prices is important from the perspective of retail demand-side substitution. The lower the level of direct pass-through to retail prices, the less exposure retail customers have to changes in the wholesale termination charge. Therefore they have less incentive to switch to alternative ways to call and, hence, the less constraint their behaviour is likely to exert (via the derived demand from their operator, whether fixed or mobile) on a hypothetical monopolist of wholesale voice call termination.

3.9 However, in present circumstances it seems that there is substantial pass-through to the retail level. Analysis suggests (see Annex 6) that, overall, around two-thirds of recent reductions to termination charges have passed through directly to fixed origination retail prices for calls to mobiles. Therefore the behaviour of retail customers[5], the called and calling parties, in response to a retail price increase in calls to mobiles arising from an increase in wholesale voice call termination charges might impose a competitive constraint on wholesale termination charges.

Behaviour of the called party in response to an increase in the price of calls to mobiles

3.10 There would be a constraint on termination charges if mobile subscribers chose their network on the basis of the prices of incoming calls and, thus, switched network as a result of an increase in these prices. However, the calling party pays ('CPP')

[3] In a competitive market changes in marginal costs (such as, in the case of calls to mobiles, mobile termination) feed through directly to retail prices. MNOs have not been found to have SMP in call origination and FNOs other than BT have similarly not been found to have SMP in call origination. As a result they would be expected to pass-on any significant change in marginal call costs. To date, BT has had SMP in retail fixed to mobile calls, and it has also been price regulated via a cap on a basket of access and calls. With respect to calls to mobiles it is BT's retention (i.e. margin) which falls within the price cap basket and hence, if mobile termination charges increase, increases in retail prices are likely under the price cap (i.e. would not require compensating price reductions elsewhere).
[4] For example, from BT's Current Cost Financial Statements, outpayments for calls to mobiles (i.e. reflecting MNO termination charges) account for over 90% of BT's wholesale costs for calls to mobiles and 80% of the total cost (i.e. including an allocation for retail costs).
[5] The market can be characterised as a two-sided market - there are two types of retail customer: called parties and callers.

arrangement adopted in the UK telephony market has a notable impact on mobile subscribers' sensitivity to the price of incoming calls.

3.11 Under the CPP arrangement, the calling party (and not the called party) pays the total price of a retail call. This means that the voice call termination charge is included in the originating network provider's (either fixed or mobile) cost base and is reflected in the retail price it sets for calls originating on its network. CPP thus leads to a disconnection between the person paying for a call and so, indirectly, for the termination charge (i.e. the calling party) and the person who makes the choice of the terminating network which sets the termination charge (i.e. the called party).

3.12 The overall effect of this arrangement in the retail market (i.e. the market for calls from fixed to mobiles and the market for calls from mobile to mobile) is that, while MNOs have an incentive to keep the price of those services which are required and paid for by mobile subscribers at a level to attract and retain customers, they do not have the incentive to keep the price of calls to their subscribers low.

3.13 Nevertheless, it is still possible that mobile subscribers might respond to a rise in the termination charges of the MNO to whom they subscribe, by switching to a network with lower termination charges, if they expected that the higher price of calling them would have an impact on their callers. For this to be true, Ofcom considers that the following conditions would have to be met: callers must be sufficiently aware that they are calling a mobile and that they are calling a specific network;

- mobile subscribers should value incoming calls to such an extent that, a sufficient reduction in these calls (see below) induced by an increase in the price of these calls, in turn induced subscribers to change network;
- callers must be sufficiently aware that they are calling a mobile and that they are calling a specific network;
- callers must be sufficiently aware of the price of calling that particular network; and
- callers must be sensitive to changes in the prices of calling the network they want to reach

3.14 Ofcom considers that only if all four of the above conditions are met could the behaviour of mobile subscribers act as a competitive constraint on mobile termination charges, as MNOs that increase charges would risk a loss of users on their networks. Mobile subscribers (in relation to the first bullet) are discussed below. Callers to mobiles (in relation to the second, third and fourth bullets) are discussed under 'Behaviour of the calling party in response to an increase in the price of calls to mobiles'.

3.15 In summary, for the reasons set out in the paragraphs which follow, Ofcom takes the view that the price of incoming calls is not considered by consumers to be an important factor in their choice of a mobile network and that consumer awareness of the price of calls to mobile phones is limited, especially in respect of the price of calls to each specific network. Therefore the behaviour of the called party in response to an increase in the price of calls to mobiles does not provide a sufficient competitive constraint on termination charges.

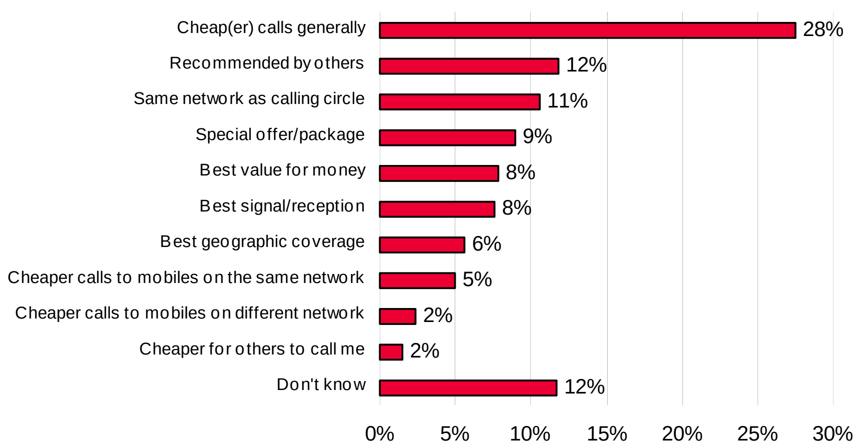
3.16 In assessing the behaviour of consumers, Ofcom has taken into account evidence from the following surveys (which are referred to and defined in the following paragraphs);

- Surveys referred to in the Competition Commission's 2003 report

- Surveys of residential and SME consumers conducted for Ofcom during February 2005, and
- A survey of residential customers conducted for Ofcom in January 2006

3.17 Ofcom carried out surveys of residential and SME consumers during February 2005[6] ("the February 2005 survey"). In this survey it was found that when residential subscribers were asked what their considerations were when making their network choice, only one in fifty (2%) spontaneously said that they considered whether the network was cheaper for others to call them. However, it is possible that the cost to others of calling them may have been taken into account when deciding to choose the same network as their calling circle (one in nine (11%) referred to this factor) and may also have been reflected in the consideration that calls within the same network may be cheaper (one in twenty (5%) noted this factor). Figure 2 below presents the full set of considerations indicated by residential consumers choosing their network provider themselves.

Figure 2 Spontaneous considerations when choosing network[7]



3.18 As shown in Figure 2, the most frequently mentioned factor in residential consumers' network choice was found to be "cheap(er) calls generally".

3.19 When prompted as to whether the cost of others calling them was a consideration in their choice of network, overall only one in nine (11%) residential subscribers said they found out how much it would cost other people to call their network and only one in ten (10%) said that the cost for other people to call them was a significant consideration.

3.20 The Competition Commission's ('CC') 2003 report[8], (paragraph 2.134 – 2.135) noted that the cost of incoming calls was not an important factor for consumers when choosing their mobile network. It ranked 10th out of the 14 factors suggested, the most important being 'the price you pay to call others'. In addition, just under two thirds (61%) of mobile users expressed more concern about the cost to them of

[6] Findings from these surveys were presented in Annex 2 of Ofcom's consultation document "Wholesale mobile voice call termination markets – a proposal to modify the charge control conditions", 7 June 2005 (see http://www.ofcom.org.uk/consult/condocs/wholesale/wholesale.pdf)
[7] Base: Adults aged 16+, mobile phone users and choosing network provider themselves (1,413)
[8] Competition Commission's "Mobile phone charges inquiry", 2003 (see http://www.competition-commission.org.uk/inquiries/completed/2003/vodafone/index.htm)

calling others than the cost to others of reaching them. Only 9% were more concerned about the cost to others (paragraphs 2.133 to 2.135). At the time, these findings were consistent with surveys of residential customers commissioned by two of the MNOs and presented at the CC inquiry. O2's NOP survey found that for nearly three quarters (75%) of respondents the cost to other people of calling them on their mobile phone was an unimportant factor when they decided which mobile network to join. Under one fifth said that it was important. High proportions (85%) of both categories were unable to say why they took the view they did (2.133 to 2.135 in the CC report). An NOP survey commissioned by Vodafone showed that the price of outgoing calls was much more important to mobile users than the costs that others incurred to call them (paragraphs 2.133 to 2.135).

3.21 Overall it appears that residential mobile subscribers' attitude towards the cost of others calling them is not a major consideration in their decision about which mobile network to subscribe to. Therefore these subscribers are unlikely to impose a competitive constraint on the termination charge by switching to networks with cheaper termination charges. Looking forward, and assuming that the CPP arrangements persist in the UK, it is difficult to see why mobile subscribers may become more sensitive to the cost of others calling them and hence begin to offer a competitive constraint to termination charges.

3.22 The existence of closed user groups i.e. groups of people whose members care about the cost to the other members of calling their mobile number, could ameliorate the effect of the CPP arrangement and act as a constraint on voice call termination charges. However, for this constraint to be effective, these groups should be numerous and not capable of being isolated through targeted tariffs that bypass the usual termination charges. As discussed above, the evidence available shows that few groups of people are sensitive to the cost of incoming calls. Moreover, those that are can be targeted with tariffs which bypass the usual termination charges (see paragraph 3.28 below).. Therefore Ofcom takes the view that closed user groups do not provide a sufficient competitive constraint on termination charges.

3.23 The minority of subscribers who are concerned about the impact of high mobile termination charges on the behaviour of callers generally, may be able to mitigate the impact by using call diversion services, including personal numbering services ("PNS"). To a degree, such services enable the called party to decide how much callers should be charged for calling them (provided that, in some instances, the called party is willing to contribute to the cost of incoming calls). However, call diversion services are fundamentally more expensive than calls direct to mobile numbers because (a) their routing is indirect (calls to a personal number go to the PNS provider first, which then forwards them to the appropriate terminating network) and (b) they require access to some form of database which is used to determine the called party's preferences for termination. Furthermore, in any event, where calls are diverted to a mobile phone, the MNO's standard mobile termination charge is payable, either by the caller in the cost of the call or, in whole or in part, by the called party within the cost of the call diversion service.

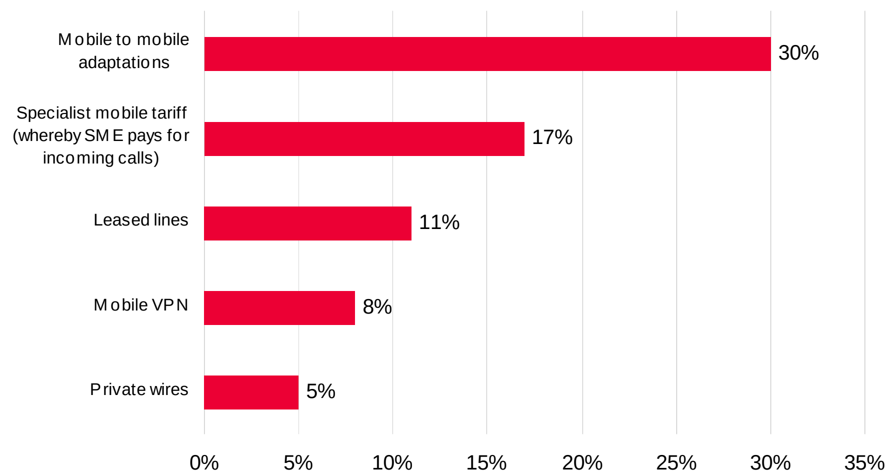
3.24 Whether offered on a CPP or RPP basis, the higher cost suggests that it is unlikely that PNS could represent effective substitutes to calls to mobile phones for called and calling parties. This service may be attractive to those subscribers who are sensitive to the price payable by others to call them on their mobile. However, the MNOs will typically have already separated these subscribers from the generality of subscribers by offering them specially targeted tariffs, such as those referred to in paragraph 3.28 below. Therefore, Ofcom believes that automatic call forwarding services do not currently generate significant pressure on the level of mobile voice termination charges.

3.25 Business users, in particular small and medium sized enterprises ('SMEs') with up to 250 employees appear to be more concerned than residential users about the cost of calling their mobiles.

3.26 In the February 2005 survey, one in three (33%) SMEs[9] owning or renting mobile phones said that they chose the mobile network that was cheapest to call - and an additional fifth (18%) said that they would consider doing so in the future.

3.27 Also in the February 2005 survey, one half (53%) of SMEs indicated that they had taken additional steps to reduce the cost of calling their mobiles (see Figure 3 below).

Figure 3. Steps taken to reduce cost (to other people) of calling their mobile phones, prompted[10] (Proportion of SMEs taking steps)



3.28 As mentioned above, closed user groups do not generate sufficient competitive pressure to constrain the level of termination charges because the MNOs can separate them from less sensitive customers by offering special arrangements that by-pass standard termination rates. By separating out some or all of the more price-sensitive customers, the MNOs limit the constraint on the termination charge from the more price-sensitive customers and this means that they face even less competitive pressure in setting charges for the other customers. The examples given in Figure 3 above e.g. Private wire, Mobile VPNs, Leased lines, Special tariffs and Mobile-to-mobile adaptations, are examples of such arrangements that segment the market in this way.

3.29 The costs of private wire services and mobile-to-mobile adaptations are such that it is likely that they will be introduced only where the savings from lower prices for calls to mobiles outweigh the costs of installing them. This, in turn, is likely to occur only

[9] Base, UK SMEs owning/renting mobiles phones (585)
10 Base: UK SMEs owning/renting mobile phones having taken steps to reduce the cost of calling their mobiles (255)

where a sufficient proportion of the fixed line originated phone calls of the customer is directed to a single mobile network (such as, for example, mobile phones used by a business's own workforce). Thus, they are unlikely to be an effective substitute to standard fixed-to-mobile calls for residential consumers. However, as mentioned above, the main reason why their presence is unlikely to constrain termination charges for fixed-to-mobile calls generally is that they constitute a targeted tariff aimed at separating out the most price-sensitive customers. On-net pricing can also have the effect of separating more price sensitive callers from applying pressure on termination charges. This may result in subscribers seeking to subscribe to the same network to take advantage of cheaper on-net calls. Therefore, in general, targeted tariffs do not impose a competitive constraint on the prices which operators can charge for calls to less price sensitive customers.

3.30 If mobile users, generally, could receive their incoming calls on mobile networks other than the one to which they subscribe for making outbound calls, this could put some pressure on mobile voice termination charges. For this form of substitution to take place, the called party must be able to switch their handset between different networks (or hold more than one active mobile phone). This is possible through the use of multiple SIM cards, either manually or automatically switched.

3.31 A subscriber can have a mobile phone with an internal multiple SIM card-holder that allows him to switch from one network to another. There are devices available in the UK market which allow customers to use different SIM cards in the same handset and, thus, switch between networks. However, to place some pressure on the MNO with high termination charges the subscriber should, by default, be on the network with cheap voice call termination charges and only switch to the other network to make cheap outbound calls. The process of switching networks is currently laborious and time-consuming. In addition, it relies on the called party having the incentive to change network potentially every time he needs to make a call and to switch back again at the end of the call, so that the next inbound call will use the network with lower termination charges. It is doubtful that such an incentive currently exists given the CPP arrangement and customer behaviour described above. Hence, it is more likely that subscribers currently exploit the multiple SIM card opportunity mainly, if not exclusively, to take advantage of differences in the prices of outgoing calls.

3.32 As a variation on SIM card switching, subscribers could hold more than one mobile phone and provide the mobile number with the lowest incoming call price to those that call them. In this way mobile subscribers could combine their preference for cheaper outbound calls whilst at the same time ensuring that those that call them pay the lowest price.

3.33 In January 2006 Ofcom commissioned a survey of residential customers[11] ("the January 2006 survey") and found that of those personally using a mobile phone, approximately one in nine (12%) said they had more than one mobile phone number or more than one SIM card that they currently used. This is a relatively low proportion of mobile subscribers. Furthermore, when asked why they had more than one number or SIM card two fifths (44%) of these subscribers said it was to split business and personal calls with the next most popular reason being to split calls made to different mobile phone networks, approximately one in eight (12%) giving this response. No respondents suggested they had more than one mobile phone or SIM card in order to receive calls to a different number and therefore reduce the cost of calling them.

[11] The findings and questionnaire concerning Ofcom's January 2006 survey are set out in Annex 6 of this consultation document.

3.34 An automatic mechanism to re-route calls can also be conceived of. Such a mechanism would instruct the called party's mobile phone to switch network automatically when a call is arriving. No such mechanism currently exists and, in Ofcom's view, the prospects for such a development are low during the period covered by this review (4 years from March 2007) due to significant technological difficulties and to the lack of incentives on the part of the called party to make use of a facility that reduces the cost of incoming calls. In addition, a further hurdle is posed by the need for MNOs to allow access to their handsets/SIM cards to install the necessary software (as well as allowing any necessary signalling to pass across the mobile network to control network selection), as the MNOs have little incentive to co-operate in this way.

3.35 The main limitation of both manual and automatic SIM switching, and owning more than one mobile phone, is that all rely on the called party having an interest in reducing the cost to other persons of calling his mobile. It seems unlikely that mobile subscribers place pressure on the cost of calling them through owning multiple SIM cards on phones. At present these subscribers make up a small proportion of subscribers and are motivated by the same underlying incentives as most mobile subscribers; to take advantage of differences in the prices of outgoing calls or separate billing arrangements.

3.36 Having considered the behaviour of called parties in response to an increase in the price of calls to mobiles, Ofcom has concluded that, over the period of this review, this is not likely to impose a sufficient constraint on wholesale termination charges.

Behaviour of the calling party in response to an increase in the price of calls to mobiles

3.37 As discussed in para 3.9 above the extent of pass-through of changes in wholesale termination charges to retail prices will affect the competitive constraint that callers to mobiles may impose on termination charges. If pass-through were significant (and Ofcom's evidence of pass-through in Annex 6 suggests that it is) callers may impose a competitive constraint if callers react to an increase in the retail price for calling mobiles by employing other means of communication to reach mobile subscribers. This form of substitution could act as a competitive constraint on wholesale voice call termination charges - whether it would act as a sufficient constraint would depend on the amount and nature of substitution that takes place. The MNOs' behaviour would be affected only if the behaviour of calling parties was sufficient to make the increase in the wholesale charges unprofitable. However, for callers to react to an increase in the price of calls to mobiles, it is Ofcom's view that three conditions need to be satisfied:

- callers must be sufficiently aware that they are calling a mobile and that they are calling a specific network;
- callers must be sufficiently aware of the price of calling that particular network; and
- callers must be sensitive to changes in the prices of calling the network they want to reach, i.e. an increase in the termination charge above the competitive level must cause consumers to adapt their behaviour to find an alternative satisfactory way of contacting the person they want to call.

3.38 Ofcom's view on these three criteria is that none of them is sufficiently met for calling parties to act as a competitive constraint on call termination charges. The reasons for this are discussed below.

3.39 Furthermore, different retail consumers face different retail costs of calling a mobile, for example a caller who has purchased a number of calls to mobiles as part of a bundled subscription package faces a different marginal cost of calling to a caller who has used up his bundled minutes or who purchased a subscription without inclusive minutes. It is likely that callers with bundled minutes would be less sensitive to changes in the price of calling and therefore impose less of a competitive constraint on wholesale termination charges. In the following analysis, whilst this issue is not explicitly explored, Ofcom consider it an important factor that could mean that, in practice, many callers are not particularly sensitive to an increase in call prices.

Awareness of calling a mobile and awareness of calling a specific mobile network

3.40 In Ofcom's January 2006 survey residential consumers with a fixed or mobile phone were asked how often they know whether they are calling a mobile phone number. Overall the majority (84%) of consumers claimed to always or mostly know when they are calling a mobile.

3.41 In the January 2006 survey Ofcom found that of all consumers making calls to mobiles two fifths (42%) claimed to never know which mobile network they are calling or were unable to give an opinion. In addition, one quarter (23%) claimed to rarely know, one in six (16%) sometimes know and only one fifth (19%) mostly or always know which mobile network they are calling.

3.42 These results are consistent with previous survey evidence. In the February 2005 survey Ofcom found that, of mobile phone users which know they are calling a mobile, two fifths (44%) claimed never to know which network they are calling, a quarter (24%) occasionally know, one fifth (18%) usually know and only one in ten (10%) always know.

3.43 The CC in its 2003 report collected evidence on consumer awareness of the identity of the particular mobile network they are calling. The CC's own market research (paragraph 2.136) indicated that on average just under a third (28%) of mobile users said they knew whether they were calling a mobile phone on the same network as themselves. Callers appear to have limited knowledge of which specific network they are connecting to when making a call to a mobile. Over time, this awareness does not appear to have improved significantly.

3.44 It appears that there is a lack of knowledge of mobile number ranges and how these are assigned to the different MNOs. In addition, the number portability arrangements render it difficult for callers to find out which network they are calling (and thus what the relevant cost is), unless they have a repeated calling relationship with the person they are calling.

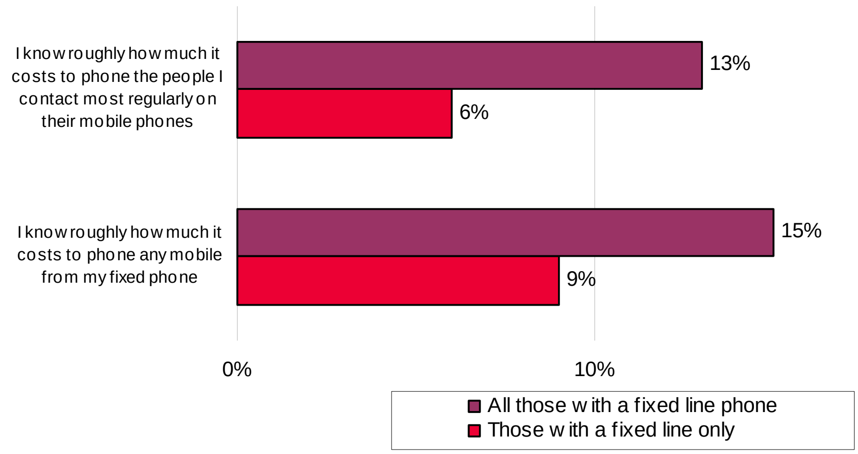
3.45 Looking forward over the period to 2011, it is Ofcom's view that there is no evidence which might suggest that callers' awareness of which mobile network they are calling will improve significantly.

Awareness of relative and actual prices

3.46 Awareness of the cost of making calls to other mobile phones appears to be quite limited. In Ofcom's February 2005 survey it was found that fewer than one quarter (22%) of mobile phone users claimed to know the approximate cost of calling a mobile on the same network as them, and this proportion dropped to one in seven (14%) for calls to mobiles on a different network. Of note is that the proportion who claimed to know how much it costs to phone the people whom they contact most regularly on their mobile phones was similarly low (16%).

3.47 Awareness is similarly low amongst callers making a call to a mobile phone from a fixed line. Figure 4 below highlights the survey results for these callers - one in seven (15%) of consumers with a fixed line phone in their household reported that they knew roughly how much it would cost to call a mobile phone.

Figure 4, Awareness of the cost of calling mobile phones from your own landline[12]



Source Ofcom February 2005 survey

3.48 The data from Ofcom's February 2005 survey is broadly consistent with the results of earlier surveys. The CC referred to this issue in their 2003 report (paragraphs 2.136 to 2.141), which suggested that a large number of callers had little knowledge of the actual prices or the relative levels of charges for calling each network. The CC concluded that these findings overall:

> "…reveal a degree of awareness on the part of consumers which is insufficient to enable them to make an appreciable impact on prices or to drive termination charges down to competitive levels" (paragraph 2.141).

3.49 Ofcom's February 2005 survey reveals that callers do not appear to be significantly aware of the cost of calling a mobile from a mobile or a fixed line. The CC's conclusion accords with the evidence of today. As discussed in paragraph 3.39 above, the practice of inclusive minutes as part of tariff packages means that some callers face a very low marginal cost of calling. Going forward, it is Ofcom's view that there are no reasons to believe that this awareness will improve significantly over the period to 2011.

Callers' sensitivity to changes in the prices of calling a specific network - adapting behaviour

3.50 Even if, contrary to the evidence currently available, awareness of prices was to grow significantly, competitive pressure will only be exerted on wholesale mobile

[12] Base: All those with a fixed line phone (2,158), Those with a fixed line only – i.e. no mobile phone (461)

termination charge if callers are willing to adapt their behaviour through substitution, so that MNOs lose profits on mobile termination if they attempt to raise termination charges.

3.51 There is a range of potential options available to a caller as a substitute for contacting a specific recipient (by calling them on their mobile number). These include:

- mobile-to-fixed call as a substitute for mobile-to-mobile off-net call;
- mobile-to-mobile call as a substitute for fixed-to-mobile call;
- on-net mobile-to-mobile call as a substitute for mobile-to-mobile off-net call;
- SMS as a substitute for mobile-to-mobile call;
- voice over Internet Protocol calls; and
- call-back arrangement.

3.52 Each of these forms of substitution is discussed below in terms of their suitability as a satisfactory means of calling a mobile. There are numerous other means of communicating with an individual, such as other computer messenger services or email. However, Ofcom does not believe that these are significant alternative substitutes for most callers. This is because they are only feasible substitutes for most callers when both caller and called party have access to the required technology at the same time in order for these forms of contact to offer immediate – real time communication.

Mobile-to-fixed call as a substitute for mobile-to-mobile off-net call

3.53 Following an increase in the wholesale termination charge and, to the extent that this increases the cost of calling another mobile, a calling party may switch to calling the intended party on a fixed number. However, it is unlikely that a call to a fixed line can represent a satisfactory substitute for calling someone on a mobile network in a sufficient number of instances to act as a constraint on the charges for wholesale mobile voice call termination. In particular, a call to a fixed line is not a viable alternative if the called party is, or is thought to be, away from their fixed line phone, since immediacy of contact is an important feature of calls to mobiles. This is consistent with evidence from Ofcom's January 2006 survey. Callers were asked to imagine themselves away from their home and calling someone on their mobile phone. Just under one third (31%) of callers said that in the last month they had tried calling people on the recipient's fixed phone first (before trying their mobile) in order to reduce the cost of these calls. A lower proportion, one in seven (14%) reported that, on at least one occasion in the last month, they had actually waited to call the recipient on their fixed phone rather than calling them on their mobile.

Mobile-to-mobile call as a substitute for fixed-to-mobile call

3.54 After an increase in termination charges and, thus, in the cost of calling a mobile, a caller who previously used a fixed line to make a call to a mobile may continue to call the desired party's mobile number, but from a mobile phone rather than from a fixed one. Ofcom's January 2006 survey found that just under one fifth (18%) of callers reported to have used their mobile, rather than their fixed phone, to call a mobile when at home during the last month because they had inclusive minutes to use up and this would reduce the cost of calling.

3.55 The ability of this form of substitution to constrain voice call termination charges depends on its effect on the profits from termination services for the network operator. The terminating MNO controls the termination charge for a call originated from a fixed or mobile operator and therefore is able effectively to control the impact such substitution might have on its profits

3.56 Mobile-to-mobile on-net call retail prices do not involve a payment to another operator for mobile termination and are generally set at lower levels than off-net calls and so tend to generate lower revenues per minute for the MNOs. In Ofcom's view, for on-net calls to be a viable alternative to fixed-to-mobile calls:

- the caller must know the mobile network they are calling; and
- the caller must be on the same network as the call recipient.

3.57 As discussed above, awareness of the specific network being called is limited. In addition, mobile subscribers are split between five MNOs, hence, the probability of the caller being able to reach the desired call recipient with an on-net call is substantially less than 100%. The probability that a call remains on-net will broadly reflect the market share of the mobile operator in the outgoing retail market. (The fact some groups of customers which frequently call each other congregate on the same network may increase this probability). Ofcom's January 2006 survey revealed that one in seven (14%) callers to mobiles claimed to have called from their mobile rather than their fixed phone in the last month because they knew that the person they are calling is on the same network as them.

3.58 However, if a caller knows that they make calls to one network more often than to the others, this could influence the choice of network as subscribers seek to benefit from the lower prices charged for on-net calls. In that case, calling mobile-to-mobile on-net might be an effective substitute for a call from a fixed phone. However, this substitution is unlikely to constrain termination charges because one of the effects of MNOs tariffs is that they tend to separate the more price sensitive subscribers from the others, e.g. by attracting them with low on-net prices on which the effects of a high termination charge is bypassed. This limits the constraint that the more price-sensitive subscribers impose on the termination charge paid on off-net and fixed-to-mobile calls. This issue was examined in more detail, in the context of closed user groups, in paragraph 3.28 above.

On-net mobile-to-mobile call as a substitute for mobile-to-mobile off-net call

3.59 Termination charges for off-net calls could be constrained by substitution to on-net calls. This would require the calling party to be on the same network as the called party or to use more than one network to originate or terminate their calls e.g. by having more than one mobile subscription – in the form of multiple SIM cards or handsets and/or having more than one number on which to contact the called party.

3.60 As noted in paragraph 3.34 above, the use of multiple SIM cards is problematic for callers because the process of switching cards (to make different calls) is laborious and time-consuming. In addition, MNOs often lock handsets to the SIM that is originally sold with the handset so that it can only be used on their network. Those factors, and limited consumer awareness of the higher cost of off-net calls - only one in seven (14%) of residential mobile subscribers in Ofcom's February 2005 survey said they knew how much it cost to phone another mobile on a different network - means that it may be some considerable time before multiple SIM devices generate any significant competitive pressure on voice call termination charges.

3.61 [✂] there is evidence of subscribers owning more than one handset and subscribing to more than one MNO at the same time. As discussed above, Ofcom's January 2006 survey found that of those with a mobile phone, approximately one in nine (12%) claimed to have more than one mobile phone number or more than one SIM card that they currently used. However, responses to Ofcom's January 2006 survey also indicated that use of multiple handsets to reduce the cost of making calls to mobiles currently is not common. Approximately one in nine (12%) of those owning more than one SIM or mobile phone number claimed that they did so in order that they can split calls made to different mobile phone networks.

3.62 In the January 2006 survey it was revealed that one quarter (26%) of callers to mobile claimed to have more than one mobile number for one or more of the people who they call. This offers another opportunity for callers to mobiles to make an on-net call instead of an off-net call if they know which of the mobile numbers is associated with their own network. As already discussed, callers are not highly aware of which network they are calling. Moreover, the January 2006 survey revealed that two fifths (39%) of mobile subscribers claiming to have more than one number or SIM reported that they were connected to the same network.

3.63 Overall, Ofcom considers that substitution of off-net calls by on-net calls is unlikely to provide a competitive constraint on termination charges and could even reduce, rather than increase, the constraint on the general level of voice call termination charges. That is because MNOs, by offering lower on-net call prices, can segment the market by type of customer and separate the more price-sensitive customers from the others who are less price-sensitive. They can then set high termination charges for others (i.e. off-net termination charges). Thus, Ofcom is of the view that the nature and extent of this type of call substitution is not sufficient to act as a competitive constraint on termination charges.

SMS as a substitute for fixed or mobile-to-mobile call

3.64 Short message services ("SMS") enable parties to exchange text messages between mobile phones. SMS may also be received on and/or sent from some fixed network phones, and text is sometimes converted to a synthesised voice message.

3.65 SMS can only be relatively short, because the number of characters allowed in a text message is limited to 160 characters (although some phones now enable the user to link together more than one SMS message). Also, SMS are not sent in real time because, unlike mobile voice calls, SMS are transferred between networks on a store and forward basis, rather than on a 'real time' basis. Therefore, SMS do not guarantee the opportunity for immediate conversation and interaction offered by voice calls. Evidence from Ofcom's January 2006 survey suggests that some callers do view SMS as a substitute for calling a mobile in order to save money. When asked whether callers had sought to reduce the cost of calling a mobile by sending an SMS instead of calling, just over half (52%) said they had done this in the last month when they were away from their home. When calling from their home the proportion claiming to substitute to SMS in the last month was lower at around two fifths (43%).

3.66 Nevertheless, whether or not SMS are a retail substitute for fixed or mobile-to-mobile calls is only relevant if this substitution can have an impact on the terminating MNO's profitability. However, SMS termination is offered by the same MNO which provides voice termination. Therefore, the terminating MNO could set charges for SMS termination in such a way as to avoid any competitive pressure on its charges for voice termination.

3.67 Therefore, even if there is retail substitution of SMS for calls to mobile this may have no ultimate impact on an MNO's profitability and hence wholesale market definition since the MNO controls the termination charge for both services

Voice over Internet Protocol calls

3.68 The future impact of VoIP calls during the period of this review to 2011 is not clear. VoIP calls could, in theory, represent an effective substitute, but whether this applies competitive pressure on termination charges depends on whether it is possible to make a VoIP call to a mobile subscriber without incurring a termination charge controlled by the terminating operator. If this is possible, it is conceivable that callers could substitute to this alternative way of contacting a mobile subscriber, thereby providing a competitive constraint on the mobile termination charge. VoIP on fixed networks allows callers to speak via PC broadband connections at very low individual direct call cost, and for this type of call no termination charge is levied. Whether VoIP on mobiles would similarly be cheaper than conventional voice calls will depend on the charging arrangements set by the MNOs.

3.69 An individual making a VoIP call only pays to be on-line (which does not include a termination charge) and the target of the call (if they answer the call) similarly only pays to be connected. Thus, in a VoIP call both the called and the calling parties pay for the facility to receive/make the call. This is a quite different arrangement to traditional CPP and the concept of a wholesale termination charge no longer exists.

3.70 Such a RPP arrangement changes the incentives on the called party and is likely to affect their behaviour, although it is still unclear in what specific manner. For example, it is possible that a called party may not accept VoIP calls because he would have, in part, to pay for them, thus forcing the calling party to reach them via a standard voice call to their mobile. In this case, VoIP calls would not impose competitive pressure on the level of the termination charges. There is less incentive from a receiver's perspective to accept a VoIP call as opposed to a circuit-switched call, as they pay for the former (partial RPP) but not the latter (CPP).

3.71 The constraining effect of VoIP calls to mobiles may also be undermined by the MNOs' behaviour. It is the MNO to which the called party subscribes that sets both the voice termination charges and the price for the Internet connection. That MNO also determines the quality of service (i.e. data delay and bit errors). Hence, it may be feasible to adjust network data quality parameters such that it is acceptable for web browsing and e-mail, but not for voice calls.

3.72 It is possible today to originate a call to any mobile phone using VoIP. However, where such calls are addressed to a mobile (or geographic) PSTN phone number the call is terminated using the MNO's voice channel and a standard voice call termination charge is payable. As a consequence, no competitive pressure is applied to mobile termination charges.

3.73 However, it is also technically possible to use VoIP to make and receive end to end calls on "smart" mobile phones (ie phones which incorporate appropriate operating software). In these instances, IP addresses are used to identify the parties to the call. Such calls would typically be carried on the MNO's data channel and users would be charged at the MNOs' data rates; no voice call termination charges would be payable. The ability to make calls in this way, bypassing voice call termination charges, is dependent on the user having the ability to install appropriate software on his mobile phone. It is also dependent on users being able to access, from their mobile phones, the Internet providers which offer VoIP services. There is much debate within the industry as to the extent to which, in future, smart mobile phone users will be able to access such sites. It is also unclear whether MNOs will develop the ability to price discriminate according to the nature of the data carried (eg whether VoIP, or whether or not included within the MNO's preferred list of Internet sites).

3.74 At the moment the future of VoIP calls to mobile numbers is unclear. If these types of call were to become prevalent they could act as a constraint on mobile termination charges associated with traditional circuit switched calls to mobiles. However, at this stage there is insufficient clarity about the likely prevalence and billing arrangements associated with these types of calls in the future for Ofcom to take the view that they are likely to impose a significant constraint on termination charges over the period to 2011. However, if VoIP calls were to become a real substitute for traditional circuit switched calls to mobiles and the billing arrangements for these calls displayed RPP characteristics Ofcom could examine again the impact of these types of calls on the market. The possible future impact of VoIP is discussed in more detail in Section 6

Call-back arrangement

3.75 Call-back refers to a situation where the direction of a call is 'reversed' and the calling party is called back by the called party, either in an ad hoc manner or through a commercial scheme. Call-back could render an increase in termination charges unprofitable only if the profitability of outgoing calls is lower than that of incoming calls, and call-back is carried out in sufficient volume.

3.76 Ofcom has no evidence of any commercial operators currently offering call-back on calls to mobiles within the UK, such that the practice of ad-hoc call-back might have a constraining effect on voice call termination charges.

3.77 It is possible that during the period to 2011 MNOs could introduce a call-back service to offer an alternative to callers to their subscribers. However, Ofcom believes that this form of call-back could not be relied upon, in the period to 2011, to act as a viable constraint on mobile voice termination charges. Firstly, from a caller's and called party's perspective call-back is not as convenient as normal call. Secondly, MNOs have no incentive to introduce a service of a price and a quality such that it could act as an effective substitute for their own monopoly service. In any event, the inconvenience of call-back services, compared with direct calls, is likely to limit the extent to which they may constrain mobile termination charges.

Initial conclusions on retail demand-side substitution

3.78 Ofcom considers that there are currently no effective retail demand-side substitutes that could constrain mobile termination charges to the competitive level. Looking forward over the period to 2011, it is Ofcom's view that there is no clear prospect for changes in the behaviour of mobile subscribers or callers that will impose a competitive constraint on mobile termination. Perhaps the most likely source of competitive pressure may come from VoIP calls to mobiles which, because of the potential difference in billing arrangements, may provide a satisfactory and attractive substitute for making a traditional call to a mobile number. However, as discussed above, it is unclear how VoIP will develop in the mobile sector.

Wholesale demand-side substitution

3.79 At the wholesale level the very nature of mobile termination means that substitution of wholesale voice call termination on an MNO's network with wholesale voice call termination on a different MNO's network cannot provide any direct constraint on termination charges, since an operator wishing to offer calls to a specific mobile number of a customer of a specific MNO must purchase termination from that MNO or it will not be able to terminate the calls. Looking forward to 2011, it is Ofcom's view that there are no prospect for termination to be provided, in relation to calling a specific subscriber, other than by the subscriber's MNO.

Initial conclusions on wholesale demand-side substitution

3.80 For the reasons listed above, Ofcom considers that at present there are no effective demand-side substitutes for voice call termination to specific subscribers of a particular MNO. On a forward looking basis to 2011, Ofcom believes that there is no evidence which indicates that this will change.

Supply-side substitution

3.81 Supply-side substitution occurs when, in response to a rise in the price of a product, suppliers of other products would switch into supplying the product whose price has risen and render the price increase unprofitable for the hypothetical monopolist. Supply-side substitution can be examined both at the retail and wholesale level.

Retail supply-side substitution

3.82 For retail supply-side substitution to impose a constraint on the level of mobile voice termination charges, there would have to be operators which do not currently provide calls to mobiles that can switch into such provision and thus undermine a price set above the competitive level. In order to have such an effect, the new provider(s) would have to be able to provide a service which did not rely on the provision of termination from the MNO to which the called party subscribes. At present, Ofcom takes the view that it is not feasible to offer retail calls to mobile without being reliant on the MNO to which the called party subscribes to terminate such calls.

Wholesale supply-side substitution

3.83 For wholesale supply-side substitution to be an effective constraint on mobile voice termination charges, there have to be other firms that could switch into the provision of wholesale voice call termination to a specific subscriber of an MNO's network with relative ease in response to an increase in termination charges.

MNOs other than the one to which the called party subscribes

3.84 Supply-side substitution in the wholesale market could come most easily from other MNOs, which have the necessary network infrastructure and expertise to terminate mobile calls. However, having a mobile network is not, on its own, sufficient for an MNO to be able to terminate calls to a subscriber of a rival network. For this to happen, the mobile phone should be capable of automatically moving from its home network on to that of the alternative MNO on which the call would then be terminated. Ofcom takes the view that at present the lack of access to handsets/SIM details and the technical difficulties in taking control of the handset constitute an effective barrier to an MNO providing voice termination to subscribers of another MNO. (This issue is discussed in further detail in Section 6 below). On a forward looking basis to 2011, Ofcom believes that there is no evidence which indicates that this will change.

New mobile network operators, Local Area Networks over short-range radio technologies and Wireless Local Area Networks (WLANs)

3.85 Operators running WLANs could conceivably enter the market for mobile call termination in competition with MNOs and, thus, put pressure on the level of mobile voice termination charges. Ofcom believes that, at present, there are significant technical obstacles that would have to be overcome before such a service could become viable for mobile users. For example, WLAN operators cannot currently offer the same coverage as the MNO's networks because of the limited range of reception enabled by their equipment, and technical difficulties, in terms of taking control of the called party's mobile phone, will arise. A further limitation of this scenario, and the scenario of other MNOs offering competing termination services to an extent which would constrain charges, is that it relies on the called party being responsive to the price of inbound calls, such that they would be prepared to incur some cost to reduce the cost to the person calling his mobile (for example by acquiring a multiple SIM handset). At present, the evidence presented in this section suggests that mobile subscribers do not take into consideration to any great extent the price of inbound calls when making their purchasing decisions. Therefore Ofcom takes the view that all of these obstacles would prevent new mobile network operators and WLAN operators from being able to supply voice call termination in competition with each existing MNO.

Mobile Virtual Network Operators

3.86 An MVNO is a firm that provides mobile telephony services to its customers, but does so by using part of an MNO's network. Ofcom understands that, at present, all calls to UK MVNOs' subscribers are routed directly to the host MNO's network and originating operators pay this MNO a terminating charge set by that host MNO.

3.87 However, where an operator has its own allocation of mobile numbers this allows the operator to control the termination charge for calls made to these numbers. For example BT has its own mobile number range, and Ofcom understands that it intends to use these numbers when supplying mobile services, such as BT Fusion. BT has published a charge for terminating calls to this number range and Ofcom understands that, unlike arrangements put in place by other MVNOs, BT controls the level of that charge and will collect termination charges from originating operators. Completion of each call, variously on a host MNO's network or otherwise, will be a matter between BT and the various agencies which may be used to complete the call. Ofcom understands from BT that this number range has not yet been used and, therefore, the termination arrangements described have not yet been put into practice. Therefore this, and any similar developments by other operators should they arise, is a matter for future consideration. At such time Ofcom would consider whether it is appropriate to conduct a further market review.

3.88 MVNOs with control over wholesale termination charges are likely to face similar incentives as MNOs when setting termination charges, as calling parties and originating operators have no choice but to use that MVNO's wholesale termination services to deliver a call to the MVNO's customers. When such arrangements are brought into effect, it may therefore be appropriate to consider whether such MVNOs have SMP in mobile termination. In any event, in Ofcom's view, it is unlikely that such MVNOs could apply competitive pressure to wholesale termination charges set by other MNOs as they are unable to compete to supply termination services, other than the termination of calls to their own customers.

Initial conclusion on supply-side substitution

3.89 For the reasons mentioned above, Ofcom considers there are no effective supply-side substitutes for voice call termination to the subscribers of a specific MNO.

Common pricing constraint(s)

Aggregating for all calls to a telephone number relating to a specific network

3.90 On the basis of the initial conclusions reached above, there are no demand-side or supply-side substitutes that should be included in the relevant markets. Accordingly, the appropriate market definition might appear to be wholesale voice call termination to a specified telephone number (or subscriber). However, Ofcom considers that it would be wrong to narrow the market definition to this extent, because MNO's currently do not price discriminate between termination charges for calls made to all the different subscribers on their networks.

3.91 MNOs can separate the more price-sensitive customers by offering them arrangements that bypass the wholesale mobile voice call termination charge and so take such sales outside the scope of the market, e.g. through a private wire service (or use of on-net calls). These issues have been discussed in the preceding paragraphs on demand-side substitution. However, the MNOs do not currently charge different prices for termination depending on which one of their subscribers is being called. Thus, a common pricing constraint applies to voice call termination to all subscribers on one network. Setting aside tariff arrangements beyond the scope of this market which bypass the termination charge, this implies that, if an MNO wishes to lower termination charges for calls to one subscriber, it must in practice lower termination charges for calls to all its subscribers, effectively equalising the competitive pressures placed on all the networks' termination charges. As a result, Ofcom is of the view that the relevant market includes wholesale mobile voice termination to all subscribers of an MNO for which a termination charge is paid.

3.92 However, the current mobile number portability arrangements, put in place by the industry, have led to the situation in which an MNO effectively charges a different termination charge for calls to those customers that have ported their number from a different network ('donor network'). In these instances, the termination charge is equal to the donor network's termination charge. Therefore wholesale termination for calls to 'ported number subscribers' are not strictly included in the common pricing constraint. There are two possible approaches for the treatment of calls to subscribers who have ported their number:

- Wholesale voice call termination for calls to ported number subscribers could be included in the same market as the donor network operator; or
- Wholesale voice call termination for calls to ported number subscribers could be included in the same market as the network operator to which the subscriber currently subscribes.

3.93 If the first of these options were followed the situation would arise in which an MNO is supplying a service to its subscribers but the service is included in the market of a different MNO. If the second were followed the rationale for inclusion in the market would not be the common pricing constraint (discussed above). Ofcom proposes to include calls to ported number subscribers in the same market as the network operator to which the subscriber currently subscribes. If Ofcom were to impose remedies on termination charges it would be unusual to impose charges on an MNO when it does not supply the service to which the charge controls apply. Ofcom recognises that if the current share of calls to ported number subscribers, compared to all calls to mobiles, were to increase in the future this could give rise to a anomalous incentives for MNOs given that donor operators would be setting the charge for termination supplied by a different operator. Under these circumstances it is possible that there may a case for revising the current number portability arrangements.

Cluster market for mobile services including termination

3.94 Termination could be considered as part of a cluster market incorporating all mobile services due to a wider common pricing constraint. This is the view presented, or referred to, by the 2G MNOs in their responses to the Preliminary Consultation. If mobile subscribers purchased a bundle of services from MNOs that included voice call termination together with other retail services, even if each element of the bundle were not a demand-side substitute for any of the others, the fact that they are all consumed and supplied together would link them. This is because under these circumstances, MNOs would be competing for customers not on the price of each single service, but on the overall price of the bundle and, thus, the various services would be subject to a common pricing constraint.

3.95 In these circumstances, an MNO would not be able to raise voice call termination charges, while keeping prices for the other services in the bundle at the same level, without seeing its customers switch to another network in response to the increase in the overall price of the bundle. The MNO would, therefore, be able to raise termination charges only if, at the same time, it reduced prices for other services, so as to maintain at the same level the overall price of the bundle. If this was true, an MNO could be constrained in its ability to increase charges for voice call termination (though the extent of such constraint would depend upon the level of competition in relation to the provision of the overall bundle). However, as discussed above, the evidence supports the conclusion that few mobile subscribers consider the prices of incoming calls in addition to the prices of outgoing calls, when choosing their mobile network. At present, the evidence suggests that calls to mobiles are not part of the bundle of services on which MNOs compete for subscribers. Therefore, Ofcom takes the view that the appropriate market definition is not that of a cluster market for all mobile services.

Operators that have both a 2G and a 3G network

3.96 O2, Orange, T-Mobile and Vodafone have both 2G and 3G networks. Therefore it is necessary to consider whether or not this has any impact on market definition.

3.97 At present MNOs cannot directly control which network they use to terminate calls to their subscribers on a call by call basis. This is determined by the subscriber's handset. Dual mode (2G/3G) phones cannot standby to receive calls in both modes simultaneously. Therefore they are programmed to default to the 3G mode where 3G coverage exists as, otherwise, the user would be unable to make and receive advanced 3G services. Therefore, whenever a dual mode phone is within 3G coverage any incoming voice call must be terminated on the MNO's 3G network. All calls to 2G-only phones and all calls to dual mode phones which are outside the 3G coverage area are terminated using the MNO's 2G network. However, in the future it is possible that MNOs may develop the technology that will provide them with discretion in deciding on which network to terminate a call.

Demand-side substitution

3.98 Subscribers to the 3G services of these operators are given a dual mode handset that works on both 2G and 3G networks and will receive voice calls through both networks. However, as noted above, the network on which the call is terminated is dictated by the terminating operator , currently with reference to the availability of 3G coverage, and neither the originating operator nor the calling party is able to affect this choice, and neither is likely even to be aware of whether the 2G or the 3G network has been used for termination.

3.99 Since callers are unable to choose the network on which calls terminate, voice call termination on the 2G network does not appear to be a demand side substitute if charges for termination of calls to 3G subscribers were raised above the competitive level. Equally, voice call termination on the 3G network does not appear to be a demand side substitute if charges for termination of calls to 2G subscribers were raised above the competitive level.

Supply-side substitution

3.100 The fact that the two networks are run by the same operator also indicates that termination on the 2G network will not be a supply-side substitute for termination of calls to 3G subscribers. The fact that an MNO can offer termination on its 2G network for calls to its 3G subscribers will not impose any additional constraint on the level of the charges for termination on its 3G network. An MNO will not undercut its own charges. For the same reason, termination on the 3G network is not a supply-side substitute for termination of calls to 2G subscribers.

Common pricing to originating operators

3.101 MNOs with both a 2G and a 3G network present a single price to originating operators for purchase of voice call termination to its subscribers. MNOs use both networks to terminate calls. As discussed above, currently this is not an active decision on a call by call basis, although this may change in future. This pricing policy means that the same charge is paid for voice call termination whether it is delivered using the 2G network or the 3G network. The key issue in this context is that originating operators pay the same, or a blended, price whether voice call termination is on a 2G or 3G network.

3.102 Ofcom notes that it might be feasible for MNOs to set different charges for each of 2G and 3G termination and to levy such charges depending on the network used for termination. Technology could be developed for such a purpose. There would, however, be some practical problems to be addressed, such as whether upgrades to billing systems would be needed and that originating operators may not know which network had been used for termination. In the absence of clear evidence to the contrary, Ofcom considers it reasonable to assume that MNOs (absent regulation) would continue to levy the same or a blended charge for termination irrespective of whether they use their 2G or 3G network to connect the call.

Geographic market definition

3.103 The geographic extent of each market is determined by the geographic extent of each network within the UK. MNOs charge the same price for termination to a mobile number (or subscriber) wherever the call is made from and wherever the called party receives the call at. Therefore there is a common pricing constraint.

H3G and national roaming

3.104 H3G provides voice termination over its 3G network where it has coverage. Out of coverage, H3G uses termination on the 2G network of another MNO (‘national roaming partner’). H3G effectively uses the supply of wholesale termination services by another MNO as an input into its own supply of termination services to originating operators. H3G does not currently charge a different price for termination which is carried purely over its 3G network or which utilises its national roaming partner's network as an intermediate step. Therefore, H3G singularly controls the termination of voice calls to its network. Ofcom is therefore of the view that the most appropriate market definition in this case is wholesale voice call termination provided by H3G.

Overall initial conclusions on market definition

3.105 On the basis of the analysis and of the evidence discussed above, Ofcom holds the view that:

- No adequate wholesale demand or supply side substitutes for termination of calls to the subscribers of a specific MNO currently appear to exist. Current technology does not allow the termination of a call to a mobile other than on the network of the MNO to which the called party subscribes. In Ofcom's view, there is no evidence to suggest that this will change during the period of the review to 2011.
- At the retail level, there are no effective alternatives for callers that could act as a constraint on termination charges. In addition, callers continue to appear to have limited awareness of the cost of calling mobiles. It is only a relatively small proportion of mobile subscribers that are likely to show a higher sensitivity to the price of incoming calls. However the MNOs have, to a large degree separated these subscribers by offering them special tariffs, thus preventing this group from putting any effective pressure on termination charges. Technological conditions and the behaviour of called and calling parties may, over time, change sufficiently to alter the analysis but Ofcom believes that there is currently no evidence to suggest that that such change will be seen during the period to 2011 covered by this review.
- However, the market is not as narrow as calls to individual subscribers or numbers of a given MNO, because it appears that when a termination charge is paid there is no discrimination between the termination charge for calls to subscribers of a given network (with the exception of ported numbers). Therefore a common pricing constraint makes it appropriate to widen the product market to include all wholesale voice call termination provided by each MNO.

3.106 As a consequence, Ofcom takes the view (which is unchanged since the last market review) that there are five separate markets as follows:

- Wholesale mobile voice call termination provided to other operators by O2 in the UK
- Wholesale mobile voice call termination provided to other operators by Orange in the UK
- Wholesale mobile voice call termination provided to other operators by T-Mobile in the UK
- Wholesale mobile voice call termination provided to other operators by Vodafone in the UK
- Wholesale mobile voice call termination provided to other operators by H3G in the UK.

***Question 1**: Do respondents agree with Ofcom's view that there are separate markets for wholesale mobile voice call termination provided to other operators by Vodafone, O2, T-Mobile, Orange and H3G?*

Section 4

Market Power

4.1 This section sets out Ofcom's preliminary view on whether there are any prima facie indicators showing that any of the five MNOs may have significant market power (SMP) as defined in section 78 of the Act in any of the markets for wholesale mobile voice call termination which have been identified in Section 3.

Definition of SMP

4.2 Under the EU Directives and section 78 of the Act, SMP has been defined so that it is equivalent to the competition law concept of dominance. Article 14(2) of the Framework Directive states that:

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

4.3 Further, Article 14(3) of the Framework Directive states that:

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

4.4 Therefore, in the relevant market, one or more undertakings may be designated as having SMP (single or collective dominance) where any undertaking, or undertakings, enjoys a position of dominance. Also, an undertaking may be designated as having SMP where it could leverage its market power from a closely related market into the relevant market, thereby strengthening its market power in the relevant market.

4.5 In assessing SMP it is important to conduct the analysis under the assumption that no regulatory intervention currently or potentially exists in the relevant market. This is because the outcome of the SMP assessment is to test whether or not any regulatory intervention is required. In the UK, mobile voice call termination has been subject to regulation since 1999. Therefore assessing SMP in this market requires consideration of a hypothetical market where regulation (or the threat of regulation) does not exist.

4.6 In summary, Ofcom's initial view is that prima facie each MNO has SMP in the market for terminating calls over its own network, subject to further consideration of whether any MNOs/FNO can exert countervailing buyer power ("CBP") in these markets, for the reasons set out below.

The criteria for assessing SMP

4.7 The Commission has issued Guidelines on market analysis and the assessment of SMP (the 'Commission's Guidelines')[13], and Oftel (the previous UK NRA) produced additional guidelines on the criteria to assess effective competition[14]. In assessing whether an undertaking has SMP, this review takes the utmost account of the Commission's Guidelines as Ofcom is required to do when considering whether to make a market power determination under section 79 of the Act, as well as considering the application of the Oftel equivalent guidelines.

4.8 Specifically, the Commission's Guidelines state that:

> "NRAs will assess whether the competition is effective. A finding that effective competition exists on a relevant market is equivalent to a finding that no operator enjoys a single or joint dominant position on that market." [Paragraph19]

4.9 The Commission's Guidelines go on to state that:

> "NRAs will conduct a forward looking structural evaluation of the relevant market, based on existing market conditions. NRAs should determine whether the market is prospectively competitive, and thus whether any lack of effective competition is durable, by taking into account expected or foreseeable market developments over the course of a reasonable period. The actual period used should reflect the specific characteristics of the market and the expected timing for the next review of the relevant market by the NRA. NRAs should take past data into account in their analysis when such data are relevant to the developments in that market in the foreseeable future." [Paragraph 20]

4.10 Given the market definitions set out in Section 3, SMP cannot be held by more than one MNO in each market. Therefore this SMP assessment focuses on single firm dominance.

4.11 In the Commission's Guidelines, the Commission discusses market shares as being an indicator of market power

> "…Market shares are often used as a proxy for market power. 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. Thus, undertakings with market shares of no more than 25 % are not likely to enjoy a (single) dominant position on the market concerned. In the Commission's decision making practice, single dominance concerns normally arise in the case of undertakings with market shares of over 40 %, although the Commission may in some cases have concerns about dominance even with lower market shares, as dominance may occur without the existence of a large market share. According to established case-

[13] "*Commission Guidelines on market analysis and assessment of significant market power under the Community regulatory framework for electronic communications networks and services*" (See http://europa.eu.int/eur-lex/pri/en/oj/dat/2002/c_165/c_16520020711en00060031.pdf)
[14] *Oftel's market review guidelines; criteria for the assessment of significant market power* published August 2002

law, very large market shares — in excess of 50 % — are in themselves, save in exceptional circumstances, evidence of the existence of a dominant position…" [Paragraph 75]

4.12 However, the Commission notes further that

> "It is important to stress that the existence of a dominant position cannot be established on the sole basis of large market shares. As mentioned above, the existence of high market shares simply means that the operator concerned might be in a dominant position. Therefore, NRAs should 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. In that regard, the following criteria can also be used to measure the power of an undertaking to behave to an appreciable extent independently of its competitors, customers and consumers. These criteria include amongst others:
>
> - overall size of the undertaking,
>
> - control of infrastructure not easily duplicated,
>
> - technological advantages or superiority,
>
> - absence of or low countervailing buying power,
>
> - easy or privileged access to capital markets/financial resources,
>
> - product/services diversification (e.g. bundled products or services),
>
> - economies of scale,
>
> - economies of scope,
>
> - vertical integration,
>
> - a highly developed distribution and sales network,
>
> - absence of potential competition,
>
> - barriers to expansion.
>
> A dominant position can derive from a combination of the above criteria, which taken separately may not necessarily be determinative. "[Paragraphs 78-79]

4.13 The European Regulators' Group ("ERG") has issued a working paper on SMP[15] that builds upon the Commission's Guidelines. In this paper further criteria are explicitly considered:

- Excessive pricing;

[15] *"Revised ERG Working paper on the SMP concept for the new regulatory framework"*, October 2004 (See http://www.erg.eu.int/doc/publications/public_hearing_concept_smp/erg0309rev1_smp_working_doc.pdf)

- Ease of market entry;
- Cost and barriers to switching;
- Evidence of previous anti competitive behaviour;
- Active competition on other parameters;
- Existence of standards/conventions;
- Customers' ability to access and use information;
- Price trends and pricing behaviour; and
- International benchmarking.

4.14 This section of the consultation document considers the relevance of all these criteria in the assessment of SMP in the context of this market review.

Assessment of SMP against relevant criteria

4.15 This preliminary assessment discusses the following relevant criteria for this market review, namely:

- Market shares; and
- Absence of potential competition; the ease of market entry and the related criteria concerning the control of infrastructure not easily duplicated, as well as a more high level discussion highlighting other considerations such as the absence or not of countervailing buying power and the related criteria concerning the overall size of the undertaking and costs and barriers to switching. It also considers whether any other criteria as set out in the Commission's Guidelines and the ERG working paper on SMP are relevant.

4.16 The criteria are set against a forward looking analysis of the markets starting from 1 April 2007 (when the current charge controls on 2G termination expire) looking forward over the period to 2011. As discussed in Section 3, Ofcom considers that there are no factors which would indicate that the market definition will change during the period to 2011.

Market Shares

4.17 All five MNOs have had (since launch of their voice services) a 100% share of terminating voice calls on their own respective networks, both when measured by volume of calls and by revenues. This applies to calls terminated over each operator's 2G and 3G network. This means that each MNO is, in effect, currently a monopolist in the supply of termination for voice calls to its own network. As discussed in Section 3, MNOs do not control the charge for all the calls they terminate due to the current number portability arrangements. Nevertheless it is Ofcom's view that this will have no impact on SMP in these markets during the period to 2011.

4.18 There has been no change in these 100% market shares and these market shares will not change during the period to 2011 (given the market definition). The probability of competitive entry in the relevant markets is very low, for the reasons explained in paragraph 4.22 below in relation to ease of market entry.

4.19 H3G currently relies on O2's 2G network to terminate calls to its subscribers where its own 3G network does not offer coverage for a particular subscriber. Calling parties and originating operators have no choice but to use H3G to terminate those calls (even if H3G uses O2 or potentially another MNO's network). Therefore, H3G has 100% of the market for voice termination to its subscribers. Whether or not H3G ultimately rolls out its own 3G network to offer its subscribers sufficient service coverage and therefore no longer requires the use of another MNO's 2G network does not affect the conclusions of this analysis of SMP.

Absence of potential competition, ease of market entry and control of infrastructure not easily duplicated

4.20 The threat of potential entry can prevent firms from raising prices above competitive levels and, for example, could lead a firm with a 100% market share to behave in a way that would be consistent with higher levels of competition existing in the market than its market share might suggest. However, this threat becomes weak when there are barriers to entry.

4.21 In this market, the infrastructure required to enable other providers to offer termination on a specific network apart from the provider of that network is not available. In the June 2005 consultation Ofcom noted that at any time each mobile phone is generally within the coverage area of 4 or 5 different mobile networks and, thus in theory, it might be technically possible for originating operators to choose which network terminates its calls. However, Ofcom also noted that this would require substantial technical changes and co-operation. Responses to the Preliminary Consultation argued that such competitive termination is unlikely to be practicable in the foreseeable future. Section 6 of this consultation document considers the obstacles, in the context of consideration of scope for mandated technical change, and concludes that this too is neither currently feasible nor likely, in the medium term, to pass a cost-benefit analysis.

4.22 Therefore actual, or the threat of, competitive entry does not provide competitive pressure on the MNOs. Moreover, as noted in paragraphs 3.84 and 3.85 above, even if a new mobile network operator were to start supplying mobile services, this would not undermine the SMP of existing MNOs due to the lack of competition between MNOs in supplying wholesale mobile termination on their respective networks.

Countervailing buyer power, cost and barriers to switching and the overall size of the undertaking

4.23 In the following paragraphs Ofcom considers the analytical framework for evaluating whether any MNO's or FNOs have countervailing buyer power in these markets. In considering the application of this analytical framework, Ofcom would welcome any comments on these issues as part of this consultation exercise.

4.24 CBP exists when a particular purchaser (or group of purchasers) of a good or service is sufficiently important to its supplier to influence the price charged for that good or service.

4.25 Buyer power is not an absolute concept but, rather, refers to the relative strength of the buyer in its negotiations with the prospective seller for the good or service in question. In considering whether an undertaking has SMP, it is not sufficient just for the buyer to have some CBP but, rather, it is necessary that the buyer can exert sufficient CBP such that the prices charged by the seller are constrained to a level consistent with a competitive outcome, i.e. that the seller is unable to act independently of competitors, customers and consumers.

4.26 This section sets out Ofcom's emerging thinking on the extent to which a terminating MNO may face countervailing buyer power from the different potential buyers of wholesale mobile termination which might remove its ability to set excessive prices. It first sets out the criteria relevant in assessing the existence and extent of CBP, before considering, based on high level principles, the case of each of the different purchasers of termination against these criteria, without reaching conclusions on this matter at this stage.

The different buyers of wholesale mobile termination

4.27 The question of whether each MNO providing voice call termination has SMP depends on the extent to which its monopolistic position may be off-set by the buyer power of purchasers, namely fixed network operators and other mobile network operators. If one of these buyers or group of buyers were able to exercise countervailing buyer this would reduce the market power of the MNO, so long as the MNO is not able to discriminate between buyers when selling termination.

4.28 Each MNO selling termination in its respective market encounters a number of different buyers:

- BT;
- FNOs other than BT; and
- MNOs.

4.29 BT can be distinguished from other FNOs for three reasons:

- BT is the largest buyer of termination across all mobile network operators.
- BT buys termination on behalf of other originating operators (other FNOs and MNOs) where it transits traffic across its network.
- BT offers end-to-end connectivity.

4.30 More generally FNOs can be distinguished from originating MNOs because it is appropriate to consider (as explained below in paragraph 4.54) the negotiation between an originating FNO and a terminating MNO as a non reciprocal negotiation, whilst the negotiation between an originating MNO and terminating MNO is a reciprocal negotiation.

4.31 The following discussion considers the extent of countervailing buyer power in relation to each of these three groups of buyers in the general case for all terminating MNOs. Where there are specific issues associated with the actual identity of the terminating MNO these are discussed. However, before discussing each case in turn it is useful to highlight two general points.

4.32 Firstly, MNOs do not currently charge each customer a different termination charge. They charge one price for termination to all originating operators. This is due to a number of factors:

- Terminating MNOs are not able always to tell exactly from which operator a call originated. This is because BT acts as a transit operator in many cases. This type of call appears as if originated by BT when in fact it may have originated from any number of operators.
- Vodafone, O2, T-Mobile and Orange have been subject to a no undue discrimination SMP obligation. The obligation did not prevent them from setting

different charges as between FNOs and MNOs, however, to date they have not used the opportunity to do so. It is possible that technology would have or could have been developed to enable terminating operators to price discriminate for termination depending on originating operator.

4.33 Secondly, BT offers a transit service to all originating operators and is required to do so under regulation relating to other telecoms markets. This provides every originating operator with the option either to

- directly interconnect with a terminating MNO and negotiate an interconnection charge directly, or
- transit its traffic via BT and effectively allow BT to negotiate on its behalf alongside all other originating operators who transit traffic via BT

4.34 There is a commercial trade-off associated with these two options, the outcome of which depends on the relative costs of each approach, namely:

- The termination charge BT agrees with the terminating MNO;
- BT's charge for transit;
- The termination charge the originating operator agrees with the terminating MNO; and
- The costs associated with direct interconnection.

4.35 The result of originating operators having these two options is that BT's charge for transit to a given MNO sets a ceiling for the termination charge an originating operator would agree to with the same MNO - if the charge it agrees is too high compared to the cost for transit via BT it will be more economic to transit its traffic via BT rather than directly interconnect. Therefore the strength of BT's bargaining position is very important as it sets a ceiling for the price other originating operators (both fixed and mobile) would be willing to accept for wholesale termination.

Criteria for assessing countervailing buyer power

4.36 The European Regulatory Framework for Communications Services, along with European and UK competition law, recognise CBP as a relevant factor in assessing the degree of market power an undertaking may enjoy, and in particular whether that undertaking has SMP or may be dominant in the relevant market.

4.37 The European Commission's Explanatory Memorandum[16] ('EC Memorandum') to its Recommendation on Market Definition in this context sets out that even a 100% market share in itself does not automatically imply that the undertaking in question has SMP. This is because an undertaking's ability to behave independently of customers, competitors and consumers depends, among other things, on the ability of its customers to influence its pricing decisions. In this respect the EC Memorandum notes that a market definition of call termination on individual networks:

> "…does not automatically mean that every network operator has significant market power; this depends on the degree of any

[16] Explanatory Memorandum to the Commission Recommendation on Relevant Product and Service Markets within 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 electronic communication networks and services. (See http://europa.eu.int/information_society/policy/ecomm/doc/info_centre/recomm_guidelines/relevant_markets/en1_2003_497.pdf)

> countervailing buyer power and other factors potentially limiting that market power."[17]

4.38 The OFT has also set out relevant guidance,[18] wherein it observes that the strength of buyers and the structure of the buyers' side of the market may constrain the market power of a seller. The OFT Guidance notes that the relevant consideration in assessing the impact of buyer power on the ability of the seller to set a price is whether a buyer would have choice, or, in other words, the benefit of an 'outside option'.

4.39 The OFT Guidance notes that the analysis of buyer power requires an understanding of the way that buyers interact with suppliers. Buyer power is most commonly found in industries where buyers and suppliers negotiate, in which case buyer power can be thought of as the degree of bargaining strength in negotiations. Considerations on buyer power thus normally become relevant only where there are few relatively important buyers in terms of share of supply as opposed to a large number of buyers who are price takers. The OFT sets out a number of conditions which might imply that an undertaking's bargaining power could be enhanced:

- "the buyer is well informed about alternative sources of supply and could readily, and at little cost to itself, switch substantial purchases from one supplier to another while continuing to meet its needs;
- the buyer could commence production of the item itself or 'sponsor' new entry by another supplier (e.g. through a long-term contract) relatively quickly and without incurring substantial sunk costs;
- the buyer is an important outlet for the seller (i.e. the seller would be willing to cede better terms to the buyer in order to retain the opportunity to sell to that buyer);
- the buyer can intensify competition among suppliers through establishing a procurement auction or purchasing through a competitive tender (see Part 4)…" [19]

4.40 A further criterion is considered by the ERG, namely factors determining whether the buyer is price sensitive[20].

> "The higher the portion of the costs for a service in relation to their total expenditure and the better informed, the more sensitive consumers are as to the price and quality of the service and the more ready they might be to switch suppliers or to reduce demand."[21]

4.41 Finally, in the context of mobile termination of calls delivered by fixed networks, there is a further relevant factor, namely the lack of reciprocity in negotiations over termination between FNOs and MNOs.

4.42 In the following sections these conditions are considered in further detail, under the headings:

- Lack of alternative sources of supply and option not to purchase;

[17] ibid. p.20
[18] Assessment of market power, understanding competition law, OFT, 2004. (See http://www.oft.gov.uk/NR/rdonlyres/A92F91BC-B556-4724-8D2B-7002F6CDEA65/0/oft415.pdf)
[19] See Note 20
[20] "The higher the portion of the costs for a service in relation to their total expenditure and the better informed, the more sensitive consumers are as to the price and quality of the service and the more ready they might be to switch suppliers or to reduce demand."
[21] See paragraph 11 of document referred to in note 15

- A well-informed and price sensitive buyer;
- The buyer as an important outlet for the seller; and
- Reciprocity of trade.

4.43 Ofcom welcomes evidence from all stakeholders that they believe may help Ofcom understand the extent of countervailing buyer power MNOs face on a forward looking basis. As mentioned previously, Ofcom will also be requiring interconnected operators to provide it with evidence of their previous negotiations, for Ofcom to consider whether such negotiations are relevant in evaluating the extent of any countervailing buyer power. However, in addition, Ofcom would welcome any evidence which stakeholders consider relevant to consideration of the issues discussed, and in particular to the assessment of CBP on a forward looking basis.

(i) Lack of alternative sources of supply and option not to purchase

4.44 The ERG explains that in order to constrain the seller's price effectively, the purchaser must be able to bring some pressure to bear on the supplier to prevent a price rise:

> "…The extent of countervailing buyer power largely depends on whether customers can credibly threaten to switch to other suppliers, to self-provide the service, to significantly reduce consumption or to cease to use the service at all in case of a price increase…"

<u>Competition between sellers</u>

4.45 Where the buyer may be able to induce competition between sellers, for example via a procurement auction, the buyer can be expected to have considerable power to determine the terms of trade.

<u>Self provision</u>

4.46 A further consideration is the extent to which the buyer is able to self-provide the good or service in question. If so, this would present the buyer with an alternative to purchasing from the prospective seller, thereby presenting the buyer with a bargaining mechanism.

<u>Option not to purchase (or to delay)</u>

4.47 Absent other potential suppliers (i.e. by a third party or through self-supply), a buyer may bring pressure to bear on the seller in the event that it can credibly threaten not to purchase the service (or, to a lesser extent, to threaten to reduce consumption). Such a situation suggests that the negotiating strength of the buyer is not based on its capability of substituting the service - even if at some cost - for other, similar services but, rather, on the relative importance to the buyer and the seller of reaching a deal and the ability of the buyer not to purchase.

4.48 In the context of the establishment of an initial agreement between the buyer and seller, a further relevant consideration is the extent to which the buyer can credibly threaten to delay. The extent to which the threat of delay is a credible bargaining tool will again depend on the relative importance of striking a deal to the buyer and the seller, along with the buyer's ability to delay, but within a finite period as compared with the permanent impact of not purchasing.

(ii) A well-informed and price sensitive buyer

4.49 The ERG states in its guidance that:

> "the higher the portion of the costs for a service in relation to their total expenditure and the better informed, the more sensitive consumers are as to the price and quality of the service and the more ready they might be to switch suppliers or to reduce demand."

4.50 Information for example, on the importance of the deal to the seller or the level of costs incurred by the seller in providing the service may improve the buyer's bargaining position and allow it to better substantiate and defend its negotiating strategy vis-à-vis the seller.

4.51 However, knowledge and price sensitivity alone are insufficient to constrain prices: it is also necessary for the prospective buyer to have the ability to act on its knowledge or sensitivity.

(iii) The buyer as an important outlet for the seller

4.52 For the buyer to be able to affect the seller's terms of trade, the buyer must be an important outlet for the seller. In this context, the ERG suggests a number of factors which determine the scale of the countervailing power on the part of buyers:

> "…The higher the amount of purchase of services by customers or the higher the proportion of the producer's total output that is bought by a certain customer, the stronger the countervailing power might be. …
>
> … Further to this, the higher a seller's locked-in investment in specific customers (asset specificity), the more willing he will be to negotiate. Overall, this criterion is more meaningful in wholesale markets, because providers purchasing network services from other providers are in general more visible and powerful than retail customers."

4.53 Originating FNOs and MNOs of any significant size will be important outlets for the MNOs since their customers will want the ability to contact, and be contacted by, users of these networks.

(iv) Reciprocity of trade

4.54 The negotiations between an FNO and MNO are different in some respects from MNO and MNO negotiations over voice call termination. Telephone networks generally negotiate termination charges with each other on a bilateral basis. This is because customers on one network would look unfavourably on a situation where they were able to make calls to customers on another network, but were unable to receive calls from them. From the perspective of understanding the impact such reciprocity may have on countervailing buyer power in this review, it is important to note that FNOs' termination charges are constrained by regulation.

4.55 Recognising the regulatory framework determining the manner in which fixed termination charges are set when undertaking a market review in respect of termination on the mobile networks is consistent with the Commission view that:

> "In economic terms, it is not appropriate to exclude regulatory obligations that exist independently of a SMP finding on the market

under consideration but that can have an impact on the SMP finding on the markets under consideration. From a methodological viewpoint obligations flowing from existing regulation, other than the specific regulation imposed on the basis of SMP status in the analysed market, must be taken into consideration when assessing the ability of an undertaking to behave independently of its competitors and customers on that market." [22]

4.56 Ofcom considers therefore that, FNO-MNO negotiations on termination are not reciprocal, in contrast to those between MNOs, since any charge the MNO receives for termination of voice calls on its network will not impact the charge the FNO may be able to levy on the MNO for termination on the fixed network. Therefore, any potential buyer power FNOs may have is limited to the transaction itself and there is no linkage between the charge FNOs pay for termination on an MNO's network to the charge they may be paid by the MNO for providing termination on their fixed network.

Emerging views of the buyer power of the different purchasers of wholesale mobile termination

(i) Lack of alternative sources of supply and option not to purchase

Competition between sellers and self provision

4.57 As discussed above under "Ease of market entry and control of infrastructure not easily duplicated" it is only the terminating MNO that can terminate calls on its own network and therefore competitive entry by an alternative supplier cannot be expected – there are absolute barriers to entry. Therefore no originating operator (buyer of termination) can seek to enhance its bargaining position by relying on competition between sellers nor opt to self-supply.

Option not to purchase (or to delay)

4.58 In the absence of an ability to purchase from an alternative source, or to self-supply, a key issue determining the extent to which originating operators can bring to bear countervailing buyer power in its negotiations with terminating MNOs is whether they can credibly threaten to delay or not purchase.

4.59 Interconnection agreements between all the MNOs (as providers of termination) have been established with all existing buyers and they remain currently in place. Ofcom is considering the impact of these agreements and how they affect the ability of the parties to re-negotiate the terms and conditions, including charges.

4.60 Assuming contracts can be renegotiated, it is therefore necessary to assess the extent to which a threat to refuse to continue purchasing would provide an originating operator with buyer power such that it could influence in its favour the price charged by a terminating MNO for call termination.

4.61 A relevant factor in considering the existence and extent of CBP is the provision by BT of end to end connectivity and the terms of its provision. In relation to the latter, also relevant is consideration of the way in which Ofcom might resolve a dispute brought to it.

[22] Noted by its Decision in the DTAG case, para. 22; also referred to at paragraph 96 of the CAT Decision.

4.62 In the event that BT seeks to renegotiate the charge it pays to an MNO for termination, the extent of its countervailing buyer power arising from its ability to credibly threaten to refuse to purchase and to refer a dispute to Ofcom on the grounds that an MNOs actual or proposed termination charge is unreasonable, depends upon the likely outcome of such a process and the parties' expectations thereof.

4.63 Ofcom's dispute resolution powers and duties are set out in the 2003 Communications Act. Section 186(3) of the Act sets out action to be taken by Ofcom in the event that a dispute is referred to it:

> "Unless [Ofcom] consider –
>
> that there are alternative means for resolving the dispute,
>
> that a resolution of the dispute by those means would be consistent with the Community requirements set out in section 4, and
>
> that a prompt and satisfactory resolution of the dispute is likely if those alternative means are used for resolving it,
>
> Their decision must be a decision that it is appropriate for them to handle the dispute."

4.64 Ofcom is currently reviewing its existing dispute resolution guidelines[23] and these are to be the subject of a consultation to be published shortly. Ofcom's consideration of the application of these guidelines on the extent of BT's countervailing buyer power will also form part of the Final Consultation.

Commercial considerations

4.65 With respect to BT and other originating FNOs and MNOs it is also relevant to consider the commercial perspective on refusing to purchase termination.

4.66 The cost of not purchasing can be considered to be related to the number of subscribers on the terminating MNOs network as well as specifically how important it is for an originating operator to provide calling for its subscribers to the subscribers of a particular network.

4.67 In general, the larger an MNO's network, the greater the likely value to the customers of another originating operator of being able to call the subscribers of that MNO network and conversely the greater the commercial damage to the originating operator if its subscribers cannot call that network. (The commercial costs to the terminating operator of not agreeing terms with different originating operators are discussed later in this section).

4.68 Furthermore, because callers in general are not particularly aware which mobile network they are calling, if they are not able to call a particular network because their network operator has not agreed a wholesale termination charge they will only discover this problem when they try to call a subscriber of that terminating operator. In advance of subscribing or making a calling, it is unlikely that a subscriber will know which people they can and cannot call. Therefore subscribers may perceive a

[23] Guidelines for the handling of competition complaints, and complaints and disputes about breaches of conditions imposed under the EU Directives, Ofcom, July 2004 (see http://www.ofcom.org.uk/bulletins/eu_directives/guidelines.pdf)

general degradation in the quality of service they experience as a subscriber of a particular originating network.

4.69 All five MNOs have significant numbers of subscribers on their networks. H3G's subscriber base continues to grow and on forward looking basis to 2011 it is feasible that H3G's subscriber base will reach parity with the other MNOs. Therefore there would potentially be a significant commercial imperative for most originating operators to provide their subscribers with the opportunity to call the different mobile networks.

4.70 It is theoretically possible to envisage an originating operator offering calling services to its subscribers that do not enable them to call mobiles or a specific mobile network. Such a strategy would afford this operator the ability to threaten not to purchase termination. However, the operators today have not positioned themselves in this way. They generally seek to offer their customers the ability to call anyone on any network.

4.71 In conclusion, therefore, with originating operators unable to purchase from an alternative supplier or to self-supply, their ability to bring buyer power to bear in negotiations concerning MNOs' termination charges will depend, on a forward-looking basis, on their ability credibly to threaten to refuse to purchase. Ofcom will consider these issues further as part of its Final Consultation. Ofcom welcomes evidence from all stakeholders that they believe may help Ofcom understand whether or not there is a credible threat that MNOs and FNOs would refuse to purchase, on a forward looking basis. Ofcom will also be requiring further information from such stakeholders on this issue.

(ii) A well-informed and price sensitive buyer

4.72 A buyer's credibility in negotiations with a seller is enhanced where the buyer understands how important his custom is to the seller, and has some insight into the seller's operations and negotiating strategy.

4.73 As discussed in Section 3 wholesale termination charges make up a significant proportion of the cost base for originating operators in providing calls to mobiles. Therefore, to the extent that they impact on the retail price for these calls and therefore on the customers of originating operators, originating operators will be sensitive to wholesale termination charges.

4.74 Moreover, originating operators face five terminating MNOs and therefore can make price comparisons across MNOs for what their customers would likely perceive to be the same service i.e. calling a mobile. It therefore appears reasonable for originating operators:

- to compare the charge offered by one seller with that offered by another;
- to consider other wider repercussions an agreement with one supplier may have for similar agreements with others; and
- to recognise the implications for the retail prices faced by its subscribers for calls to mobile networks.

4.75 However, whether or not originating operators are well-informed and price sensitive does not present originating operators with countervailing buyer power since they also need the ability and incentive to act on these characteristics.

(iii) The buyer as an important outlet for the seller

4.76 Another factor which may potentially impact the ability of an originating operator to affect the terms of trade they face is how important a customer they are to the terminating MNO. Where it is profitable for both parties to interconnect (i.e. there are gains from trade for both parties), the ability of the terminating MNO to threaten to walk away from a deal becomes a determining factor of where charges will lie between the profit maximising level and the competitive price.

4.77 The credibility of any threat by the terminating MNO of refusing to supply termination to an originating operator will depend on the cost to the terminating MNO of taking such action, as well as the originating operator's perception or understanding of this cost.

4.78 The proportion of total sales of termination accounted for by a particular buyer of termination may be an important indicator of its countervailing buyer power. Prospective and existing subscribers of a mobile network (of the terminating MNO) would perceive relatively little value in joining a network which precluded receipt of calls from other operators with large networks. Therefore Ofcom considers it would be useful to consider for each terminating mobile operator their sales of termination to the different originating parties. However, as discussed earlier terminating operators do not distinguish and indeed do not know from which originating operator traffic originates. This said, it is not possible to directly capture these figures. However, the size of the networks of originating operators is a useful proxy.

4.79 It is possible that some originating operators with small networks, such as some of the FNOs, may not be considered commercially important purchasers of termination from an MNO's perspective. In the case of other larger FNOs and the other MNOs it is more than likely that these customers are commercially important.

4.80 In fact there is a balance between the cost to the originating operator and the cost to the terminating operator of not agreeing terms and therefore allowing their customers respectively to make or receive calls. For example if the originating operator represented a larger network of subscribers than the terminating MNO, absent interconnection, the commercial cost may be greater to the terminating MNO as its customers may be more disadvantaged.

4.81 This situation may be particularly relevant to situations where BT (compounded by its role as a transit operator for other FNOs and MNOs) and other MNOs and larger FNOs are the originating operator. Therefore the terminating MNO's option not to offer termination services to an originating operator may be considered only a limited threat with respect to a number of its relatively large customers.

(iv) Reciprocity of trade

4.82 As discussed above there is a difference between a situation where the originating operator is an FNO compared to a situation where the originating operator is a MNO. This is because a mobile originating operator is potentially able to use the price it charges for mobile termination as part of its negotiation with a terminating mobile operator. In the case of FNOs, they must provide termination on their networks to mobile operators on fair and reasonable terms, conditions and charges, and therefore cannot be used to influence the negotiations on the charges for mobile termination.[24].

[24] See further the fixed geographic call termination market review statement - http://www.ofcom.org.uk/consult/condocs/narrowband_mkt_rvw/Eureviewfinala1.pdf

4.83 Therefore, it is possible that mobile originating operators may have enhanced buyer power because the negotiation over mobile termination charges in this setting is reciprocal.

4.84 An originating MNO faced with a high price for termination provided by another MNO may threaten to charge a similarly high price for termination on its network to that MNO. However, whether or not this is a credible threat depends on the impact this would have on profitability of both MNOs.

4.85 If traffic between MNOs is balanced then the threat does not change the profitability of the terminating MNO. However, if the originating MNO is a net receiver of calls the terminating MNO will face a net cost associated with such a reciprocal agreement. Therefore the threat – to respond to a high termination charge by setting a similarly high termination charge in return - is a credible one for an MNO engaged in a reciprocal negotiation with another MNO from which they are a net receiver of calls.

4.86 Nevertheless this threat, may not be particularly strong in practice. MNOs do not know whether they are net receivers of traffic from each other because at present incoming traffic is often from operators who have used BT as a transit operator. In addition, mobile subscriber churn is significant and this may lead to a lack of stability in the calling behaviours of subscribers.

Potential conclusions on countervailing buyer power

4.87 While Ofcom has set out where its current thinking is on this issue, Ofcom needs further information before it can take a view as to whether on a forward-looking basis, originating operators can exert CBP. Ofcom intends to request further information from stakeholders on the issues raised above, and would welcome any comments as part of this consultation.

Other criteria

4.88 The following paragraphs (which include quotations taken from the *Revised ERG Working paper on the SMP concept for the new regulatory framework*) consider the remaining criteria listed in paragraph 4.12 above, explaining why Ofcom considers these less relevant to this assessment of SMP in the relevant markets.

4.89 Excessive pricing – “the ability to price at a level that keeps profits persistently and significantly above the competitive level is an important indicator for market power.” Evidence of excessive pricing can support a finding of SMP, however, it is not a prerequisite to a finding of SMP. 2G mobile termination has been subjected to regulation for a number of years and therefore it is not possible to observe the prices that MNOs would otherwise have charged. In the case of 3G mobile termination Ofcom is not in a position to conclude whether prices have been or are excessive, since currently Ofcom does not have a completed cost model to provide a benchmark by which to make this assessment.

4.90 Technological advantages or superiority – “Such advantages may represent a barrier to entry as well as an advantage over existing competitors due to lower production costs or product differentiation”. This criterion is not considered relevant in this market because the presence of absolute barriers to entry indicates that each MNO offering voice termination faces no existing or potential competitors. Hence, no comparison between technologies is relevant

4.91 Easy or privileged access to capital markets/financial resources – "Easy or privileged access to capital markets may represent a barrier to entry as well as an advantage over existing competitors." This criterion is not considered relevant in this market, because the presence of absolute barriers to entry indicate that each MNO offering voice termination faces no existing or potential competitors. Therefore, the cost of capital an MNO faces cannot give it any special advantage in this market

4.92 Product/services diversification (e.g. bundled products or services) – "Generally speaking there is a positive relation between product/services diversification and market power, which is due to the fact that increased differentiation in general will also hamper switching between suppliers if these are able to differentiate their products from their competitors and if others are not able to imitate the differentiation." This criterion is not considered relevant because each MNO sells termination to originating operators who request it on a stand-alone basis and it is not bundled with other services. In any case, the limited extent that callers to mobile subscribers have been found to exercise demand-side substitution confirms that calls to mobiles are a very differentiated service from other forms of communication. Moreover, the actual buyers of voice call termination, namely other operators, have no demand-side alternatives, and do not buy anything other than termination from MNOs.

4.93 Economies of scale – "Economies of scale arise when increasing production causes average costs (per unit of output) to fall…. If this is the case, economies of scale can act as a barrier to entry as well as an advantage over existing competitors". This criterion is not considered relevant in this market because the presence of absolute barriers to entry indicates that each MNO offering voice termination faces no existing or potential competitors and, therefore, cost-advantages are not relevant in the markets defined in Section 3.

4.94 Economies of scope – "Economies of scope exist where average costs for one product are lower as a result of it being produced jointly with other products by the same firm. …If the existence of economies of scope requires entrants to enter in more then one market simultaneously, this may require additional expertise, more capital etc, which may sum up to higher costs, thus hampering ease of market entry." This criterion is not considered relevant because the presence of absolute barriers to entry indicates that each MNO offering voice termination faces no existing or potential competitors.

4.95 Vertical integration – "Vertical integration while normally efficient can strengthen dominance by making new market entry harder due to control of upstream or downstream markets. As such, vertical integration may give an advantage to the integrated firm (over its competitors), as access to sales and supply markets might be more easily attainable for the integrated firm. Vertical integration makes it also possible to lever market power into upstream or downstream markets." The MNOs are vertically integrated in the sense that they own both the upstream infrastructure that enables the provision of wholesale termination and other wholesale access and origination services whilst at the same time they are also downstream suppliers of retail services. However, the relevant question in this context is whether the position of any MNO in the retail market affords it a significant advantage over competitors in mobile termination, e.g. through potential leveraging of market power. This is not the case for two reasons. First, no MNOs have been determined as having SMP in the downstream retail market. (See Oftel's consideration of the retail market for mobile outbound services, which formed part of its Review of wholesale mobile access and call origination - October 2003) [25]. Second, for the reasons set out above one MNO is not in competition with another MNO with respect to mobile voice termination.

4.96 A highly developed distribution and sales network – “Well-developed distribution systems are costly to replicate and maintain, and may even be incapable of duplication. They may represent a barrier to entry as well as an advantage over existing competitors”. Ofcom does not consider this criterion relevant because the service in question is acquired only by purchasers at the wholesale level (other MNOs and fixed operators) and does not require a specialised or complex distribution network.

4.97 Barriers to expansion – “There may be more active competition where there are lower barriers to growth and expansion.” This criterion is not considered relevant, because the presence of absolute barriers to entry implies that competition in the market for wholesale mobile voice call termination is not likely to extend beyond the MNO in question and thus the existence of barriers to expansion becomes irrelevant

4.98 Evidence of previous anti-competitive behaviour – “Effectively competitive markets lack collusion among suppliers and anti-competitive behaviour.” Evidence of previous anti-competitive behaviour such as predatory pricing and other market foreclosure, behaviour can be an indication that a market is not effectively competitive. Ofcom is not aware of relevant evidence of anti competitive behaviour in these markets.

4.99 Active competition on other parameters – The ERG proposes that market power can be obtained by successfully differentiating products, either vertically (on the basis of quality) or horizontally (on the basis of diversity). This criterion is not considered relevant in this market because mobile voice call termination does not seem to offer much scope for vertical or horizontal product differentiation. In addition, the presence of absolute barriers to entry implies that competition in the market is not likely to extend beyond the existing players and, thus, diversification, even if possible, is not relevant for the period covered by this review.

4.100 Existence of standards/conventions – “Useful background information not only for market delineation but also for the assessment of product homogeneity/heterogeneity, the existence of market barriers for potential entrants and for the assessment of dominance can be obtained by considering the existence and consequences of standards and conventions. The extent of technical standardization may determine the potential for product differentiation as well as the ease of market entry (availability of a certain technology; compatibility with other firms’ products/technologies). Conventions like the calling-party pays principle or standard international roaming agreements have to be taken into account in order to be able to correctly interpret the other indicators mentioned in this document and/or to understand the source of market failure and competition problems.” As discussed in Section 3, the CPP arrangement plays an important role in conditioning mobile subscribers’ preferences and behaviour. It is a central component of the analysis leading to Ofcom’s conclusion on market definition and market power.

4.101 Customers’ ability to access and use information – The ERG proposes that limited access to information on terms and conditions (especially prices), or access to information that is difficult to use, may reduce the capacity of consumers to act upon differences between providers. As a result firms acquire independence of action from consumers and competition. This criterion does not refer to the ability of consumers

[25] It is possible to consider the impact of excessive high wholesale termination charges levied by all MNOs on a new entrant to the mobile retail market. The new entrant would face relatively higher costs given the size of their network and the resulting disproportionate number of off-net calls.

to switch between providers, but to the capacity of first time buyers to make an informed choice. Wholesale customers appear to have all the relevant information to make an informed choice. However, they have no choice between providers, since each MNO is a monopolist in the provision of voice termination to its subscribers.

4.102 Since termination charges feed into the retail price for calling mobile phones, and the behaviour of retail consumers may have an impact on the MNOs' ability to set high termination charges, the information available to retail customers must also be considered. Better knowledge on their part about the price of calling each specific network may indirectly force MNOs to compete on the level of termination charges. The extent to which callers can indirectly apply pressure on mobile termination charges was discussed in detail in Section 3. A number of links (not just better awareness of the cost of calling mobiles) would have to be satisfied so that the behaviour of callers to mobiles could constrain termination charges. Thus, Ofcom considers that the extent to which consumers can access information on the cost of incoming calls and how easy this is to understand and use, considered as part of the market definition exercise in Section 3, does not play a part separately in the assessment of market power. With regard to the called parties, there is evidence that, as a consequence of the pricing arrangements, they are not sufficiently concerned about the cost of incoming calls when choosing their network.

4.103 Price trends and pricing behaviour – "Pricing patterns substantially determine the welfare of customers, and thereby overall welfare. The degree of competition in a relevant market (and its dynamic) might be observed through time series of price movements (possibly linked to international benchmarks), the reactions on price setting of single providers and prevailing differences in prices over time (for homogenous products). If for example competitors cut their prices whereas a particular undertaking (or group of undertakings) leaves its prices unchanged, economic theory would conclude that this should lead to a loss in sales to this (group of) undertaking(s). If therefore a (group of) undertaking(s) can sustain its (their) prices permanently at a higher level, this can be seen as an indication that this (group of) undertaking(s) is free to behave independently from its rivals. Further insights can be gained by an extension of the observation period, which may reveal whether a certain undertaking (group of undertakings) is forced to react to its competitors' price cuts with a lag. The shorter the lag and the sharper the price response in reaction to price cuts of rivals, the fiercer competition can be assumed to be. Pricing patterns might therefore provide important additional information on the effectiveness of competition and might be taken into account as pricing is central to economic conduct". Given the analysis of markets in section 3 above, prices are not subject to effective competition. Therefore it is not possible to observe any competitor response to the changes in price of its rivals and make inferences about the level of competition. Furthermore, charge controls have acted as the binding constraint on MNOs' pricing. The impact of other external competitive pressures has not imposed pressure on MNOs to reduce their prices below the charge controls.

4.104 International benchmarking – The ERG proposes that, for many of the criteria listed above, additional valuable information can be obtained by investigating benchmarks from comparable economies. International benchmarking can be a useful indication of the level of competitive prices and therefore allow inference of excessive pricing. Across the EU mobile termination is subject to regulation and specific price controls. This affects the interpretation of benchmark charges from outside the UK. According to data collated by ERG, those termination charges in the UK which are subject to price control regulation are lower than termination charges in other EU countries. However, since termination charges in the UK are subject to a price control on a

LRIC basis whereas in other EU countries different regulation and cost benchmarks apply, such a comparison should be treated with caution.

4.105 In this case international benchmarks for termination charges are also difficult to rely upon without significant understanding of key country differences in costs related to for example, geography, topology and underlying equipment and labour costs.

Initial conclusions on SMP

4.106 The definition of the relevant market has led Ofcom to reach a preliminary view that there is a separate market for termination on each MNO's network(s) and that this will hold for the period to 2011. As explained above, this means that each MNO is, in effect, a monopolist in the supply of termination to its own networks. Due to the significant lack of competitive constraints discussed above (in particular the 100% market shares and high barriers to entry) Ofcom considers that prima facie each mobile operator enjoys SMP in the provision of mobile voice call termination on its network (2G and 3G where applicable) based on their market share and the absence of potential competition, the ease of market entry and the related criteria concerning the control of infrastructure not easily duplicated. Such SMP allows each of the MNOs to behave to an appreciable extent independently of competitors and consumers.

4.107 However, Ofcom has further work to undertake to understand among other things the extent of any countervailing buyer power in these markets that has the potential to negate the prima facie view that each MNO has SMP.

4.108 In summary, Ofcom proposes that prima facie each MNO has SMP in the market for terminating calls over its own network. This is because, in summary.

- It is only the terminating MNO that can terminate calls to its subscribers, and each MNO therefore has 100% market share in the market for wholesale termination that it supplies to other operators;
- Ofcom does not foresee any changes to the current CPP arrangements nor the introduction of new or developing technologies that will allow another provider to offer termination on another mobile network, other than the MNO providing that network;
- This combination of current and enduring high market share and absolute barriers to entry provides a strong presumption of market power.

***Question 2**: Do respondents agree with Ofcom's view that, given the market definition proposed in Section 3 Vodafone, O2, T-Mobile, Orange and H3G each have prima facie SMP in their respective markets in which they supply wholesale mobile voice call termination to other operators?*

Section 5

Potential detriments arising from SMP

Introduction

5.1 In Section 4, Ofcom outlined its preliminary conclusion that the five MNOs have SMP in the market for mobile termination on their own networks. Ofcom believes that, in the absence of any regulation (or the threat of regulation), MNOs would have the ability and incentive to set voice termination charges at the profit maximising (monopoly) level, to the detriment of consumers.

The "Waterbed effect"

5.2 The 'Waterbed effect" has been cited by some commentators to support the argument that Ofcom should not be concerned if mobile termination charges are set above the competitive price level, because excess profits will be returned to mobile consumers in the form of lower retail prices for mobile services. However, Ofcom considers that in order for all excess profits earned from wholesale mobile voice call termination to be competed away, the mobile retail (access and origination) market in which MNOs operate would need to be sufficiently competitive.

5.3 Ofcom notes that although no MNO has been found to have SMP in the retail market for mobile services (see Oftel's consideration of the retail market for outbound mobile services contained within its assessment of the market for wholesale mobile outbound services; Oftel statement *Mobile access and call origination services market review* – published August 2003), conditions may not be such as to ensure that the MNOs would always compete away any excessive profits earned in supplying wholesale mobile voice call termination by offering lower prices for retail mobile services.

5.4 The thresholds for designating a firm as having SMP are high, and there is consequently a wide range of firm behaviours and outcomes consistent with finding that no firms in a market have SMP. Ofcom therefore maintains that full pass-through of termination profits to retail customers, which would mean that MNOs' profits are not related to the level of their mobile termination charge, is not a necessary consequence of Oftel's finding that no MNO has SMP in the mobile access and call origination market.

5.5 Over time, the retail market has become more competitive, and it has become less likely that MNOs will be able to retain excess profits earned in supplying termination services. Nevertheless, Ofcom believes that, in a market with a limited number of network competitors and significant entry barriers (due to factors including the high level of sunk costs involved in entry and the historic scarcity of spectrum), it is unlikely that this pass-through would be complete. Furthermore, if pass-through were complete, MNO profits would be invariant to the level of termination charge and MNOs would potentially be unconcerned about the level of such charges. In fact, it is apparent, from MNOs' response to the June 2005 consultation and to preceding reviews of this market, that MNOs are far from indifferent about the level of their own termination charge, which suggests the "waterbed effect" may not be complete.

5.6 However, even if the waterbed effect were fully effective, termination charges above the competitive level could still give rise to a number of concerns. These include:

- the effect on economic efficiency and the distortion of consumer choice;
- undesirable distributional effects;
- an increased risk of anti-competitive behaviour.

These are discussed in detail below:

The effects on economic efficiency and distortion of consumer choice

5.7 It is Ofcom's view that in the absence of regulation (or the threat thereof) the pricing structure of mobile retail services and calls to mobiles would be inefficient from a consumer welfare perspective. MNOs would have the incentive to set termination charges at an excessive level in order to maximise profits and/or to compete in the retail mobile market. As discussed above, the nature of that competition does, however, affect the extent to which these excess profits are used to reduce the retail prices of mobile services. Hence, the structure of prices for mobile services would be inefficient, providing distorted price signals for consumers. The overall effect is economically inefficient with the volume of calls to mobiles below the efficient level and the usage of mobile services above the efficient level.

5.8 In the last market review Ofcom estimated the welfare gains from regulating call termination by comparing a situation with unregulated (excessive) and regulated (cost based) termination charges[26]. This analysis estimated the change in consumption of calls to mobiles and mobile retail services following a move (via regulation) to an efficient price structure. Ofcom acknowledged that this was an order of magnitude estimate and not a precise estimate of the welfare gain of regulation. The benefits amounted to about £900 million per year. Ofcom will seek to update its analysis of the benefits and costs of regulation and will endeavour to provide quantification of its regulatory proposals in the next consultation in this review.

5.9 Moreover, Ofcom notes that mobile networks involve higher usage-dependent costs than fixed networks. Mobile termination charges affect the prices of fixed-to-mobile calls directly and the prices of retail mobile services both directly and indirectly (via any "waterbed effect"). This can lead to distortions to the relative prices of fixed and mobile services, such that the relative prices do not reflect underlying resource costs. Hence, Ofcom considers that excessive mobile termination charges are detrimental to consumers because they lead to mobile retail prices that may direct consumers towards using the relatively higher cost, more resource-intensive technology and therefore an inefficient allocation of resources.

The distributional effects

5.10 As well as being concerned with improving economic efficiency, Ofcom is also concerned to consider equity or distributional concerns - for example, where a firm's pricing scheme led to large transfers between different sets of consumers, but did not generate substantial gains in efficiency[27].

[26] See Annex L of the Calls to Mobile December 2003 consultation with further details, including the model used available at http://www.ofcom.org.uk/static/archive/oftel/publications/mobile/2003/gain0703.htm

[27] Ofcom believes that this broader approach is consistent with its duty to act, pursuant to section 4 of the Act, in accordance with *inter alia* the first Community requirement to promote competition. Namely, it ensures that users derive maximum benefit in terms of choice, price and quality as provided for in the Article 8(2)(a) of the Framework Directive. Ofcom also has general duties, under section 3(4)(i) of the Act, to have regard for the needs of persons with disabilities, of the elderly and of those on low incomes.

5.11 Since mobile termination charges are a major component of the price of calls to mobiles, if the former are excessive, callers to mobiles can face an excessive price for fixed-to-mobile and mobile off-net calls, and, provided some level of pass through (via the 'Waterbed' effect), lower prices for other retail mobile services. Therefore callers to mobiles may face excessive charges whilst mobile subscribers benefit through lower prices for mobile services. Different consumers will face different a distribution of these benefits. At a high level there are three categories of consumers to which these distributional benefits are important (based on Quarter 4 2005 data from Ofcom's Residential Tracker Survey):

- Fixed only consumers i.e. those not personally using mobile phones and living in households with fixed line phones. This group accounts for approximately one in ten (9%) of adults;
- Mobile only consumers i.e. those personally using a mobile and living in a household without a fixed line phone. This group accounts for approximately one in ten (10%) of adults; and
- Mobile and fixed consumers i.e. those who have been found to use mobile phones and live in household with fixed line phones. This group accounts for approximately four-fifths (80%) of adults.

5.12 Fixed only consumers only face the downside of excessive termination charges, and are always adversely affected by excessive termination charges. However, the proportion of fixed only consumers is declining and is only slightly larger than the number of mobile only users. Furthermore the evidence of Ofcom's January 2006 survey suggests that fixed only consumers are not particularly frequent callers of mobiles; for example, only 7% of this group reported calling a mobile daily (compared with 34% of consumers with both a fixed and a mobile phone).

5.13 Other types of consumers face a tradeoff, higher prices for calling a mobile compared to lower prices for mobile services. Within the population of mobile users ("mobile-only" and "mobile and fixed"), it is highly likely that some consumers will be adversely affected by high termination charges; this will depend on the extent to which they consume calls to mobiles relative to other mobile services. For example those who are heavy consumers of mobile services are more likely to benefit from subsidies to customer acquisition and retention than those who do not change their handset from year to year.

5.14 Given the proposed existence of SMP, the difference between the cost of mobile termination and the wholesale charge in the absence of any intervention (or the threat thereof) is likely to be large. The transfers between different sets of customers are unlikely to be 'undone' by compensation from those made better off to those worse off. Ofcom therefore believes that distributional factors should legitimately be taken into account in the decision as to whether there is a justification for regulation of termination charges, as an adjunct to the basic efficiency rationale, set out in the previous section.

Risks of anti-competitive behaviour

5.15 The SMP, and thus the pricing freedom, enjoyed by the MNOs in the mobile termination markets could also be used to distort and reduce competition in the retail mobile market. Each MNO is a monopolist in the provision of termination services to its subscribers, but it competes with other operators in the outgoing calls and access market. Hence, it may exploit its position in the termination market to impair its rivals' ability to compete for customers. Similar concerns may also arise in respect of anti-competitive behaviour towards fixed network operators where these are close competitors.

5.16 Where all MNOs are of similar size in terms of revenues or subscribers, they may have similar levels of market power in the retail mobile market, and this issue is therefore less likely to be of concern. However, with new entry into the market (e.g. the entry of H3G and possible future entry associated with the liberalisation of spectrum) there is potential for anti-competitive pricing by larger MNOs to the detriment of smaller MNOs and therefore competition.

5.17 In particular, the larger MNOs could charge higher termination charges to smaller MNOs than they charge each other and thus a new entrant, given its asymmetric position in the retail market with respect to the incumbent MNOs, would find itself at a significant disadvantage in offering retail access and outgoing call services. Hence, Ofcom believes that the competitive distortions that may arise if MNOs were free to exploit their SMP in the market for mobile voice termination should also be considered in the decision whether to regulate.

5.18 However, Ofcom notes that if an MNO (such as a small new entrant) is unable to negotiate reasonable terms for mobile call termination (or is unable to establish direct interconnection), it may instead seek to use another operator (such as BT) to transit the call to the relevant mobile network and have the call terminated under the terms of that transit operator's mobile termination agreement. BT is currently obliged to offer such services and, therefore, the termination rate paid by BT to the other MNOs effectively acts a ceiling on the maximum charge any new entrant would have to pay.

5.19 In relation to the broader competition issues, Ofcom notes that the divergence between the price and cost of (wholesale) termination charges increases the probability that other types of discriminatory behaviour by MNOs might have an anti-competitive effect, because higher wholesale profits gives greater scope for subsidising retail prices in competition with fixed network operators (to the extent that there is close competition with fixed operators) and other MNOs. Therefore, a narrower spread between the average price and average cost of the wholesale termination service, reduces the scope for anti-competitive discrimination or leveraging behaviour by MNOs.

Initial conclusion on detriments

5.20 It is Ofcom's current view that, absent regulation, the ability and incentive of MNOs with SMP to set voice termination charges at the profit maximising (monopoly) level, will be used to the detriment of consumers. Although Ofcom accepts that the waterbed effect may ensure that a proportion of excessive termination charges is passed through to mobile consumers in the form of lower mobile retail prices, the level of pass-through may not be complete. Furthermore, Ofcom believes that, even if the waterbed effect were fully effective, the use of excessive wholesale voice call termination charges to subsidise retail mobile services would be likely to result in material detriment to consumers as discussed above. Possible remedies to address this are discussed in section 6 and 7 below.

5.21 As noted above, where excessive termination charges are used to subsidise retail mobile services, consumers who call mobile phones but who do not make use of retail mobile services (or use these service relatively little) will not be compensated for the high cost of calling mobiles by the subsidised price of retail mobile services (which they either do not use or use infrequently). More broadly, the use of excessive termination charges to subsidise mobile retail services also presents distorted pricing signals to consumers resulting in over-consumption of the subsidised services (such as mobile phones and outbound mobile services) and under-consumption of services, such as calls to mobiles, which are reliant on wholesale mobile voice call termination (in both cases, consumption relative to the levels which could be expected where charges are more closely aligned with costs). In Ofcom's view, the consequent inefficient use of resources will be detrimental to consumers.

5.22 Ofcom recognises that with high levels of mobile penetration, the number of consumers who call mobiles but do not purchase mobile services (or do so infrequently) is relatively small, and likely to reduce still further as penetration and usage of mobile services increases. Ofcom also recognises that regulatory intervention to reduce wholesale termination charges will address the detriment suffered by this group to the extent that reductions in wholesale mobile termination charges are passed through to the retail price of services used by this group. As summarised in Annex 7 below, BT has passed through directly to the price of fixed to mobile calls a very high proportion of the reduction in mobile termination charges which it has enjoyed. BT's large share of this market has meant that, even in the presence of lower levels of direct pass through by other providers of calls to mobiles, the overall level of direct pass-through has been high. Whether other providers of calls to mobiles have passed through the termination charge reductions to other services is difficult to determine as the range of services offered by call providers is often very extensive. However, none of these other providers of fixed services has been found to have SMP and therefore all face constraints on pricing associated with competition.

5.23 The wider detriment caused by inefficient use of resources can, in part, be more reliably addressed by imposing charge controls, as these can be expected to remove the source of the subsidy which is used to reduce the price of mobile retail services, thus causing the price of mobile services to be more closely aligned with costs. The extent to which charge reductions will correct an imbalance in the volume of fixed to mobile calls will depend, here again, on the extent to which the reduction in termination charges is directly passed through to the price of fixed to mobile calls. As noted in Annex 7, a Ramsey approach to retail pricing can be beneficial to consumers and should not, of itself, be viewed as evidence of market failure. However indirect pass-through requires more complex welfare consideration including assessment of the economic efficiency effects on all fixed services, not just fixed-to-mobile. Whether a particular level of direct pass-through is consistent with Ramsey prices would similarly be extremely difficult to establish.

5.24 The levels of direct pass-through seen since 2000 (see Annex 7) indicate to Ofcom that charge controls have successfully addressed the dual concerns about equity and economic efficiency. Nevertheless, Ofcom is aware that the overall level of direct pass through has been strongly coloured by the extent to which one supplier, BT, has engaged in direct pass-through. Ofcom is also aware that BT's pricing strategy may have been influenced by its public commitment to pass through the great majority of the cost savings in this way (a public commitment reiterated by BT in the context of the 2003 review of BT's retail price control).

Section 6

Structural remedies for any SMP

Introduction

6.1 In Section 3 of the Preliminary Consultation, Ofcom considered the prospects for the underlying causes of SMP to be eroded. Ofcom does not believe that market led changes, such as might be triggered by new supply side or demand side substitutes, can be relied on to remove SMP during the period to 2011, and it is difficult to identify any factors which might lead one to believe that SMP will be eroded in the longer term. In general, those who responded to the Preliminary Consultation shared this view, although there some noted that a widespread adoption of VoIP might effect some change in the longer term.

6.2 A consequent consideration, therefore, is what options are available to Ofcom to intervene to promote competition by removing the underlying causes of SMP. The Preliminary Consultation identified two such possible approaches:

- Mandating a Receiving Party Pays (RPP) regime (typically by setting termination charges at zero); and
- Imposing technical changes to facilitate competition for the provision of mobile voice call termination.

6.3 These are discussed in turn below.

Receiving party pays

6.4 This section considers the merits and demerits of engineering a change to a Receiving Party Pays (RPP) charging framework for the mobile sector, typically by setting mobile voice call termination charges at zero. This is distinct from the market development of an RPP solution, for example through the growth of VoIP termination as part of a broader RPP-based data charging framework which, as noted above, Ofcom and most stakeholders consider unlikely to materially constrain call termination charges in the period to 2011.

Background

6.5 Under a Calling Party Pays (CPP) framework, the call originator pays the full cost of the end-to-end call, and the receiving party pays nothing; the calling party is charged the retail price of the call by his network operator, and the network operator then pays the terminating network the call termination charge for completing the call. Under a Receiving Party Pays (RPP) system, in contrast, the called party contributes, in whole or in part, to the end-to-end cost of the call, and will, therefore, consider the cost to him of incoming calls when choosing a retail provider of mobile services. Freephone (0800) calls from BT lines are a common example of full RPP, where the called party pays the full cost of the call. International roaming provides an example of partial RPP, where both the caller and the called party typically contribute to the cost of calls that are received when roaming abroad.

International precedent

6.6 The RPP system has been applied in a number of jurisdictions, most notably the US, Canada, Hong Kong, Singapore and China. The CPP system is used widely across the EU, as well as Australia, New Zealand, Japan, South Korea and numerous other jurisdictions. It is also worth noting that while numerous countries have moved from the RPP system to the CPP system, Ofcom has not been able to identify a single example of the reverse. Whilst country-specific factors will impact cross-sectional comparison, the following characteristics are of note in considering international precedent in respect of the different charging structures:

- CPP has tended to show faster growth in mobile penetration than RPP, and yields higher penetration rates, although there are notable exceptions in respect of Hong Kong and Singapore;
- RPP tends to yield significantly higher minutes of use per subscriber, which may reflect the different characteristics of these subscribers; and
- Average revenue per minute is lower under RPP.

Positions of Ofcom, the UK Competition Commission and respondents

6.7 Ofcom, and other authorities, have on successive occasions in the past considered the potential merits and demerits of RPP. Ofcom has recognised that a system of RPP is likely to remove the competition problems associated with CPP, but has identified a number of significant concerns in moving from a CPP regime to an RPP regime, including the strong link between RPP and lower penetration rates (although this is not the case in Hong Kong and Singapore) and the likelihood of significant consumer confusion and negative response.

6.8 The UK Competition Commission (UKCC) concluded that 'a mandatory system of RPP would entail too many significant disadvantages for consumers … it might lead to significant numbers of users switching off their mobile phones.'[28]

6.9 The majority of respondents to the Telecoms Strategy Review (TSR) considered that the benefits which may accrue from greater competition would be more than outweighed by the considerable disruption to industry which would be caused by a move from CPP to RPP. This sentiment was reiterated in many responses to the Preliminary Consultation, with BT, MCI, Cable and Wireless and UKCTA, as well as the mobile operators, taking such a position.

6.10 All of the MNOs pointed to the large-scale disruption to retail markets which a mandated change to RPP would be likely to generate, and both Vodafone and T-Mobile warned that this would result in reduced penetration levels (Vodafone cited reduced prepay penetration in particular). Vodafone and H3G also warned that, if applied only to mobile termination, RPP would distort competition with fixed network operators. BT, MCI and UKCTA, as well as the MNOs, warned that the welfare benefits, if any, were very uncertain and the change would be likely to be extremely unpopular with consumers. UKCTA noted, however, that a Bill and Keep arrangement, where termination charges are set at zero and costs recovered from a variety of outbound mobile services (rather than directly in the form of charges for incoming calls) might be more acceptable to consumers.

6.11 O2 stated that a move to 'pure' RPP arrangements in the UK is 'neither practical nor desirable'. O2 did, however, point to some elective RPP offerings – such as Genion offered by O2 Germany[29] – which, O2 claimed, provide a competitive constraint on

[28] UK Competition Commission report on the mobile phone charge inquiry, para. 2.492. (see http://www.competition-commission.org.uk/inquiries/completed/2003/vodafone/index.htm)

[29] The Genion service allows calling parties the choice of fixed or mobile options in contacting the called party. Where the former is selected and the called party is outside the 'home zone', the called party can choose whether to receive the call on an RPP basis.

mobile termination charges. Orange, too, referred to the possible future potential for market-led RPP.

6.12 Ofcom recognises the appeal of RPP insofar as it provides a framework which would address the bottleneck characteristic of call termination under CPP and thereby potentially result in competitive pressure on mobile termination charges. There are, however, arguments in favour of a CPP regime over the RPP alternative, in particular where a CPP regime has been long established, as in the UK.

Sector size and growth

6.13 The evidence suggests that (with the exceptions of Hong Kong and Singapore) RPP inhibits growth in take-up compared with the CPP alternative resulting in lower levels of mobile penetration. However, the issue at hand in this context is not whether RPP or CPP yield differences in market size per se, but whether a move from the latter to the former would materially and detrimentally reduce the market size from its current level. As noted above, Ofcom is not aware of any country which has moved from CPP to RPP and, therefore, Ofcom has no data on the effect of such a change on market size. Ofcom notes the view of UK MNOs that a move to RPP would lead to an inefficient reduction in mobile penetration.

6.14 A related concern to lower penetration rates – and one expressed by the UK CC – is that end users would have an incentive to switch off their phones to minimise charges incurred for receiving in-bound calls. Whilst this risk may be countered by the development of ‘bucket’ offerings by operators which stimulate usage, as has been the case in the US, Ofcom is of the view that the uncertainty over bill sizes and utility of received calls may still induce detrimental switching off effects, and that this uncertainty is sufficient to negate, at least to an extent, the benefits of RPP over CPP.

Consumer response

6.15 A further consideration in assessing the merits of a move to RPP is the manner and extent of consumer response; Ofcom considers such a move is likely to be very unpopular. The unpopularity is likely to be amplified where mobile users face paying to receive unwanted marketing calls or silent calls from other networks. Ofcom recognises that any such change in wholesale regulation will require a response from operators and a consequent change in the charging structures of retail service offerings.

Economic efficiency

6.16 In the June 2004 Statement in respect of mobile call termination[30], Ofcom stated that ‘it is economically more efficient that the cost of a consumption decision should be borne by the person who takes that decision’; i.e. the caller should pay for the call, as it is the caller who decides to initiate it. H3G, in its response to the Preliminary Consultation, argued similarly that an arrangement where the initiator of a call does not bear the cost would introduce new economic distortions.

6.17 However, it is necessary to recognise the value to the *called* party when assessing the extent of economic efficiency. Specifically, a call enhances collective welfare where the cost of the call, notwithstanding who bears this cost, is lower than the combined value derived by both parties to the call. Under CPP, ‘efficient’ calls (i.e. those which meet this criterion) will fail to be made in the event that the calling party

[30] Wholesale Mobile Voice Call Termination Statement – 1st June 2004

alone does not value the call sufficiently to pay the full end-to-end price even though the combined value to calling and calling party exceed that price. Conversely, under RPP, efficient calls will not be made where the called party does not value the call sufficiently to pay the termination fee even where the collective value exceeds the combined price of the call.

6.18 It is therefore unclear which approach results in more efficient calls. There is a higher cost ‘hurdle’ under CPP, in that the calling party must assign an individual valuation equal to at least the full cost of the end-to-end call, whilst under partial RPP each party need value the call only as highly as their respective element of the end-to-end cost. Furthermore, mobile termination charges under CPP have tended to be sufficiently above cost such that the cost ‘hurdle’ in the calling decision under CPP is higher than under RPP, although regulation can of course address this issue. Nonetheless, under RPP, there may be still more inefficient outcomes. For example, if called parties ascribe a lower expected value to receiving calls than the charge payable by them under RPP, they may turn off their mobile, blocking reception of calls. This may lead to inefficiently low call volumes, as they may be imperfectly informed about the calls that they would receive when they make this judgement, and calling parties may attribute a high value to making those calls.

6.19 Therefore, it is not clear that CPP is preferable to RPP on economic efficiency grounds. The imposition of RPP might address the underlying causes of SMP. However, as Ofcom notes above a move to RPP from CPP would cause significant market disruption, carry additional costs, and may reduce penetration, and these factors would tend to outweigh any theoretical and untested gains in economic efficiency.

Costs to industry

6.20 A further concern in respect of a move to RPP is the extent of cost borne by the industry and, by extension, passed on to consumers by way of higher prices. Whilst there is uncertainty as to their scale, Ofcom considers such costs, for example in terms of system development and subscriber education requirements, represent a further reason to be very cautious about any mandated move to RPP.

Initial conclusion on mandated RPP

6.21 While recognising the theoretical merits of RPP, Ofcom is of the opinion that a move from CPP to RPP would currently be to the detriment of consumers in the UK, for the following reasons:

- <u>Consumer response:</u> there is considerable uncertainty as to consumer response to a move to an RPP system in the context of an established market with tens of millions of subscribers currently facing a familiar and well established charging structure;
- <u>Short-term regulatory intrusion and uncertainty of net benefits:</u> whilst RPP per se represents a framework within which repeated regulatory intervention to set charges may no longer be necessary (charges, typically, being set at zero for the long term) the extent of regulatory intervention in moving from CPP to RPP – and potentially mandating such a move – is significant, and without certainty that the net benefits will outweigh the associated costs;
- <u>Associated costs:</u> it is likely that the costs incurred by operators, subsequently passed on to end users, would exceed the benefits to consumers.

6.22 Ofcom's present position is consistent with that of the UK CC, and was broadly shared by respondents to the Preliminary Consultation who all expressed a strong sentiment against its introduction, on the grounds of disruption, customer confusion, lack of clarity over extent of benefits and distortion of competition absent the introduction of a similar to apply to termination of calls on fixed networks.

> ***Question 3:*** *Do you feel that Ofcom has understated the benefits to consumers of a mandated move to a RPP charging regime? Ofcom is particularly interested in hearing from consumer groups.*

Technological change

6.23 Ofcom noted in the Preliminary Consultation that, at any point in time, each mobile device is generally within the coverage area of 4 or 5 different mobile networks and, in theory, it is conceivable that callers or originating operators might be enabled to choose which network should terminate any call, thereby facilitating competition for the provision of such termination services.

6.24 However, Ofcom understands that this would require substantial technical changes. For example, MNOs might need to develop a common home location register (HLR) to which they would connect via visiting location registers. This approach might obviate the need for major changes to phones or the need for consumers to switch between SIMs, but implementation of a shared HLR would take time, be expensive, and would probably face significant resistance from the MNOs. The alternative, of competing suppliers of termination services each tracking the location and status of each mobile phone, would require very substantial changes to mobile network infrastructure, signalling and phones, and a degree of co-operation to ensure the continued functionality of ancillary services such as voicemail.

6.25 Respondents to the Preliminary Consultation, including both fixed network operators such as BT, MCI, Cable and Wireless and UKCTA and MNOs, broadly agreed that technological change either mandated or as a market development was unlikely to be a practical solution to SMP in the medium term.

6.26 H3G believed that the establishment of a framework to allow simultaneous access to multiple Radio Access Networks would require a 'completely new handset base', lead to significant R&D expenditure and network complexity and result in negative customer experience. While UKCTA pointed to 'major implementation issues' and stated that, in any event, MNOs must be incentivised to provide such solutions.

6.27 Ofcom therefore does not consider that any mandated form of technological change aimed at removing the underlying cause of SMP, to be effective or appropriate.

> ***Question 4:*** *Do you agree with Ofcom's view that a mandated form of technological intervention to address the underlying cause of SMP is not currently feasible, and that the development costs relative to the benefits would be unlikely to pass a cost-benefit analysis?*

Voice over Internet Protocol (VoIP)

6.28 Ofcom recognises that VoIP may eventually enable both callers and called parties to use mobile data services to terminate or receive voice calls, and this could potentially act as a constraint on mobile termination rates. As noted in Section 3 above, VoIP is a potential substitute for mobile voice call termination rather than a structural solution to SMP, but it is conceivable that Ofcom could provide incentives to encourage the development of VoIP, such that it may act as a constraint on MNOs' behaviour.

6.29 VoIP is generally conveyed on an RPP basis where both parties pay for the data which they send and receive The individual making the on-line call only pays to be on-line (which does not include a termination charge) and the target of the call (if he answers the call) similarly only pays when connected to the website/portal/call server. The use of VoIP therefore makes the receiving party sensitive to the price of an incoming call, and may act as a restraint on termination rates.

6.30 Vodafone, O2 and Orange, when responding to the Preliminary Consultation all felt that it was too early to judge whether VoIP would provide an effective substitute for mobile termination (this view was also held by UCKTA). [✂]. Orange too noted that the need to hold a voice call in real-time would have an impact on costs. Only T-Mobile felt that VoIP could be viable in the short term, and argued that it would have a major impact on mobile termination over the next 3 years. T-Mobile argued that VoIP will reduce the cost of alternatives to calling a mobile and so apply pressure on MNOs to reduce charges (and retail prices). More recently, it has been announced that H3G has agreed to allow H3G phones to carry VoIP software. As noted in Section 3 above, it is not yet clear what commercial arrangements will apply. It is conceivable that VoIP calls could be carried over the data path and be charged for through the user's monthly data allowance or on a per Megabyte basis. Alternatively, where a VoIP call is addressed using a telephone number this could be routed over the voice channel where standard termination charges might apply

6.31 Ofcom shares the views of respondents to the Preliminary Consultation that VoIP may eventually have the potential to offer an alternative to standard voice call termination. As noted in paragraph 3.74 above, if VoIP calls were to become a real substitute for traditional circuit switched calls to mobiles and the billing arrangements for these calls displayed RPP characteristics Ofcom could examine again the impact of these types of calls on the market.

Initial conclusion on structural remedies

6.32 Ofcom does not believe that there are currently any structural remedies which would be likely to pass a cost –benefit analysis and which Ofcom could reasonably impose to remove the underlying causes of SMP in the market for mobile call termination. Ofcom believes that imposition of RPP or mandating a technology solution could ultimately be as intrusive (if not more so) as imposing a charge control, would involve significant cost implications, and are likely to be highly disruptive to the consumer and the market. This position was broadly supported by respondents to the Preliminary Consultation. Ofcom will continue to monitor market led developments such as VoIP.

Section 7

Remedies for SMP

Introduction

7.1 In the Preliminary Consultation Ofcom identified a number of regulatory options for ensuring that charges are set at an appropriate level in the event that SMP persists. This set of options comprised:

- Do nothing, reliance on ex post intervention;
- Price transparency (including notify charges and publishing a reference offer);
- 'Tying' wholesale charges to retail charges;
- Fair and Reasonable or Cost-orientated charges; and
- Charge controls.

7.2 These regulatory options form the basis of this section's consideration of Ofcom's proposed remedies. This section also considers the appropriateness of other potential remedies: namely, to ensure price transparency, the provision of network access and non discrimination.

7.3 As Ofcom will be conducting another consultation in the summer of 2006 (the 'Final Consultation), the analysis presented in this section, when read also with the rest of this document, represents an initial Impact Assessment (IA). Stakeholders should send any comments on this initial IA to Ofcom by the closing date for this consultation. Ofcom will give careful consideration to all comments received during the consultation period, before preparing a full impact assessment as part of the Final Consultation, including a cost benefit analysis of the options there proposed. In producing this initial IA in this document Ofcom has had regard to its own guidance on carrying out impact assessments.

Ofcom's duties under the Communications Act 2003

Section 3 – Ofcom's general duties

7.4 When considering the appropriateness of the remedies proposed in this section, Ofcom has had regard to its duties under the Communications Act 2003 (the 'Act').

7.5 Section 3(1) of the Act sets out the principal duty of Ofcom, in carrying out its functions under the Act:

- to further the interests of citizens in relation to communications matters; and,
- to further the interests of consumers in relevant markets, where appropriate by
- promoting competition.

7.6 Ofcom has also considered when carrying out its functions, amongst other things, the requirements in section 3(2) of the Act to secure the availability throughout the UK of a wide range of electronic communications services and section 3(4) of the Act, namely that in performing its duties Ofcom must also have regard to such of the following as appears to be relevant in the circumstances, in particular:

- The desirability of promoting competition in relevant markets;
- The desirability of promoting and facilitating the development and use of effective forms of regulation;
- The desirability of encouraging investment and innovation in relevant markets; and
- The opinions of customers in relevant markets and of members of the public generally.

Section 4 – European Community requirements for regulation

7.7 Section 4 of the Act requires Ofcom to act in accordance with the six European Community requirements for regulation. In summary these requirements are to:

- Promote competition in the provision of electronic communications networks and services, associated facilities and the supply of directories;
- Contribute to the development of the European internal market;
- Promote the interests of all persons who are citizens of the European Union;
- Not favour one form of or means of providing electronic communications networks or services, i.e. to be technologically neutral;
- Encourage the provision of network access and service interoperability for the purpose of securing;
    - Efficient and sustainable competition; and
    - The maximum benefit for customers of Communications providers; and
- Encourage compliance with certain standards in order to facilitate service interoperability and secure freedom of choice for the customers of communications providers.

Ofcom's objectives in this review

7.8 Ofcom considers that there are a number of relevant considerations to be borne in mind when deciding on appropriate remedies for SMP in this market, including, amongst others, the following:

- seeking to promote the interests of consumers by ensuring prices are not excessive and resources are efficiently allocated;
- avoiding regulatory distortion of MNO decisions about delivery of mobile termination – seeking to ensure MNOs incentives to use one technology (for example, 2G) over another (for example, 3G) are not distorted by regulation;
- encouraging investment and innovation in existing and new mobile services – seeking to ensure operators recover efficiently incurred costs; and
- ensuring technology and competitive neutrality – seeking to ensure regulation is balanced in its impact on the use of different technologies by different competitors.
- avoiding economic distortions, for example in the downstream retail market

7.9 In particular, in imposing any appropriate remedies in these markets, Ofcom will need to be mindful of the potential effect of that regulation on innovation and investment in these markets.

7.10 Ofcom has also taken into consideration the ERG common position on the approach to appropriate remedies in the new regulatory framework[31].

Do nothing, reliance on ex-post intervention

7.11 Ofcom could potentially withdraw all ex-ante conditions relating to mobile termination charges and instead rely on ex-post competition law. This would have the advantage of reducing the level of ex ante regulatory intervention.

7.12 However, reliance on ex-post competition law has a number of disadvantages. As set out at paragraph F.47 of Policy Annex F of the TSR Phase 2 consultation, the principles of competition law, as they can be derived from the statute and existing case law, do not always provide ready-made solutions to the problems experienced in telecoms markets. While competition law can, where necessary, incorporate such highly technical matters, there is nonetheless a practical case for addressing such issues through sector rules. This avoids what would otherwise be protracted delays in the development of a body of case law that supports the necessary technical requirements.

7.13 Indeed, without the imposition of ex ante regulation to promote actively the development of competition in markets in which competition is not effective, it is unlikely that ex post general competition law powers would be sufficient to ensure that effective competition became established. For example, ex post powers prohibit abuse of dominance rather than the holding of a dominant position. Ex ante powers can be utilised to reduce the level of market power and thereby encourage effective competition to become established.

7.14 Additionally, reliance on ex post competition law may not allow for the certainty of intervention that is necessary to give all parties, including MNOs and FNOs, the confidence to plan their businesses and make significant investments within a clear and predictable regulatory environment.

Initial conclusion on reliance on ex-post intervention

7.15 Ofcom considers that in these markets the reliance on ex-post intervention would not be appropriate, as among other things ex-ante regulation would give greater regulatory certainty to MNOs and FNOs from which to plan their businesses and make the appropriate investment choices, while also ensuring that competition is promoted..

Price transparency

7.16 Ofcom considers that an ex ante price transparency obligation for each MNO (for example notifying charges and publishing a reference offer) on its own may provide a constraint on the level of call termination charges to the extent that it impacts the purchasing decisions of either the calling party or the called party. However, the co-incidence of (i) SMP call termination on each network and (ii) the presence of CPP as the prevailing pricing framework is likely to have led to a situation, as discussed in detail in Section 3, in which calling parties do not impose a sufficient constraint on terminating operators through their ability to substitute to other forms of contacting a mobile subscriber, and the called party does not take into account the cost of being called when deciding which network to subscribe to.

[31] http://www.erg.eu.int/doc/whatsnew/erg_0330rev1_remedies_common_position.pdf

7.17 Whilst price transparency may result in consumer pressure and lobbying, this is unlikely to wield sufficient pressure on MNOs to ensure price is at the competitive level, except to the extent that the levels of mobile termination charges were such that they *did* begin to impact on the subscription decisions of end users, for example as a consequence of negative end user sentiment impacting brand. The level at which mobile termination charges would have such an effect is untested. What is evident, however, is that levels of mobile termination charges significantly higher than those prevailing today have been tolerated by called parties, and appear to have had little impact on subscription decisions. As a consequence, the adoption of such a remedy, of itself, would not provide sufficient constraint on the pricing freedom of the MNOs.

7.18 Therefore, while Ofcom considers it may be appropriate to have such a remedy in place, this is it only likely to be the case in conjunction with other remedies which then, in combination, represent an effective constraint such that the MNOs are unable to exploit their positions of SMP.

Initial conclusion on price transparency

7.19 With each operator designated as enjoying SMP in its respective market for mobile voice call termination, price transparency, of itself, is insufficient to constrain monopoly pricing practices. However, Ofcom considers price transparency can be an effective regulatory tool in conjunction with other forms of intervention, for example to ensure that a prohibition of undue discrimination is complied with and that interconnected parties have clarity as to the charges which will be levied.

Retail tying

7.20 The Preliminary Consultation considered the appropriateness of linking changes in mobile call termination rates to (some definition of) retail prices as a mechanism to prevent excessive pricing of call termination.[32]

7.21 The attraction of such an approach is that it appears to represents a ‘light touch’ (and potentially low cost) framework for constraining mobile termination charges (as compared, for example, with cost-orientation obligations), such that the workings and (some) characteristics of a competitive market, i.e. the retail market for subscribers and outbound calls, are brought to bear in an uncompetitive environment. In this context, T-Mobile was perhaps the most positive of all respondents to the Preliminary Consultation, arguing that a retail-minus approach would have the key benefit of avoiding the need for Ofcom to seek to estimate mobile costs through drawn-out and, in T-Mobile’s view, often highly inaccurate cost modelling.

7.22 However, while most respondents to the Preliminary Consultation (including Vodafone, O2, Orange, BT and MCI) recognised the potential benefits of retail tying, they also noted the potential for distorting ‘spillover’ effects into the retail market, along with practical implementation difficulties. Ofcom shares these concerns and believes that retail tying yields significant challenges from both theoretical and practical perspectives. These are set out below.

[32] Ofcom distinguishes between ‘retail benchmarking’ and ‘retail tying’ in order to distinguish this approach from common-place benchmarking exercises which define relationships between *absolute* levels of, say, prices or costs, of one product or service in relation to another.

Potential distortion in retail pricing

7.23 The potential merits of such an approach rest on an assumption of unilateral effect, i.e. that changes in the (competitive) retail market will yield a proxy competitive effect in respect of call termination. However, a rational MNO will consider its commercial decision-making in the round and, specifically, will recognise and respond to any imposed linkage by making pricing decisions in respect of its retail prices taking into account the consequent effect on call termination prices and hence returns. Therefore, rather than drive competitive effects from retail into call termination the opposite effect may occur, such that the inter-relationship between the pricing of both 'sets' of services will yield an outcome whereby the competitive effects in the former are distorted by their links with the latter. For example, in considering a reduction in (some definition of) retail prices, an MNO will recognise that this will, in turn, lead to a consequent reduction in call termination prices. Depending on the levels of the two charges with respect to their respective underlying costs, the MNO may choose to forgo the benefits such a retail price reduction may bring (for example, in terms of greater market share) in order to preserve the (potentially monopoly) profits which accrue from call termination.

7.24 As many respondents to the Preliminary Consultation noted, such an approach puts at risk the benefits which accrue to end users from competition for subscribers, and risks not only extending the hand of regulation into areas where it is unwarranted, but also doing so in an unintentional and, in all likelihood, sub-optimal manner. In this context, therefore, it can be seen that such a potential remedy may be far from the 'light touch' approach it appears in that, instead of limiting intervention to the call termination markets, it effectively results in regulation impinging on the workings of the effectively competitive retail market for mobile subscribers and outbound calls.

Defining the starting point

7.25 There exist significant challenges in the implementation of retail tying regulation in these markets. In particular, in considering such an approach from a practical perspective, it is necessary to recognise that, at present, there exist material differences between the mobile termination charges of the different operators (or, more specifically, between the different 'types' of operators). Such differences are the source of much debate amongst the operators, in particular with reference to (i) the persistent differences between, on the one hand, Vodafone and O2 and, on the other, Orange and T-Mobile and (ii) the fact that H3G's average mobile termination charge is currently well in excess of those of its counterparts.

7.26 In its response to the Preliminary Consultation, O2 expressed particular concern about the absence of an 'undistorted' starting condition. O2 concluded that prevailing controls have yielded a situation whereby adopting a retail tying approach on the basis of current charges would be discriminatory. O2 noted, however, that such an approach may have benefit once 'all mobile operators are on the same starting point with their respective termination prices'.

7.27 Ofcom recognises that it would be necessary to consider what the appropriate 'starting' price points would be for the different operators, in order that the tying mechanism would yield outcomes which would not favour one operator, or one type of operator, over the others. Such a starting point would, in theory, be the competitive price level ie an efficient set of prices taking into account operators' efficiently-incurred costs. It can be seen in this context, therefore, that the adoption of such an approach will not, if rigorously applied in practice, preclude the need for a detailed assessment of the appropriate starting point which, in turn, would require a degree of understanding of the cost structures of the existing operators and the relationships between prices for different services and their underlying costs. Furthermore, this challenge is exacerbated in the context of a requirement to recognise the deployment of 3G networks and the material differences in cost structures and business models that may exist across the operators.

Definitional issues

7.28 Further practical difficulties arise as a consequence of the introduction of increasingly sophisticated pricing structures for access and call charges.[33] Specifically, the retail mobile market is characterised by significant use of bundling (for voice and data traffic as well as including both on- and off-net calls to both fixed and mobile networks) and flat-rate charging structures. As a consequence of this complexity the identification of price(s) for an appropriate representative (or fair) measure of retail prices to which mobile termination charges could be tied is challenging. In addition, attempting to specify a framework which regulates all operators with equal levels of stringency such that a 'fair' framework for competition is established, is also difficult since complexity and differences across operators tariffs means there is scope for operators to manipulate any established price index.

7.29 Furthermore, given the variety of available pricing structures, it is quite possible that if retail tying were introduced operators would not only make decisions regarding price *changes* with respect to their knock-on effects to mobile termination charges, but also in respect of the definition of those prices themselves, as baskets, services and service offerings constantly evolve in response to consumer demand.

7.30 One possible way to reduce the impact on retail markets involves the use of a framework whereby (i) the lowest *industry m*obile termination charges are adopted as the starting point and (ii) changes in mobile termination charges are based upon changes in *industry* price movements.

7.31 Such an approach was proposed by Telstra in the context of the adoption of retail tying in Australia, which is discussed below. However, Ofcom considers that this framework would dampen the feed-through from retail prices to mobile termination charges for any given operator, given that their respective retail market shares will be below 100%, with a possible outcome such that the gain in retail market share from undercutting rivals will more than outweigh the diluted impact of reduction in mobile termination charges *for all.* However, whilst such an approach dampens the retail market distortion arising due to the knock-on effects to mobile termination charges, it still does not address the fundamental weakness of the framework in that this link remains, and operators will be incentivised to retain existing economic profit and desist from price competition collectively harmful to their profits but beneficial to consumers.

7.32 An extension of this framework is one in which the changes in the mobile termination charges of any given operator is a function of changes in the retail prices of the other operators. T-Mobile, in its response to the Preliminary Consultation, noted that the risk of distorting spillover effects could be addressed in this way. The approach breaks the link, for each operator, considered individually, between retail prices and mobile termination charges. However, the outcome of such a framework is ambiguous, and will depend, *inter alia*, on the assumptions made by each operator in respect of competitive responses to lower retail prices.

[33] 'Call charges' are used in a general sense to define all charges relating to message conveyance, including voice and data traffic.

Experience in Australia

7.33 In the context of this assessment of retail tying as a possible remedy, it is instructive to note that such an approach was relied on from July 2001 by the Australian Competition and Consumer Commission (ACCC). This approach tied the change in each operator's mobile termination charges to the retail price movements of its 'overall package of services.'[34]

7.34 The ACCC adopted such an approach against the backdrop of significant recent reductions in retail charges and, in parallel with its introduction, also established a monitoring framework to assess the outcome. The ACCC noted, in recommending a return to mobile termination charge regulation in March 2004, that 'this ha[d] not been as effective as it was hoped, as retail prices in mobile services ha[d] not decreased as much as was expected.' This is in keeping with the outcome of the review process, which concluded that 'during the monitoring period, the rate of change in the retail price of the bundle of mobile services … was, by and large, inconsistent with the price decreases observed by the Commission prior to adopting this methodology … [and that] such results would appear to call into question the foundation upon which the retail benchmarking principle is designed to work.' Whilst this is not proof of the concern that MNOs' retail pricing decisions would be distorted by the knock-on effects to mobile termination charges, it is certainly consistent with such an outcome.

7.35 The ACCC now adopts a cost-oriented approach to determining the appropriate level of mobile termination charges.

Initial summary of the merits of retail tying

7.36 In practical terms, the key issues raised by the majority of respondents to the Preliminary Consultation, and on which Ofcom agrees, are the potential for distorting 'spillover' into the retail market (Ofcom recognises that a structure, such as that suggested by T-Mobile, could be developed, but there is a danger of creating perverse incentives or additional distortions as noted, for example, in paragraph 7.23 above), and the difficulty in determining an appropriate starting point for such a regime (given the current asymmetry in rates, and regulation, between operators and technologies).

7.37 A retail tying approach has the benefits of lower administrative and informational burdens when compared, for example, with cost orientation. However, Ofcom believes there are significant deficiencies in such a possible remedy, not least that the outcome may be materially different from an envisaged 'light touch' approach, such that its introduction, when considered in context, does not represent an appropriate remedy with regulation encroaching upon markets where it is not warranted and failing to target regulation in respect of mobile voice call termination. Ofcom's position was broadly supported by respondents to the Preliminary Consultation, who noted the risks of distortion, along with the practical challenges. In the light of these disadvantages, Ofcom does not propose to deploy this remedy in this market.

[34] ACCC: Mobile Services Review, Mobile Terminating Access Service, June 2004. The approach works by constructing a price index for each carrier that shows specific retail prices for a basket of mobile retail services changed across 6-monthly periods. The services included handsets, initial connection fees, on-going access fees, outgoing voice calls, charges for SMS and voicemail services.

‘Fair and Reasonable’.

7.38 The term ‘fair and reasonable’ (“F&R”), has been applied previously as a regulatory obligation when providing Network Access. Whilst the term itself allows for significant freedom of interpretation, its practical application, along with the necessary conditions, in the context of mobile and fixed termination charges, has tended to be linked to some definition of cost, both in the UK and in other jurisdictions[35].

7.39 For example, the Swedish regulator, PTS, has articulated a more explicit link between F&R and cost orientation. In the market for mobile call termination, five operators were judged to have SMP, but only three; TeliaSonera, Tele2, and Vodafone, are under cost orientation obligations, while H3G and Telenor are required to adopt F&R pricing. The PTS clarified this by stating that charges should be “fair and reasonable with reference to performance costs”. A similar approach to regulating H3G has been applied in Denmark, although the European Commission has expressed concerns as to what this means in practical terms.

7.40 In Australia, interconnection rates are determined by negotiation, but the negotiating parties do have recourse to the regulator who will make a decision to ensure that rates are fair and reasonable. The rates charged should be cost orientated, transparent, reasonable, have regard to economic feasibility, and sufficiently unbundled so that the operator only pays for the network components required.

7.41 In the context of F&R as a remedy to SMP in mobile call termination, as a consequence, whilst the term itself allows for significant freedom of interpretation, its practical application in these markets, along with the necessary conditions, may yield, in this case, an outcome that has some similarities with cost orientation.

Cost orientation

7.42 Ofcom recognises the merits of cost orientation in respect of economic efficiency and efficient market entry and exit decisions. However, in the markets under consideration, there potentially exist material disadvantages in imposing a cost orientation remedy on its own, on mobile operators. For example, Ofcom considers it likely that a cost orientation remedy will result in material likelihood of challenge, disputes and appeals such that the approach is likely to be burdensome, costly and inefficient.

Initial summary of the merits of an obligation that charges should fair and reasonable and/or be cost oriented

7.43 Ofcom considers that the proposition made by Vodafone in its response to the Preliminary Consultation, that 3G termination by the 2G MNOs should be made subject only to a requirement that charges must be fair and reasonable, as a remedy on its own, would result in a period of uncertainty followed by the likely imposition of charge controls on an *ad hoc* basis in response to specific disputes. Therefore, Ofcom does not consider it appropriate only to have such a remedy. Ofcom considers that this reasoning would apply equally for only a cost-orientation remedy. However, Ofcom does propose that it would be appropriate to include a fair and reasonable obligation as part of the proposed Network Access obligation to provide such access on fair and reasonable terms and conditions.

[35] In different regulatory contexts F&R has not been interpreted to specifically relate to cost. For example it has been imposed as a remedy to guard against potential margin squeeze.

Question 5: *Do you agree that an attempt to rely only on a general obligation that mobile voice call termination charges should be "fair and reasonable" or "cost oriented" would be likely to result in a period of commercial and regulatory uncertainty followed by the likely ad hoc imposition of charge controls in response to individual disputes ?*

Charge controls

7.44 A charge control is distinct from cost orientation (or, indeed, a 'fair and reasonable' approach defined in conjunction with *ex ante* specification of cost orientation as a defining characteristic) in that an upper limit on prices is directly set by Ofcom rather than the burden of proof resting with operators (taking into account any guidance that Ofcom would issue).

7.45 In the event that Ofcom decides to impose a specific charge control, the basis on which the appropriate level of charges would be determined would be established after detailed consultation with stakeholders; that process can be expected to extend over a significant period of time and involve a high degree of interaction with stakeholders. In contrast, where Ofcom is requested to resolve a dispute, Ofcom is generally required by the Act to resolve the dispute within 4 months. In the case of dispute resolution, while Ofcom could be expected to establish a close dialogue with the parties to the dispute, the opportunity for lengthy and transparent consultation with a wide spectrum of stakeholders would be limited.

7.46 Furthermore, the timing of regulatory intervention to set a charge control would be known to stakeholders (in contrast to the situation under a cost-orientation or fair and reasonable charges obligation where timing would be dependent on when a dispute is brought to Ofcom for resolution). A decision to impose a direct charge control may, therefore, avoid a period of uncertainty and enable controls to be imposed in an orderly manner and on a basis which has been subject to extensive consultation, rather than on an ad hoc basis in response to individual disputes.

7.47 It is Ofcom's view that there is currently no consensus view on the appropriate level of charges for mobile voice call termination in a world where calls are variously terminated using 2G and 3G networks, and reliance on a requirement that charges should be cost oriented or fair and reasonable would almost certainly result in a period of commercial uncertainty and subsequent challenge. In these circumstances, Ofcom proposes that it would be more efficient to set charges ex ante on a transparent basis following extended consultation. It is Ofcom's view that the charge controls imposed in these markets in June 2004 have been broadly successful to date in preventing MNOs from exploiting their SMP to the detriment of consumers.

Question 6*: Do you agree that the direct setting of charge controls is an efficient and proportionate remedy for any SMP in the market for wholesale mobile voice call termination?*

7.48 In designing a charge control in these markets, two proposed key dimensions are of note:

- **Technology neutrality:** the extent to which a single rate should applied across all technologies currently used *by each operator*, as opposed to distinct and separate charge controls across the different technology platforms (2G and 3G); and
- **Operator neutrality:** whether it is appropriate to specify different rates between operators (as currently exists, for example between, on the one hand, Vodafone

and O2 and, on the other, T-Mobile and Orange). Looking forward, this issue will also require note of the distinction between operators with both 2G and 3G operations, and H3G which, setting aside its domestic roaming agreement, solely operates a 3G network.

Technology neutrality

7.49 Logically, where MNOs offer voice call termination on both 2G and 3G networks (and Ofcom decides that some form of charge control is necessary) there are three fundamental options open to Ofcom when imposing charge controls:

- Charge controls to apply to 2G or 3G voice call termination, but not both.
- Separate controls to apply to each of 2G and 3G voice call termination
- A single control to apply, without distinction, to 2G and 3G voice call termination

Charge controls imposed only on 2G (or 3G) voice call termination

7.50 Currently, call termination on 2G networks is regulated through a charge control, whilst call termination on 3G networks is unregulated. All MNOs levy one single charge for termination (varied by time of day) since they are unable to identify, on a call-by-call basis, whether a call is terminating using the 2G or 3G networks (and, indeed, transfer between the two may occur whilst the call is in progress). Since only 2G call termination is regulated, MNOs have the ability and incentive to set a higher 3G termination charge. The application of a blended charge means that the termination charge actually faced by originating operators could therefore be above the regulated 2G charge.

7.51 In its response to the Preliminary Consultation, Vodafone, when arguing that charge controls in respect of the 2G MNOs should not be extended to 3G termination, presented the view that the impact of unregulated underlying charges for 3G termination within a blended charge is likely to be virtually immaterial, as volumes of 3G termination are low (and a safeguard requirement that 3G termination charges should be fair and reasonable would prevent MNOs from basing blended charges on very high 3G underlying charges). Ofcom notes, however, that Vodafone has, itself, already followed the incentive to set relatively high underlying charges for 3G termination within its blended charge. As a consequence, Vodafone's average blended charge is in excess of the regulated 2G level, and the impact on blended charges is likely to continue to increase as 3G termination volumes rise. Vodafone argued in its response to the Preliminary Consultation that unregulated charges for 3G termination can be expected to fall in line with costs as economies of scale and scope take effect. However, in the presence of SMP, and advantages in retail markets that may result from higher termination revenues, it is not clear to Ofcom that 3G termination charges would necessarily fall in line with costs.

7.52 Charge controls which are applied only to 2G (or 3G) termination could potentially present distortions, both directly through the incentive and opportunity to set above-cost blended charges, and also by introducing incentives for operators to adopt traffic loading and migration assumptions across 2G and 3G networks consistent with different regulatory approaches rather than consistent with cost minimisation incentives.[✂]

Separate control on both 2G and 3G voice call termination

7.53 An alternative to imposing price regulation on 2G call termination whilst desisting from such for the analogous 3G service is to set distinct and separate controls for 2G and 3G termination. Unless the practice of charge blending is permitted, such an approach may require, where different charges are levied for termination on the different networks, the calling party to be informed, on a case-by-case basis, of which platform is being used to terminate the call, and hence what is the prevailing mobile termination charge. It may be more practicable to apply a blended charge based upon the prevailing traffic weights across the networks.

7.54 Such an approach suffers from a similar weakness to the current approach insofar as, where the respective stringency of the 2G and 3G controls differ, the profit maximising and cost minimising outcomes are not congruent, and operators will therefore face commercial incentives consistent with profit maximisation which are at odds with a regulatory objective of cost minimisation. This distorting effect may be exacerbated to the extent that operators have the ability to influence the absolute and relative unit costs of different networks through their migration programmes. The information asymmetry between Ofcom and the MNOs with respect to cost is such that it is likely that, where 2G and 3G voice call termination are subject to separate charge controls, one or other form of voice call termination will be perceived as less stringently regulated than the other.

A single control to apply to 2G and 3G voice call termination

7.55 A third option is to define a 'technology neutral' approach whereby a single control is applied to wholesale voice call termination irrespective of technology (2G or 3G) used. Here the MNO's termination revenue is independent of the technology used to terminate calls. Such an approach, in contrast to the options above, should incentivise operators to invest in and migrate traffic to the most cost effective technology, thereby introducing the appropriate congruence of profit maximising and cost minimising outcomes. This is particularly the case within a charge control framework which allows sufficient time for operators to retain cost efficiency gains beyond the stringency of the control.

7.56 When responding to the Preliminary Consultation, Vodafone and Orange both stated that they have no dynamic control over routing to different platforms for multi-mode handsets, and responses to earlier Ofcom information requests made to each of the MNOs indicated the same limitations. However, as O2 noted in its response to the Preliminary Consultation, the development of such technologies is possible, and perhaps likely given appropriate incentives. Nevertheless, even where such dynamic routing cannot be achieved, differing levels of stringency across parallel controls may adversely impact investment decisions, for example, as O2 noted in its response to the Preliminary Consultation, in terms of speed of network roll-out and incentives to encourage 3G handset take-up over the 2G-only alternative.

7.57 To an extent, the current regulation of the 2G MNOs conforms to this technology neutral approach in that Vodafone and O2, though operating equipment at 900 and 1800 MHz, face a single call termination rate applied irrespective of the equipment used to terminate the call. This has ensured that incentives for cost minimisation through efficient deployment of technologies depending on cost efficiencies, borne of their respective characteristics, have not been distorted by regulation.

7.58 Many respondents to the Preliminary Consultation (including the MNOs as well as BT) noted that there are likely to remain significant uncertainties in cost modelling, and in particular in accurately representing 3G cost and volume projections in the already complex cost modelling framework. Indeed, Vodafone argued that it is impossible for Ofcom to set a target interconnection charge based on the output of a cost modelling exercise which seeks to capture all costs relevant to termination (i.e.

irrespective of the frequency on which calls are terminated). O2 shared this sentiment, arguing that uncertainties in key variables will remain for a number of years. Ofcom also recognises that any judgement about the extent to which 3G spectrum fees should be recovered from mobile voice call termination may have a significant impact on the conclusion reached about the appropriate charge for mobile voice call termination. As set out in Annex 5, this and a number of other issues in the modelling of costs are currently being investigated.

7.59 Furthermore, in as much as 2G and 3G termination can be viewed as delivering the same service, the extent of uncertainties in costs may present a case for taking the cost of supplying mobile termination using 2G as a benchmark for a reasonable cost of supplying wholesale termination. 2G has been the technology used to deliver termination and there is a case that the charge for this service should be no higher in the future given the introduction of 3G as a new technology to supply what can be considered to be the same wholesale termination service.

7.60 An approach on these lines would be consistent with Ofcom's approach to charging for narrowband conveyance ("PSTN-emulation" services) on BT's NGN. BT has proposed that, initially, such services be charged at the same level as the equivalent PSTN service at the same point of handover. Charges for the latter are subject to the Network Charge Control (NCC) which was set on the basis of projections derived from PSTN costs. Ofcom's view[36] is that such an approach has good incentive properties in the short-term and is likely to be appropriate until a future NGN interconnect model is agreed. However, in considering this approach, it is important recognise the potential impact on investment incentives if MNOs are unable to recover their efficiently-incurred costs - for example, if the cost of supplying 3G termination is above the cost of 2G. In addition Ofcom is mindful of the concern raised by Vodafone and T-Mobile in their responses to the Preliminary Consultation, that a decision to set charges for 2G and 3G termination simply on the basis of present 2G costs, may present a risk that MNOs will under-recover costs in a phase in which they are running two networks in parallel. Ofcom is in the process of investigating this issue as part of its work to estimate the costs of supplying mobile termination discussed in Annex 5

Initial conclusion on the desirability of a technology neutral approach

7.61 The current asymmetry in regulation between 2G and 3G termination provides both the incentive and opportunity to set above-cost blended charges, and for operators to adopt traffic loading and migration assumptions across 2G and 3G networks that may not be consistent with cost minimisation incentives. Ofcom believes that setting a technologically neutral charge that applies to both 2G and 3G is likely to be the most effective means to remove these incentives, while also providing the incentive for MNOs to route traffic via the minimum cost network. Ofcom is mindful, however, of the need to ensure that its approach does not adversely affect prospects for investment.

> ***Question 7****: Do you agree that, from the perspectives of both practical implementation and economic efficiency, a technology-neutral charge is preferable to separate controls across different technologies?*

Operator neutrality

[36] set out in "Next Generation Networks: Developing the regulatory framework", March 2006 (See http://www.ofcom.org.uk/consult/condocs/nxgnfc/statement/)

7.62 Under a technology-neutral charge control framework, each operator will individually face a single control across all its deployed technologies. It would then be necessary to consider the extent to which, within this context, different rates may be appropriate for different operators. Clearly, such consideration would need to be informed by cost information relating to the different MNOs. Output from the cost model which is being developed by Ofcom is not yet available, but Ofcom believes that it is appropriate to start considering some of the policy and methodological issues.

7.63 Consideration of the relative merits and demerits of setting a single technology-neutral charge across all operators, as opposed to potentially different charges by operator or 'types' of operator, is made within the context of Ofcom's position in respect of cost differences across operators. Specifically, Ofcom recognises that differences in costs resulting from exogenous factors merit consideration in determining the appropriate level(s) of absolute and relative price(s) across operators, and this position is consistent with the prevailing differences in the regulated 2G call termination rates of, on the one hand, Vodafone and O2 and, on the other, T-Mobile and Orange. However, Ofcom considers that any exogenous cost differences across 3G networks may be much smaller[37], as all operators face essentially the same commercial opportunities from the same starting date in respect of their 3G operations.

7.64 Ofcom notes that all of the 2G MNOs, in their responses to the Preliminary Consultation, expressed strong, and varied, concerns about the relative stringency of regulation across the five MNOs. The 2G MNOs all made strenuous representations to the effect that the absence of charge regulation in respect of voice call termination by H3G was unjustified and causing serious distortions in the retail market. O2 and Vodafone expressed further concern about the different levels of the charge controls imposed on themselves (who operate 2G networks at both 900MHz and 1800MHz and who face a headline Target Average Charge of 5.63ppm) and Orange and T-Mobile (which operate 2G networks at 1800MHz and who are subject to a headline Target Average Charge of 6.31 ppm). Vodafone and T-Mobile have also made representations about what they perceive to be the inequitable impact of the Weights Adjustment Factor, an element of the charge control which makes small adjustments to the headline Target Average Charge reflecting changes to traffic profiles. More recently, Vodafone's decision to include within its blended charge a relatively high underlying charge for 3G termination has similarly given rise to strong representations from other MNOs which perceive the consequent change in the relative position of different MNOs with respect to termination charges to be unfair and unjustified.

7.65 Ofcom recognises the high importance which MNOs attach to the relative levels of charge controls and acknowledges that where a different approach is taken in respect of different MNOs it will be important to ensure that the reasons for any variations are robustly understood.

Single price for a single service

7.66 A further consideration with respect to the appropriateness or otherwise of a single, common termination rate across all operators relates to the fact that calling parties

[37] MNOs paid different sums for the 3G Licences. For example Vodafone paid about 50% more for its licence than the other MNOs. However, cost differences in licence costs are borne of different spectrum holdings as well as different commercial considerations. It is the case that MNOs all received their licences at approximately the same time and were all able to decide at their own discretion when to invest and launch commercial service offerings, subject to compliance with rollout obligations..

are often unaware of the operator which is terminating a given call (and this is particularly so given the presence of MNP). Furthermore, even where the identity of the terminating operator is known, the calling party will generally be indifferent, to a material extent, to this fact, insofar as the call termination service is, from an end user perspective, homogenous across operators. In a competitive market, it is unlikely that different suppliers could maintain different charges for a homogenous service, and this might indicate that there is some merit in the argument that a single market price, consistent with the principles of technology neutrality, would be appropriate, from an end user perspective, for a single common service.

Spectrum trading and liberalisation

7.67 A further issue which may be relevant to the question of whether charge controls should be operator-neutral, is the possibility that, in future, operators' spectrum may be subject to trading and liberalisation. This may have an impact on whether regulated termination charges should reflect differences in operators' costs due to different spectrum holdings.

7.68 In the past different charge controls have been applied across operators due to the exogenous factor that operators have different spectrum holdings. However, in the future this exogenous factor may become endogenous i.e. within the control of the MNOs. It may no longer be appropriate to take into account operators actual spectrum holdings when determining the basis for their charges since in the future it may be possible for them to achieve different and potentially more efficient spectrum holdings. Therefore, there is an argument to estimate the costs of termination assuming a similar specified spectrum holding across all operators that would result in no difference in costs across operators arising from differences in spectrum. This would be similar to the approach Ofcom has taken in the past in estimating 2G costs when a 'average operator' approach to MNOs' volumes has been assumed.

Mobile Number Portability (MNP) impact on effective termination rates

7.69 In considering the extent to which different (technology-neutral rates) should prevail across operators, also Ofcom notes the impact which existing arrangements for MNP have on the termination revenue received by MNOs. Specifically, the unit termination revenue received by operators for calls to 'ported in' subscribers is equal to the rate set by the *donor* operator rather than that set by the terminating operator. As a consequence, the 'effective' termination rate for each operator, where material 'ported in' volumes exist, will be different from the prevailing charge control and, hence, with the assessment of cost by operator.[38]

7.70 Vodafone and O2 currently have the lowest regulated charges, with T-Mobile and Orange having charges approximately 12% above, and H3G setting an (unregulated) charge materially above the GSM operators for termination both on its 3G network and on O2's GSM network through its domestic roaming agreement. In this context, one would expect, as a consequence of MNP arrangements (i) Vodafone and O2 to enjoy an effective charge in excess of their charge control (by virtue of currently facing the lowest charge control price), (ii) H3G to face an effective charge lower than its current (unregulated) charge and (iii) the comparison between the effective termination charges of T-Mobile and Orange and their charge control price being ambiguous, depending on the proportion of ported numbers, and inbound calls thereto from, on the one hand, H3G or, on the other, Vodafone and O2.

[38] i.e. the 'effective' termination rate will be an average of 'direct' and ported traffic, weighted by respective volumes.

7.71 If the present arrangements for porting mobile numbers persist, over time, and in particular with the growth of H3G in a well-established market, Ofcom would expect, as subscribers move between operators in response to competitive offerings, the significance of this issue will grow, having an increasing effect on the difference between ‘headline’ and ‘effective’ termination rates faced by each operator. Furthermore, Ofcom also notes that the prevailing MNP arrangements may affect the incentives of operators, depending on the relative termination rates across operators and, consequently, the value ascribed to the those subscribers; for example, operators with low termination rates may be incentivised to aggressively market towards subscribers of high-terminating rate operators, whilst MNOs with high termination charges will be incentivised to dissuade existing mobile subscribers from porting their numbers when signing up.

7.72 As noted earlier, Ofcom recognises the importance of not denying opportunity for recovery of efficiently incurred costs as a guiding principle in respect of price intervention, and notes that the existing MNP arrangements may result in effective termination rates being under or over the regulated price ceilings, depending on the operator.

7.73 Ofcom therefore considers this issue relevant in considering (i) the extent to which termination charges should differ across operators and (ii) what level regulated charge(s) should be in light of the principle of full cost recovery.

Dilution of cost differences over time

7.74 As noted above, Ofcom recognises that exogenous cost differences have existed between the 2G operations of, on the one hand, Vodafone and O2 and, on the other, T-Mobile and Orange, but such cost differences across 3G operations may be much lower or non existent. In the context of a single technology-neutral charge for each operator, the impact of differences may become increasingly diluted as traffic is increasingly migrated to 3G, but may still be evident, to the extent that exogenous cost differences remain in future, and in the event that material volumes remain on 2G networks.

Potential considerations in cost modelling

7.75 In the cost modelling referred to in paragraph 7. 58 above, it is possible that the extent of differences between operators will be over-shadowed by the possible wide ranging potential values for a number of assumptions in respect of cost modelling work (in terms of detailed approach and range of appropriate input parameters) going forward. Any analysis of the cost model and the appropriate remedies undertaken by Ofcom will need to consider this.

Period of control

7.76 The period of any charge control should provide efficient incentives for investment and cost efficiency. While that period need not necessarily be as long as the period covered by this market review (4 years from March 2007), it is Ofcom’s present view that a period of 3 to 4 years may be appropriate to allow time for:

- significant deployment of and migration to 3G networks against a background of regulatory certainty, and
- consequent recovery of migration costs (proportional to the length of the control); and

- operation of incentives for continued cost reduction by allowing MNOs to keep any efficiency improvements in excess of those required by the charge control.

Fixed to mobile and mobile to mobile termination

7.77 The charge controls currently in force apply separately to termination of fixed to mobile and mobile to mobile calls, although the same regulated average charge applies in each case.

7.78 This approach is consistent with the view (set out in the previous market review[39]) that whilst the situation in which mobile-to-mobile and fixed-to-mobile termination charges are set is different - the reciprocity in determining mobile-to-mobile termination charges cannot be relied upon to keep mobile termination charges at the competitive level.

7.79 In principle, the current arrangement allows MNOs to set different charges for terminating fixed to mobile and mobile to mobile calls (subject to compliance with the prohibition of undue discrimination). MNOs have not however used this flexibility and have sought, and been granted, consent to use the same traffic profiles when calculating compliance with each separate cap.

7.80 In the Preliminary Consultation Ofcom asked whether mobile to mobile termination should remain regulated. Responses from MNOs were divided, with only Vodafone and T-Mobile being broadly in favour of unregulated mobile to mobile termination charges and the freedom to make bilateral arrangements. Other mobile operators, including Vodafone recognised the difficulties that would make a differentiated approach difficult in practice. Fixed network operators were sceptical of the benefits.

7.81 From a theoretical perspective, Vodafone contends that Ofcom could replace charge control regulation on mobile-to-mobile termination charges by regulation requiring MNOs to conclude bilateral negotiations that should include a requirement that no MNO is able to increase its termination charge to an originating MNO without a similar increase in the charge that it paid for termination supplied by the other MNO. Vodafone proposes that this would remove the incentive to set excessive termination charges.

7.82 Ofcom's view has not changed since the last market review that the reciprocity in determining mobile-to-mobile termination charges cannot be relied upon to keep mobile termination charges at the competitive level. Therefore requiring MNOs to conclude bilateral negotiations may not be an effective alternative remedy to a charge control. In any case, a charge control does not prevent MNOs from engaging in bilateral negotiations and setting a rate lower than the regulated charge.

7.83 Ofcom previously noted that the economic literature on this matter was still developing and the conclusions ambiguous. In particular Ofcom noted that under the assumption that traffic flows between MNOs are not in balance there would be a tension given one operator is a net receiver of calls. The outcome of this bilateral negotiation would depend upon the relative bargaining power of the two MNOs. Moreover, Ofcom also noted that when the implication of a new entrant are considered it is possible that the incumbent MNOs may find it mutually beneficial to keep mobile-to-mobile termination charges high to create an entry barrier.

7.84 Vodafone proposes that no MNO could assume that traffic imbalances would be likely to persist in its favour and therefore this could not influence its decision on pricing. However, Vodafone notes that if an MNO were to behave as if it were a net

[39] In particular see para 5.62 to 5.91 December 2003 consultation document.

receiver of calls Ofcom would be able to resolve the potential dispute that may follow by exercising its powers to resolve the dispute.

7.85 Ofcom notes that at the time of the last market review traffic was not balanced between MNOs and is currently still not in balance. Furthermore Ofcom considers that appropriate regulation should be robust whether traffic is balanced or not. Ofcom does not consider that reliance on ex post powers, as discussed earlier in this section is an appropriate approach to remedies in this market. Reliance on dispute resolution does not allay concerns that the remedy to require bilateral negotiations is not an effective remedy in this case.

7.86 Vodafone also notes that there is no reason to believe that a new entrant (specifically H3G in their response) would be disadvantaged under a regime of bilateral negotiations. However, Vodafone notes that if Ofcom is concerned that H3G may face a higher charge than other MNOs this concern could be addressed by requiring a terminating MNO to offer a termination charge equivalent to the average charge it had agreed with other MNOs.

7.87 As Vodafone and Orange noted, Ofcom is aware that there are a number of practical issues with different regulation of fixed-to-mobile and mobile-to-mobile termination.

7.88 Vodafone suggests that MNOs will need to be able to measure accurately the volume of mobile-to-mobile calls and that at present this is not possible. Vodafone suggests that Ofcom could signal the intention to deregulate mobile-to-mobile termination affording MNOs time to implement the appropriate systems. Ofcom notes that all five MNOs would need to undertake to develop the relevant internal systems to enable such a form of regulation (as proposed by Vodafone). Ofcom is not aware of the cost and timescales involved in implementing the change of systems required as well as MNOs willingness to do so.

7.89 In addition not all MNOs are directly interconnected and the extent of direct interconnection appears to be dependent on MNO decisions about routing efficiencies. A large proportion of inter MNO traffic is transited through BT. Terminating MNOs might seek to charge the fixed-to-mobile termination charge for calls transited via BT even though they may have originated from an MNO. Therefore Vodafone proposes that Ofcom would need to ensure that no MNO should be allowed to take advantage of different termination charges applicable to traffic delivered by a third party network. Vodafone proposes Ofcom would need to undertake further regulation to prohibit arbitrage of termination of calls through cheaper routes. Ofcom notes that such a prohibition on arbitrage would be intrusive in limiting the commercial choices available to MNOs and might be burdensome to implement. Ofcom is not convinced that the merits of such prohibition would be sufficiently large to justify its imposition.

7.90 Vodafone also suggests that Ofcom would need to give clear assurances that different termination rates may be appropriate for mobile-to-mobile and fixed-to-mobile call termination. Otherwise MNOs may be concerned that they might be expected to pass on the benefits of any lower charges agreed for mobile-to-mobile calls to fixed to mobile calls. This may deter them from setting lower mobile-to-mobile termination charges. Whilst recognising the potential for fixed to mobile and mobile to mobile termination rates to differ under some circumstances, Ofcom cannot fetter its discretion in considering all potentially relevant information if it is required to consider appropriate termination charges at some future date.

7.91 Furthermore Vodafone suggests that if Ofcom were to propose that MNOs offer non-discriminatory termination charges for mobile-to-mobile termination charges this may cause difficulties if different rates were agreed between different MNOs. As discussed above, Vodafone has suggested a way to avoid Ofcom's potential concern about a higher price being charged to a new entrant. In the last market review Ofcom noted that discrimination between MNOs gave rise to the greatest concern of all the forms of discrimination afforded to a terminating MNO. The proposed regulatory obligation prohibiting undue discrimination is discussed below at paragraph 7.104.

7.92 In summary, Vodafone's proposal is not for removal of all regulation relating to termination of mobile to mobile calls, but rather for the replacement of direct regulation of the prices under a charge control with a variety of other regulation on MNOs:

- requirement to conclude bilateral negotiations;
- no MNO able to increase its termination charge to an originating MNO without a similar increase in the charge that it paid for termination supplied by the other MNO;
- no MNO allowed to take advantage of different termination charges applicable to traffic delivered by a third party network;
- requirement to offer new entrants a termination charge equivalent to the average charge it had agreed with other MNOs;

and assurances by Ofcom:

- to signal the intention to deregulate mobile-to-mobile termination; and
- to make it clear that different termination rates may be appropriate for mobile-to-mobile and fixed-to-mobile call termination.

7.93 To accept Vodafone's proposal not only would Ofcom need to be confident that this set of regulations and assurances was appropriate and proportionate, but also that it could be relied upon to keep mobile termination charges at the competitive level. Ofcom is not convinced about either, for the reasons set out above, and remains of the view that direct regulation of charges is preferable.

7.94 There appears to be little advantage in taking a different regulatory approach to mobile to mobile termination compared to fixed to mobile termination at this time. The approach of setting separate charge caps, but at the same level, for mobile to mobile and fixed to mobile termination allows MNOs flexibility to charge less than the regulated charge (without offsetting this against fixed-to-mobile charges) but affords a safeguard ensuring prices are not excessive and avoids reliance on ex post intervention as a safeguard should the assumptions under which differentiated regulation be based prove to be unreliable.

Data termination

7.95 Data termination is outside the scope of this market review. As noted in paragraph 6.29 above, access to data services is typically charged on RPP basis and Ofcom has not received any representation from either the industry or consumer groups to extend regulation to data termination. All responses to the Preliminary Consultation which expressed a view, including those from BT and UKCTA, agreed that it is right not to carry out a market review into this area at present. Furthermore, Ofcom notes that the European Commission's list of recommended markets does not envisage regulation of data termination.

Ofcom's initial proposal

7.96 Ofcom has examined a number of different approaches to regulating mobile voice call termination, and currently holds the view that, some form of charge control is the most appropriate approach to ensuring that SMP is not used to the detriment of consumers.

7.97 As noted in paragraph 7.9 above, in imposing any appropriate remedies in these markets, Ofcom will need to be mindful of the potential effect of that regulation on innovation and investment in these markets.

7.98 In terms of the effects on potential investment in 3G Ofcom recognises, as discussed in Section 5, that a waterbed effect may operate to some extent and, therefore, lower regulated charges for call termination may be associated with retail prices to mobile subscribers that are higher than they would otherwise be. The possible adverse consequences of setting an inappropriately low termination charge, in terms of weakened demand and the potential effects on investment and innovation are likely to be higher in the context of 3G, given the relatively immature and still-developing nature of many 3G services.

7.99 Ofcom considers the following factors (as discussed above), amongst other things, to be relevant in determining the appropriate structural approach to setting charges :

- Controls imposed only on 2G voice call termination provide MNOs with both the incentive and opportunity to set high unregulated charges for 3G, and so above-cost blended charges
- Separate controls on 2G and 3G voice call termination would present a material incentive for MNOs to migrate traffic between 2G and 3G networks to reflect any perceived imbalance in the stringency of each control, thus distorting the commercial decisions of the MNOs.
- A technology-neutral control to apply to both 2G and 3G voice call termination (for a given MNO) would present incentives for MNOs to invest in and migrate traffic to the most cost effective technology, thereby introducing the appropriate congruence of profit maximising and cost minimising outcomes.
- There are likely to be small, or non-existent cost differences between the 3G operations of the five MNOs that are borne of circumstances outside of their control (exogenous cost differences).
- Exogenous cost differences may persist going forward between the 2G operations of, on the one hand, Vodafone and O2 and, on the other, T-Mobile and Orange, but can be expected to reduce as the proportion of 3G termination increases.
- Any continuing exogenous cost differences may be overshadowed by the uncertainties and complexities associated with cost modelling in the face of 3G network deployment and traffic migration. As a consequence, some perceived differences across operators may be borne of inherently uncertain analysis and assumptions about future volumes of 2G and 3G voice call termination.
- The current arrangements for MNP result in differences between the 'effective' call termination charge faced by operators, and their imposed charge control, which may exacerbate the uncertainties surrounding the detailed cost modelling and the implications for the appropriate levels of cost oriented charges and how these feed through into the termination set by each operator

***Question 8**: Do you believe that the factors set out below paragraph 7.99 are relevant in assessing the appropriate level(s) of technology-neutral call termination charge(s)? Are there any other key relevant factors?*

7.100 Therefore Ofcom's proposes that the following remedy is appropriate:

- Charge controls should be imposed on all MNOs which have SMP; and
- The duration of the charge control should be of sufficient length to establish material incentives for efficient traffic migration and, where relevant, to enable any assumptions, that existing, exogenous unit cost differences across operators will decline, to take effect.
- Such charge controls should be imposed on each MNO on a technology-neutral basis without distinction between termination on 2G and 3G networks.
- The consideration of the level(s) of such controls, and any differences across operators, should reflect the issues set out in the bullet points below paragraph 7.99 However, it is important to note that further cost modelling is required before any view can be taken of the appropriate level of charges and whether different controls should be imposed on different MNOs.

Proposed additional conditions

Transparency

7.101 As noted in paragraph 7.19 above, Ofcom does not believe that a price transparency obligation alone would provide sufficient constraint on MNOs' ability to exploit SMP to the detriment of consumers. Ofcom does believe however that it is important that charge controls are associated with a high degree of transparency for interconnecting operators, consumers and other interested parties and commentators. MNOs are currently subject to an obligation to notify charge changes to interconnected parties and Ofcom.

7.102 It is Ofcom's present view that separate charge controls imposed on 2G and 3G termination are not desirable and, therefore, the issue of blended charges may not arise in future. In the event that some form of blending can be envisaged, Ofcom anticipates that this should be made subject to an obligation to publish the basis on which charges are blended, including the relative weights, based on volumes of the different services within any blend. This information would both provide transparency to stakeholders and facilitate compliance monitoring by Ofcom.

7.103 Ofcom also proposes that MNOs with SMP which choose to vary regulated termination charges by time of day should be obliged to notify to Ofcom the appropriate weights and charges to demonstrate compliance with any overall charge cap. Ofcom envisages that this data should be provided at the end of each charge control period and at 6- monthly intervals to enable Ofcom to determine whether an MNO is likely to exceed the control.

Prohibition of undue discrimination

7.104 As Ofcom noted in section 5 of the June 2004 Statement, the present prohibition of undue discrimination is not intended as blanket prohibition on all forms of discrimination and some forms of discrimination may not raise concerns. Nevertheless, Ofcom considers that a prohibition of undue discrimination remains important to ensure that SMP is not used to the detriment of consumers. As noted in paragraph 5.22 above, the pricing freedom, enjoyed by the MNOs with SMP in the mobile termination markets could be used to distort and reduce competition in the retail mobile market, particular with respect to smaller new entrants, including future new entrants which may emerge with the increased availability of spectrum. Ofcom therefore proposes that all MNOs with SMP should be prohibited from unduly discriminating in the supply of mobile voice call termination. On 15 November 2005, Ofcom published new Guidelines[40] on how it will investigate potential contraventions of such prohibitions.

Obligation to meet demand for voice call termination

7.105 The imposition of a charge control is of limited value if the supplier remains at liberty to refuse to meet reasonable demand for voice call termination or will only offer this on unreasonable contractual terms. Ofcom is therefore of the view that all MNOs with SMP should be subject to a condition requiring them to meet reasonable demand for mobile voice call termination on fair and reasonable terms.

7.106 Ofcom considers that its proposals as set out in this section fall within the scope its duties under the Act, as set at the beginning of this section. The consideration of these remedies will be further developed as part of Ofcom's Final Consultation. Ofcom considers that the set of remedies discussed above meet the objectives set out above at paragraph 7.8; in particular because:

7.107 Ofcom considers that a **charge control** would be an appropriate remedy to ensure that charges are not excessive. In proposing the level of the charge control, Ofcom is mindful to encourage cost efficiency and seek to promote efficient investment and innovation; although the level of the charge will be subject of final consultation.

7.108 Additionally, Ofcom considers that the charge on each MNO should be applied on a technological neutral basis, consistent with Ofcom's objective to ensure MNOs are encouraged to minimise their costs, and use cost efficient technology.

7.109 Ofcom considers that **price transparency** for example by requiring the notification of charges and the publishing of a reference offer would be an appropriate remedy as it assists with monitoring for potential anti-competitive behaviour, gives advance warning of charge changes to Communications Providers who are purchasing wholesale termination services, and ensures that Communications Providers understand what the terms and conditions for the provision of those services.

7.110 Ofcom considers that the proposed obligation to meet fair and reasonable demands for **network access** would be appropriate because without which, competition could be impeded, for example by restricting the ability of other Communications Providers to use such services by means of setting unfair terms and conditions, including charges.

7.111 Ofcom considers that a **non-discrimination** obligation would be appropriate among other things to provide certainty in the markets as to the level of Network Access provided, and reduce the likelihood of impairing fair and effective competition to the detriment of consumers.

[40] http://www.ofcom.org.uk/consult/condocs/undsmp/contraventions/contraventions4.pdf

Annex 1

Responding to this consultation

How to respond

Ofcom invites written views and comments on the issues raised in this document, to be made by **5pm on 25 May 2006**

Ofcom strongly prefers to receive responses as e-mail attachments, in Microsoft Word format, as this helps us to process the responses quickly and efficiently. We would also be grateful if you could assist us by completing a response cover sheet (see Annex 2), among other things to indicate whether or not there are confidentiality issues. The cover sheet can be downloaded from the 'Consultations' section of our website.

Please can you send your response to first .michael.richardson@ofcom.org.uk.

Responses may alternatively be posted or faxed to the address below, marked with the title of the consultation.

Michael Richardson
Riverside House
2A Southwark Bridge Road
London SE1 9HA

Note that we do not need a hard copy in addition to an electronic version. Also note that Ofcom will not routinely acknowledge receipt of responses.

It would be helpful if your response could include direct answers to the questions asked in this document, which are listed together at Annex 3. It would also help if you can explain why you hold your views, and how Ofcom's proposals would impact on you.

Further information

If you have any want to discuss the issues and questions raised in this consultation, or need advice on the appropriate form of response, please contact Michael Richardson on 020 7783 4157.

Confidentiality

Ofcom thinks it is important for everyone interested in an issue to see the views expressed by consultation respondents. We will therefore usually publish all responses on our website, www.ofcom.org.uk, ideally on receipt (when respondents confirm on their response cover sheer that this is acceptable).

All comments will be treated as non-confidential unless respondents specify that part or all of the response is confidential and should not be disclosed. Please place any confidential parts of a response in a separate annex, so that non-confidential parts may be published along with the respondent's identity.

Ofcom reserves its power to disclose any information it receives where this is required to facilitate the carrying out of its legal requirements. Ofcom will exercise due regard to the confidentiality of information supplied.

Please also note that copyright and all other intellectual property in responses will be assumed to be licensed to Ofcom to use, to meet its legal requirements. Ofcom's approach on intellectual property rights is explained further on its website, at www.ofcom.org.uk/about_ofcom/gov_accountability/disclaimer.

Next steps

Following the end of the consultation period, Ofcom intends to publish a statement around the end of Date.

Please note that you can register to get automatic notifications of when Ofcom documents are published, at http://www.ofcom.org.uk/static/subscribe/select_list.htm.

Ofcom's consultation processes

Ofcom is keen to make responding to consultations easy, and has published some consultation principles (see Annex 2) which it seeks to follow, including on the length of consultations.

If you have any comments or suggestions on how Ofcom conducts its consultations, please call our consultation helpdesk on 020 7981 3003 or e-mail us at consult@ofcom.org.uk. We would particularly welcome thoughts on how Ofcom could more effectively seek the views of those groups or individuals, such as small businesses or particular types of residential consumers, whose views are less likely to be obtained in a formal consultation.

If you would like to discuss these issues, or Ofcom's consultation processes more generally, you can alternatively contact Vicki Nash, Director, Scotland, who is Ofcom's consultation champion:

Vicki Nash
Ofcom (Scotland)
Sutherland House
149 St. Vincent Street
Glasgow G2 5NW
Tel: 0141 229 7401
Fax: 0141 229 7433
E-mail: vicki.nash@ofcom.org.uk

Annex 2

Ofcom's consultation principles

A2.1 Ofcom has published the following seven principles that it will follow for each public written consultation:

Before the consultation

A2.2 Where possible, we will hold informal talks with people and organisations before announcing a big consultation to find out whether we are thinking in the right direction. If we do not have enough time to do this, we will hold an open meeting to explain our proposals shortly after announcing the consultation.

During the consultation

A2.3 We will be clear about who we are consulting, why, on what questions and for how long.

A2.4 We will make the consultation document as short and simple as possible with a summary of no more than two pages. We will try to make it as easy as possible to give us a written response. If the consultation is complicated, we may provide a shortened version for smaller organisations or individuals who would otherwise not be able to spare the time to share their views.

A2.5 We will normally allow ten weeks for responses to consultations on issues of general interest.

A2.6 There will be a person within Ofcom who will be in charge of making sure we follow our own guidelines and reach out to the largest number of people and organisations interested in the outcome of our decisions. This individual (who we call the consultation champion) will also be the main person to contact with views on the way we run our consultations.

A2.7 If we are not able to follow one of these principles, we will explain why. This may be because a particular issue is urgent. If we need to reduce the amount of time we have set aside for a consultation, we will let those concerned know beforehand that this is a 'red flag consultation' which needs their urgent attention.

After the consultation

A2.8 We will look at each response carefully and with an open mind. We will give reasons for our decisions and will give an account of how the views of those concerned helped shape those decisions.

Annex 3

Consultation response cover sheet

A3.1 In the interests of transparency, we will publish all consultation responses in full on our website, www.ofcom.org.uk, unless a respondent specifies that all or part of their response is confidential. We will also refer to the contents of a response when explaining our decision, without disclosing the specific information that you wish to remain confidential.

A3.2 We have produced a cover sheet for responses (see below) and would be very grateful if you could send one with your response. This will speed up our processing of responses, and help to maintain confidentiality by allowing you to state very clearly what you don't want to be published. We will keep your completed cover sheets confidential.

A3.3 The quality of consultation can be enhanced by publishing responses before the consultation period closes. In particular, this can help those individuals and organisations with limited resources or familiarity with the issues to respond in a more informed way. Therefore Ofcom would encourage respondents to complete their cover sheet in a way that allows Ofcom to publish their responses upon receipt, rather than waiting until the consultation period has ended.

A3.4 We strongly prefer to receive responses in the form of a Microsoft Word attachment to an email. Our website therefore includes an electronic copy of this cover sheet, which you can download from the 'Consultations' section of our website.

A3.5 Please put any confidential parts of your response in a separate annex to your response, so that they are clearly identified. This can include information such as your personal background and experience. If you want your name, address, other contact details, or job title to remain confidential, please provide them in your cover sheet only so that we don't have to edit your response.

Cover sheet for response to an Ofcom consultation

BASIC DETAILS

Consultation title:

To (Ofcom contact):

Name of respondent:

Representing (self or organisation/s):

Address (if not received by email):

CONFIDENTIALITY

What do you want Ofcom to keep confidential?

Nothing	☐	Name/contact details/job title	☐
Whole response	☐	Organisation	☐
Part of the response	☐	If there is no separate annex, which parts?	

If you want part of your response, your name or your organisation to be confidential, can Ofcom still publish a reference to the contents of your response (including, for any confidential parts, a general summary that does not disclose the specific information or enable you to be identified)?

DECLARATION

I confirm that the correspondence supplied with this cover sheet is a formal consultation response. It can be published in full on Ofcom's website, unless otherwise specified on this cover sheet, and I authorise Ofcom to make use of the information in this response to meet its legal requirements. If I have sent my response by email, Ofcom can disregard any standard e-mail text about not disclosing email contents and attachments.

Ofcom seeks to publish responses on receipt. If your response is non-confidential (in whole or in part), and you would prefer us to publish your response only once the consultation has ended, please tick here. ☐

Name   Signed (if hard copy)

Annex 4

Consultation questions

Question 1*: Do respondents agree with Ofcom's view that there are separate markets for wholesale mobile voice call termination on the networks of Vodafone, O2, T-Mobile, Orange and H3G?*

Question 2*: Do respondents agree with Ofcom's view that, given the market definition proposed in Section 3, above Vodafone, O2, T-Mobile, Orange and H3G each have prima facie SMP in the respective market for wholesale mobile voice call termination on their network(s)?*

Question 3: *Do you feel that Ofcom has understated the benefits to consumers of a mandated move to an RPP charging regime? Ofcom is particularly interested in hearing from consumer groups.*

Question 4: *Do you agree with Ofcom's position that a mandated form of technological intervention to address the underlying cause of SMP is not currently feasible, and that the development costs relative to the benefits would be unlikely to pass a cost-benefit analysis?*

Question 5: *Do you agree that an attempt to rely on a general obligation that mobile voice call termination charges should be "fair and reasonable" or "cost oriented" would be highly likely to result in a period of commercial and regulatory uncertainty followed by the ad hoc imposition of charge controls in response to individual disputes ?*

Question 6*: Do you agree that the direct setting of charge controls is an efficient and proportionate remedy for SMP in the market for wholesale mobile voice call termination?*

Question 7*: Do you agree that, from the perspectives of both practical implementation and economic efficiency, a technology-neutral charge is strongly preferable to separate controls across different technologies?*

Question 8*: Do you believe that the factors listed below paragraph 7.99 are relevant in assessing the appropriate level(s) of technology-neutral call termination charge(s)? Are there any other key relevant factors?*

Annex 5

Cost modelling

Background and Purpose

A5.1 In Ofcom's last market review of wholesale voice call termination (statement published June 2004), a charge control was applied to wholesale 2G voice call termination which required a reduction in 2G termination charges for each of the four 2G operators. Cost-based charges were determined separately for operators using both 900MHz and 1800MHz spectrum, and for operators using 1800MHz spectrum only, due to the effects of different spectrum used on the cost of rollout, and the timing of investment by the operators in the past.

A5.2 The level of these charges was set based on the long-run incremental cost (LRIC) of voice termination, determined using a 2G network cost model[41], plus additional mark-ups to cover relevant non-network costs and network externalities. This 2G LRIC model was designed on a "bottom-up" basis, calculating the quantity and costs of each asset type required to build up a network, for given levels of demand and geographic coverage and with given technical parameters (e.g. capacity, utilisation) and unit costs (capital investment and operating costs). The gross book value (GBV) and operating costs derived from this model were also compared with the 2G operators' actual accounting data and adjustment factors were applied to the model in order to align the output with this accounting data. Finally, a form of economic depreciation was used to determine the profile of cost recovery of these network costs over time.

A5.3 With respect to wholesale voice call termination delivered using MNOs' 3G networks, Ofcom concluded that at the time of the last review and within the forward looking period over which that review was based, the MNOs were unlikely to be terminating a material volume of minutes using their 3G networks. In its market review statement of June 2004, Ofcom concluded that it would be inappropriate to apply a charge control on 3G voice call termination.

A5.4 In June 2005, Ofcom published a further statement in advance of the expiry of the charge controls set under the previous market review. In this statement, Ofcom recognised that 3G uptake has been increasing rapidly and that 3G voice call termination is beginning to account for a material share of all terminated minutes on each operator's network. Furthermore, Ofcom acknowledged that, in the case of operators with both 2G and 3G networks, there are significant cost interactions between the two networks; these include the effects of traffic migration from 2G to 3G, as well as the potential for significant sharing of network assets (e.g. cell sites, backhaul).

A5.5 It was therefore determined that a new cost model, capable of simultaneously modelling voice termination services delivered over 2G and 3G networks, was required to gain a fuller understanding of the costs of voice termination on both networks. However, in the absence of such a model, Ofcom proposed an extension of the 2G charge controls for a further year at the existing charge levels, during which time the development of a new mobile LRIC model could be progressed.

[41] This model was updated further in the context of extending the existing charge controls for a further year (2006/07). This version of the model is available at http://www.ofcom.org.uk/consult/condocs/wholesale/update

A5.6 The objective of Ofcom's cost modelling work in this area is to develop a robust and transparent model, capable of estimating the costs of mobile voice call termination on a combined 2G/3G network or a standalone 3G network, whilst recognising that uncertainty in 3G network costs (particularly due to uncertainty in demand forecasts) may potentially lead to a broad range of cost estimates. The intention is that this model could be suitable for a number of potential uses, e.g. dispute resolution, determining the meaning of fair and reasonable, or setting the level of any potential ex-ante charge controls.

Stakeholder Consultation

A5.7 Ofcom has recognised the importance of ongoing dialogue with stakeholders, in order to ensure that the process for the development of this model is transparent and ultimately results in a model which is fit for purpose, qualitatively and quantitatively. Throughout the life of this project so far, Ofcom has invited specific stakeholders - the five MNOs, BT and representatives from UKCTA - to engage through a number of different means:

- Two industry workshops have taken place. The first, in July 2005, aimed to set out the purpose and scope of the new model and a process for its development. At the second workshop in November 2005, an initial implementation of the new LRIC model was presented, with a focus at that stage on achieving an appropriate structure, rather than reliable input parameters.
- Two versions of the new LRIC model have been released to stakeholders. The first version, released in October 2005 just ahead of the second stakeholder workshop, was intended to have a reasonably robust structure but with some input parameters at only a preliminary stage. Following detailed discussion with stakeholders and further refinements, a second model release was issued in March 2006.
- Individual meetings were arranged to give an opportunity for stakeholders to present their views on the structure of the new LRIC model. A further round of meetings was arranged, to discuss some of the key economic conceptual issues underlying the development of the model (notably determination of the path of cost recovery, identification of common costs and the treatment of 3G spectrum fees).
- Ofcom has also invited and received ongoing written feedback from stakeholders relating to the detailed structure and inputs of the new LRIC model, as well as a range of economic conceptual issues including determination of the path of cost recovery, identification of common costs, the cost of capital, Ramsey pricing and externalities, the treatment of 3G spectrum fees and customer acquisition costs.
- Two data requests were issued and returned by all five MNOs. The first request, issued shortly after the first workshop in July 2005, was aimed at attaining a qualitative understanding of cost drivers on 2G and 3G networks, and establishing suitable model input parameters (subscriber demand, equipment capacities, unit costs etc). The second request issued in December 2005 asked for high-level accounting cost data for the purpose of calibrating the model against operators actual GBV and operating costs.

Model Overview

A5.8 Ofcom began work on the construction of the new mobile LRIC model in March 2005. Ofcom commissioned Analysys Consulting at this stage to assist in the initial design and implementation of the model. Subsequently, Analysys have provided assistance on further refinements to the model structure and inputs.

A5.9 The model assesses the network costs of delivering voice and data services on 2G and 3G mobile networks. The inclusion of data services is for the purpose of providing an improved view of the costs of voice services and voice termination in particular, e.g. to take account of economies of scope between voice and data services.

A5.10 In line with the approach taken in the 2G LRIC model, the model includes all network capital and operating costs through the radio network to the core network, up to and including the gateway switches and interconnect ports, but excludes the explicit modelling of other, non-network costs.

A5.11 Whilst the new LRIC model was designed along the same lines as the LRIC model used in the last market review, there have been some significant changes in model structure to account for both the addition of 3G technologies, and the availability of improved information on 2G networks. In particular, the 3G network dimensioning rules are more dynamic than those used previously for the 2G network, to allow for potential changes in spectrum usage and 3G cell deployment strategies. Furthermore, the design rules for the backhaul network have been improved to better capture economies of scale, and an alternative approach has been taken on asset lifetimes and age-on-age operating costs.

A5.12 The model consists of four modules, each occupying a single spreadsheet file:

- a traffic module which produces demand forecasts
- a network module which dimensions and costs suitable 2G and 3G networks, given the demand forecasts
- an HCA/CCA module which produces cost recovery profiles obtained by applying straight-line accounting depreciation
- an economic module which produces cost recovery profiles and service costs by applying economic depreciation

A5.13 The latest version of the new LRIC model provided to stakeholders has been significantly refined since the first version. The structure has been improved following comments received from stakeholders, so as to better reflect network design rules used in practice and likely demand scenarios. Furthermore, the inputs have been adjusted according to three criteria; to more closely match input parameters specified in operator data requests, to produce high-level asset counts resembling those of the operators, and to give total GBV and operating cost values more in-line with those received from the accounting data requests. These input parameter refinements can be seen as a first round, with another set of refinements envisaged following further stakeholder comments.

Conceptual Issues

A5.14 In developing the new mobile LRIC model, Ofcom has recognised a number of key economic conceptual issues which must be dealt with carefully in order to finalise the approach implemented in the new LRIC model. These issues are complex and may potentially have a significant impact on the output of the model. Ofcom's investigation of these issues is work in progress and therefore Ofcom is engaging in ongoing dialogue with stakeholders on each of these:

- *The optimal path of cost recovery* – the aim of the new LRIC model is to determine how costs would be recovered in a competitive market, taking into account competition between incumbents and from new entrants. In the previous 2G cost model this consideration has led to the adoption of a form of economic depreciation[42] of costs. Ofcom believes that this continues to be a relevant approach, but is also interested in exploring other potential approaches to cost recovery.

- *Assessment of common costs* – the new mobile LRIC model is capable of capturing both 2G and 3G network costs. Therefore it is important to investigate whether common costs exist between the 2G and 3G networks at a high level and whether common costs exist between different types of mobile services. Ofcom is currently investigating a number of issues around different methodologies for identifying these common costs.
- *Economic pricing* – where common costs are identified, it is important to consider the related issue of how these costs are efficiently recovered. In the last market review, common costs were recovered via an equi-proportionate mark-up. Ofcom is currently investigating a range of approaches for the efficient recovery of common costs. Separately, in the last market review a mark-up to account for network externalities was derived and added to the total cost of termination. Ofcom is investigating this issue in the light of the applicable circumstances.
- *The cost of capital* – the addition of 3G costs in the new cost model may have implications for the cost of capital e.g. whether or not it is appropriate to apply the same cost of capital to the services resulting from 2G and 3G network investments. Moreover Ofcom has recently published a statement on how it intends to account for risk in its cost of capital determinations[43]. Specifically, in that consultation the issue of the applicability of real options has been raised. In response to Ofcom's consultation on the cost of capital, MNOs have raised the issue of (3G) mobile networks and real options. Ofcom is currently considering its approach to the appropriate cost of capital to apply in the new LRIC model and its work is ongoing.
- *3G spectrum fee* – Ofcom is carefully considering the treatment of spectrum fees to be included in the cost model, in terms of the appropriate level of fees and how they should be recovered across different mobile services. The new LRIC model has sufficient flexibility to adopt a number of potential approaches. How this investment is taken into account in determining the cost of mobile termination is significant, given the considerable investment made by operators in obtaining 3G licences in 2000.

A5.15 The above is not a definitive list of all the issues Ofcom is currently considering. For example Ofcom needs to understand the level of non-network costs not being explicitly modelled as well how customer acquisition and retention costs should be allocated across different mobile services. Moreover, Ofcom's modelling approach needs to be flexible in order to inform policy on mobile termination and to this end Ofcom will continue to investigate the cost of termination across 2G and 3G networks and across different operators. Furthermore, as discussed, Ofcom continues to be mindful of the significant uncertainties that currently exist in the way 3G networks will operate, their costs and levels of future service demand.

Next Steps

A5.16 Going forward Ofcom intends to hold a further workshop with the MNOs, BT and UKCTA to discuss the latest version of the model (made available on 10 March 2006). In addition, over the coming months Ofcom intends having further meetings

[42] See http://www.ofcom.org.uk/static/archive/oftel/publications/mobile/depr0901.htm for a description of how economic depreciation is implemented in the previous 2G LRIC model.
[43] See http://www.ofcom.org.uk/consult/condocs/cost_capital2/statement/

with these stakeholders to discuss detailed comments on the model and Ofcom's approach to the key issues outlined above.

A5.17 In the next mobile termination market review consultation document, Ofcom will present the results of its cost modelling analysis – setting out its initial view of the costs of termination alongside detailed explanation of its proposed methodology and approach for consultation.

Annex 6

OFCOM's' January 2006 Research Survey

Introduction

A6.1 This annex provides an overview of the findings from research investigating residential consumer usage of and attitudes towards mobile phones.

A6.2 The report[44] has been prepared by Ofcom, based on the findings from a survey conducted for Ofcom by MORI amongst 2,233 UK adults in January 2006[45][46].

A6.3 This annex covers:

- Usage of mobile phones
- Awareness of and attitudes towards the cost of calling mobile phones
- Potential substitutes to calling mobile phones.

A6.4 A list of the questions covered in the research has also been included.

Summary

A6.5 Three quarters (73%) of those with a fixed or mobile phone claimed to call mobile phones at least once a week or more often. The calling behaviour of fixed only consumers is significantly different, with a minority (32%) of these consumers reporting that they make this type of call at least once a week.

A6.6 Amongst those with mobile phones, one in ten (12%) stated that they currently used more than one mobile phone number or SIM card. The ability to split business and personal calls was the most commonly given reason for this multiple ownership. The majority (60%) of consumers with more than one mobile phone number or SIM card reported that they were connected to different networks.

A6.7 The majority (84%) of those with fixed or mobile phones claimed to always or mostly know whether they are calling a mobile phone.

A6.8 Levels of awareness of which mobile phone network is being called were found to be low. Just under two-thirds of those ever calling mobile phones (65%) stated that they rarely or never knew which network they were calling.

[44] The report should not be seen as recommended best buys and should not therefore be relied upon when making purchase decisions. Ofcom has conducted its own checks on the data in this report and whilst we consider it to be correct, Ofcom accepts no liability in respect of any of the results provided to it by MORI or any decisions taken by any person in reliance on the report.
[45] MORI interviewed a random selection of 2,233 adults aged 16+ face-to-face between 19 and 23 January 2006. The sample has been weighted to reflect the population of the UK.
[46] Because the survey was conducted amongst a sample of adults, rather than the whole populations, the data may be subject to a small margin of error. The error margin for the total sample of 2,233 consumers is approximately 2-3%. All data shown is weighted data. Unweighted base sizes are shown on charts and tables to show the number of people who were asked the question. Results referred to as 'significantly' different, have been tested at the 95% level of confidence and hence are outside the error margins and therefore can be considered real differences.

A6.9 Many consumers do not appear clear that the cost of calling a mobile phone from a fixed line varies according to the network called. One in six (16%) of those ever calling mobiles phones believed that the costs were the same for all mobile phone networks and more than one in three (36%) were unable to give an opinion on whether the costs were the same or different.

A6.10 Almost twice as many mobile phone callers claimed to be dissatisfied with the cost of calling mobiles from fixed line phones (46%), than claimed to be satisfied (25%).

A6.11 The research highlighted gaps in consumer awareness of special tariff options which might help reduce the overall cost of calls to mobiles –just under one half (46%) of those living in households with a fixed line phone and making calls to mobiles reported that they were aware of these services.

A6.12 Three-quarters of those ever calling mobile phones reported that they had taken at least one of a variety of measures in the last month to reduce the cost of making these calls, either when at home or when away from home. Sending a text message instead of calling and trying people on their landline first were the measures most commonly mentioned.

Usage of mobile phones

Personal use of mobile phones

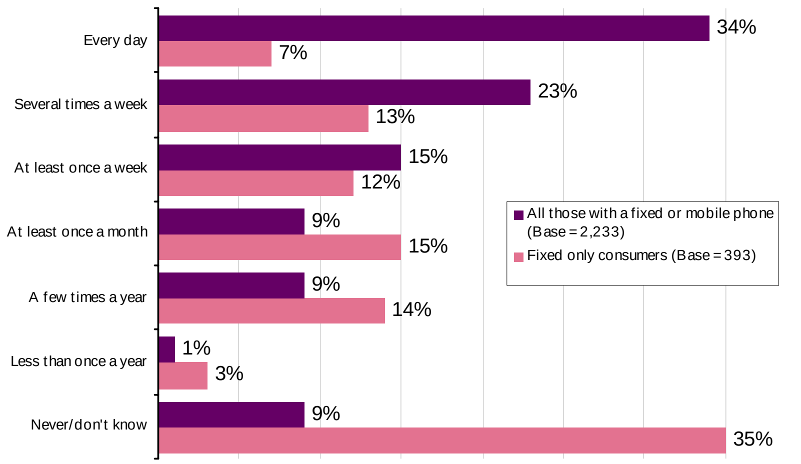
A6.13 One in ten (9%) respondents were found to be “mobile-only consumers” – that is, claiming to personally use a mobile phone and live in a household without a fixed line phone. One in six (16%) could be classified as “fixed-only consumers” – that is, claiming to not personally use a mobile phone and live in a household with a fixed line phone. Three-quarters (75%) were revealed to be “fixed and mobile consumers” – that is, claiming to personally use a mobile phone and live in a household with a fixed line.

Frequency of calling mobile phones

A6.14 Three quarters (73%) of those with a fixed or mobile phone claimed to call mobile phones at least once a week or more often (see Figure 1). One third (34%) stated that this type of call is a daily occurrence.

A6.15 The calling behaviour of fixed only consumers is significantly different. A minority (32%) of these consumers claimed to call mobile phones at least once a week or more often – and a similar proportion (35%) said that they never called mobile phones or were unable to give a response.

Figure 1: Frequency of making calls to mobile phones (either from a landline or a mobile phone)



Ownership of multiple mobile phones or SIM cards

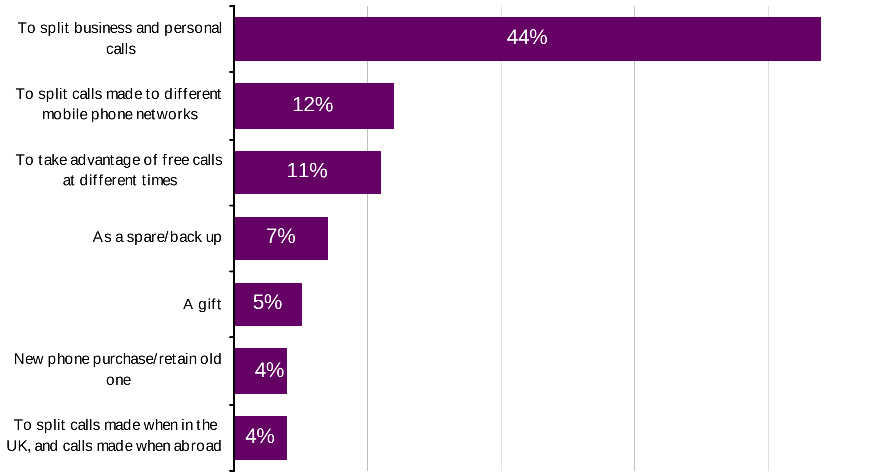
A6.16 Amongst those with mobile phones, one in ten (12%) reported that they currently used more than one mobile phone number or SIM card. This proportion rose to one in five for the youngest age group (19% for those aged 15-24), those living in households without fixed line phones (19%) and those calling mobile phones at least daily (20%).

A6.17 The majority (60%) of consumers with more than one mobile phone number or SIM card reported that they were connected to different networks.

A6.18 The ability to split business and personal calls was the reason most commonly given reason for ownership of more than one mobile phone number or SIM card (44%, see Figure 2). Approximately one in ten claimed to have multiple numbers or SIM cards to split calls made to different mobile phone networks (12%) or to take advantage of free calls at different times (11%).

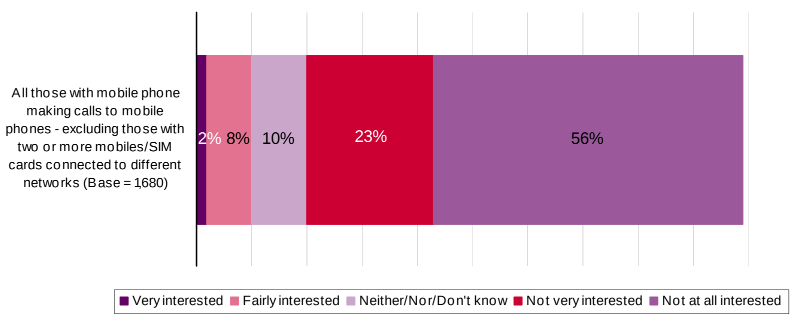
Figure 2: Reasons for having more than one mobile phone number or SIM card

Base: All mobile phone users with more than one mobile phone number/SIM card (204)



A6.19 Amongst consumers with connections to just one mobile phone network, there was limited interest in obtaining an additional mobile phone number or SIM card which was connected to a different network. One in ten (10%) of these consumers said that they were very or fairly interested in this option which would enable them to choose which phone or SIM card to use depending on the network of the person that they were calling (see Figure 3).

Figure 3: Interest in an additional mobile phone number/SIM card connected to a different network

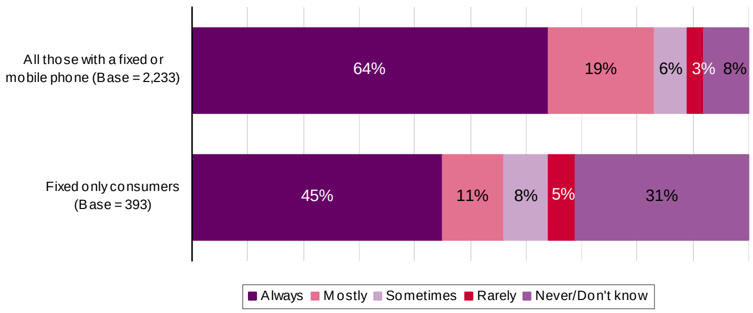


A6.20 One quarter (26%) of those making calls to mobile phones reported that they had more than one mobile phone number for any of the people that they called. This proportion rose to two-fifths for the youngest age group (39% for those aged 15-24), those living in households without fixed line phones (42%) and those calling mobile phones at least daily (38%).

Awareness of and attitudes towards the cost of calling mobile phone

A6.21 The majority (84%) of those with fixed or mobile phones claimed to always or mostly know whether they are calling a mobile phone (see Figure 4). These levels of awareness fell amongst fixed only consumers with just over one half (57%) stating that they always or mostly know and one third (31%) saying that they never know or were unable to give an opinion.

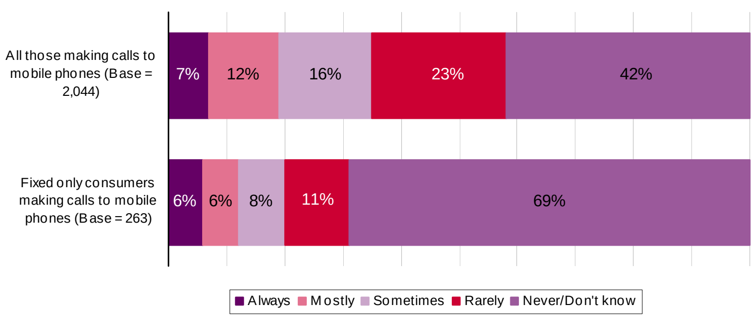
Figure 4: Frequency of knowing whether you are calling a mobile



A6.22 Levels of awareness of which mobile phone network is being called were found to be low. One in five (19%) of those making calls to mobile phones claimed to always or mostly know which network they were calling and two-thirds (65%) said that they rarely or never know or were unable to give an opinion (see Figure 5).

A6.23 Fixed only consumers displayed significantly lower awareness with four-fifths (80%) reporting that they rarely or never knew which mobile phone network they were calling.

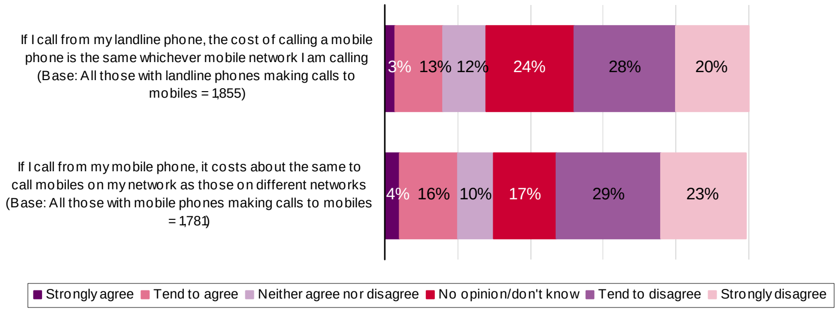
Figure 5: Frequency of knowing which mobile phone network you are calling



A6.24 The research findings suggested that many consumers are not clear of the cost implications associated with calling different mobile phone networks. Amongst those living in households with fixed line phones, just under one half (48%) of those ever calling mobile phones correctly stated that they cost of calling mobiles from a landline varies according to which network you are calling (see Figure 6). One in six (16%) believed that the costs were the same for all mobile phone networks and more than one in three (36%) were unable to give an opinion either one way or another.

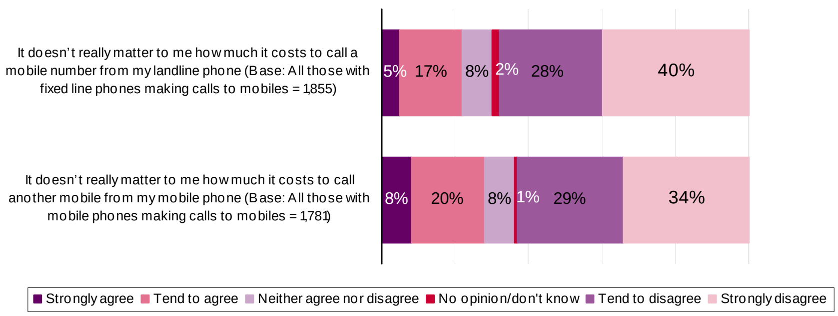
A6.25 The results were similar regarding the awareness of the cost of mobile-to-mobile calls on the same or different networks. (However, it should be noted that the interpretation of these findings is more complex due to the variety of tariff options available - for example, some mobile phone customers will subscribe to “Anytime” packages, where there is no difference in the cost of off-net and on-net calls).

Figure 6: Awareness of the cost of calling mobile phones



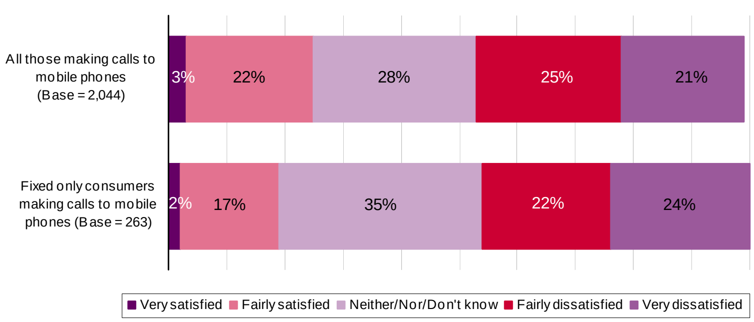
A6.26 A minority of consumers claimed not to be sensitive to the cost of calling mobile phones. Approximately one quarter of those with fixed line phones at home and who do make calls to mobiles reported than the cost of calling a mobile from their landline didn't really matter to them (see Figure 7). On the other hand, more than two-thirds (68%) stated that the cost of these calls did matter. Results were found to be similar for mobile-to-mobile calls.

Figure 7: Attitudes towards the cost of calling mobile phones



A6.27 Consumers were also asked for their levels of satisfaction with the cost of calls to mobile phones from their fixed line phone at home. On balance, the findings shown in Figure 8 suggest that almost twice as many mobile phone callers claimed to be dissatisfied with the cost of these calls (46%), than claim to be satisfied (25%) – of particular note is the finding that one in five (21%) claimed to be very dissatisfied. Results were found to be similar for fixed only consumers.

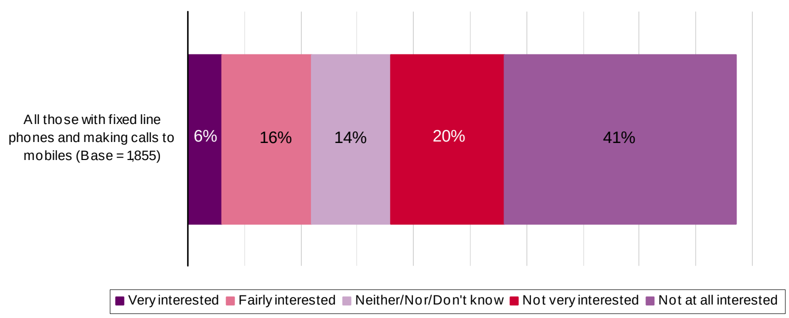
Figure 8: Satisfaction with the cost of calls to mobiles phones from landlines



A6.28 The research also highlighted gaps in consumer awareness of special tariff options which might help reduce the overall cost of calls to mobiles. Just under one half (46%) of those living in households with a fixed line phone and making calls to mobiles reported that they were aware that "*some landline phone providers offer special tariff options which offer cheaper calls to mobiles for a slightly higher monthly or quarterly line rental*".

A6.29 These special fixed-to-mobile call tariff options appeared to hold some interest amongst consumers. Amongst those living in households with a fixed line phone and making calls to mobiles, one fifth (22%) indicated that they were very or fairly interested in a tariff "*which offered a 25% reduction in the cost of calls to mobiles for a £1.50 a month increase in your line rental*" (see Figure 9).

Figure 9: Interest in special tariff offering discounted calls to mobile phones



Potential substitutes to calling mobile phones

Taking steps to reduce the cost of calls to mobile phones when at home

A6.30 Respondents were first asked to think about times when they were **at home** and thinking of calling people on their mobile phones. Figure 10 shows the measures that those making calls to mobiles reported to have taken in the last month (or would consider taking) to reduce the cost of these calls.

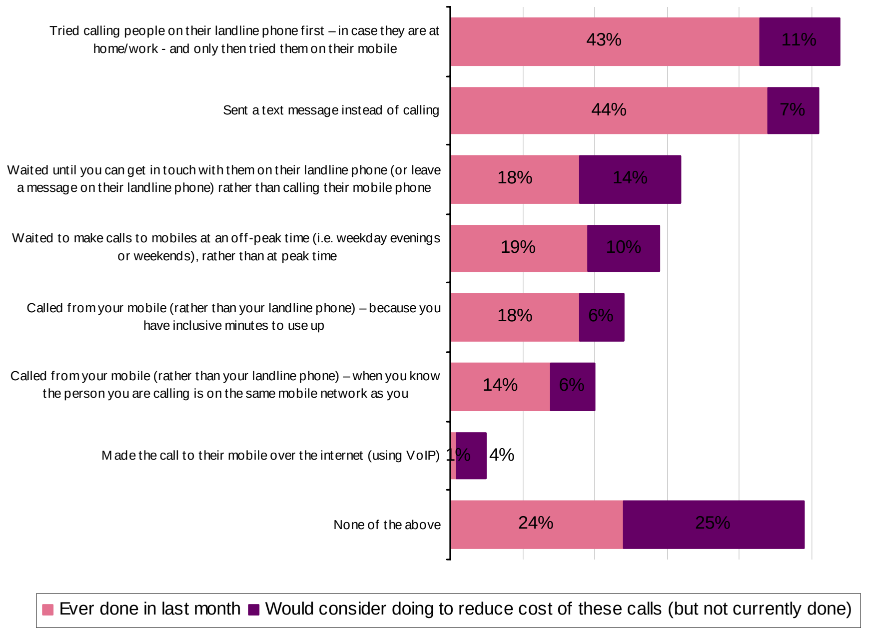
A6.31 Two measures stand out as being the most common ways that callers to mobiles currently look to reduce the cost of these calls – namely, sending a text message instead of calling, or trying to call people on their fixed line(s) first and only then resorting to a call to their mobile. In both instances, just over two-fifths of those making calls to mobiles claimed to have taken these steps in the last month.

A6.32 Four other steps had each been undertaken in the last month by approximately one sixth of callers to mobiles to reduce the cost of these calls

- Waiting to make calls to mobiles at an off-peak time (19%)
- Waiting until you can get in touch on their fixed line phone(s) (18%)
- Calling from your mobile to use up inclusive minutes (18%)
- Calling from your mobile when you know that the person is on the same mobile network as you (14%)

Figure 10: Steps currently taken or considered to reduce the cost of calls to mobile phones when at home

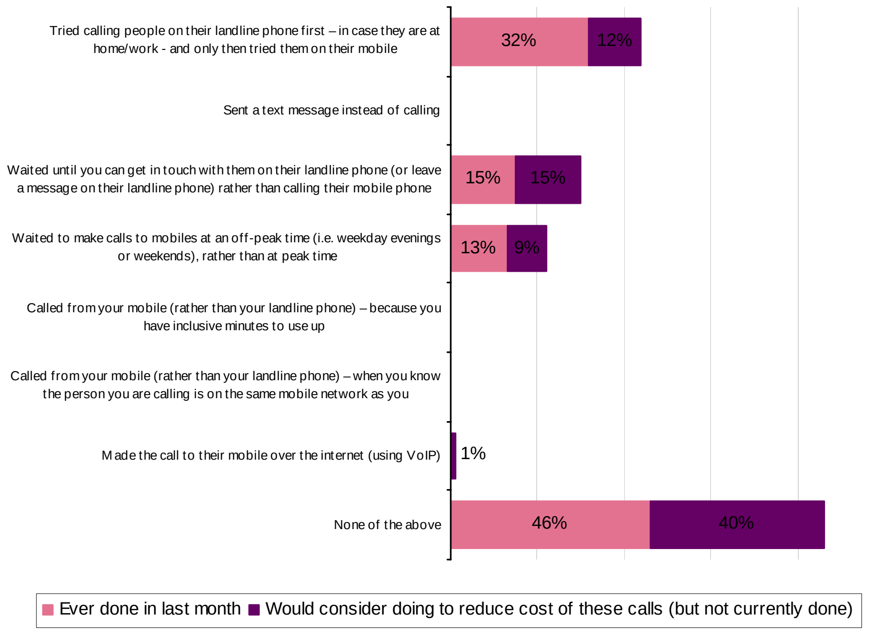
Base: All making calls to mobile phones (1,855)



A6.33 Fixed only consumers were found to be much less likely to have taken steps to reduce the cost of their calls to mobiles when at home. Just under one half (46%) of this group of consumers had not carried out any of the suggested methods in the last month (see Figure 11).

Figure 11: Steps currently taken or considered to reduce the cost of calls to mobile phones when at home

Base: Fixed only consumers making calls to mobile phones (263)

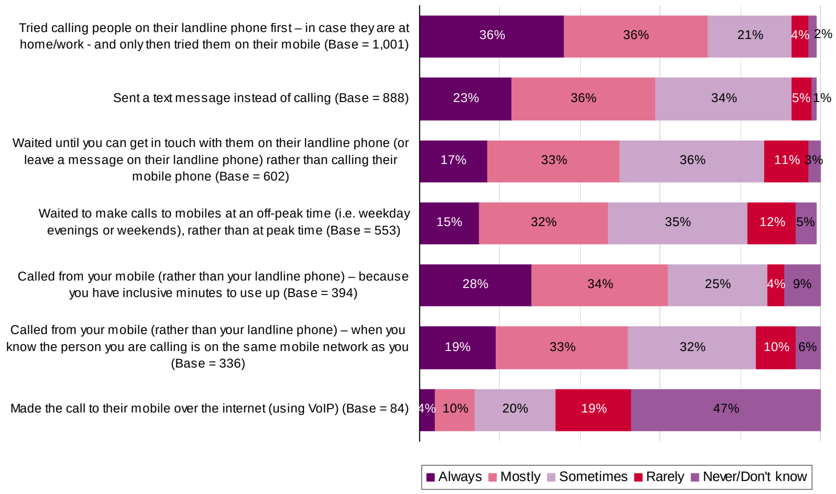


A6.34 If respondents stated that they were currently undertaking or would consider a particular measure to reduce the cost of calls to mobiles when at home, they were also asked for the proportion of occasions when that action would be a realistic option. The findings are shown in Figure 12 on the next page.

A6.35 For all but one of the cost saving steps listed in Figures 10 and 11, the majority - between one half and three-quarters - of those currently doing or considering each measure claimed that they would be realistic options all or most of the time. The exception was “*making the call to their mobile over the internet using VoIP*”, with just one in seven (14%) reporting that this would be a realistic option all or most of the time.

Figure 12: Frequency that each measure would actually be something individuals would consider doing to reduce the cost of calling mobiles when at home

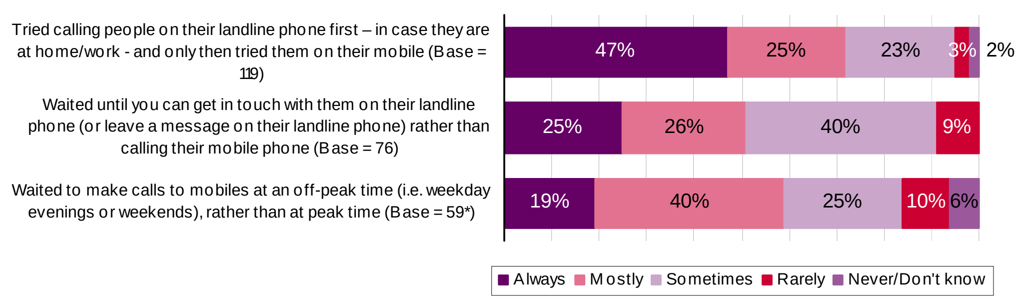
Base: All making calls to mobile phones and currently doing/considering each measure



A6.36 Research findings were similar for fixed only consumers with between one half and three-quarters of those currently doing or considering each measure - claiming that it would be a realistic option all or most of the time (see Figure 13).

Figure 13: Frequency that each measure would actually be something individuals would consider doing to reduce the cost of calling mobiles when at home

Base: Fixed only consumers currently doing/considering each measure



Taking steps to reduce the cost of calls to mobile phones when away from home

A6.37 Consumers were then asked to think about times when they were **away from home** and thinking of calling people on their mobile phones. Figure 14 shows the measures that those mobile phone users reported to have taken in the last month (or would consider taking) to reduce the cost of these calls.

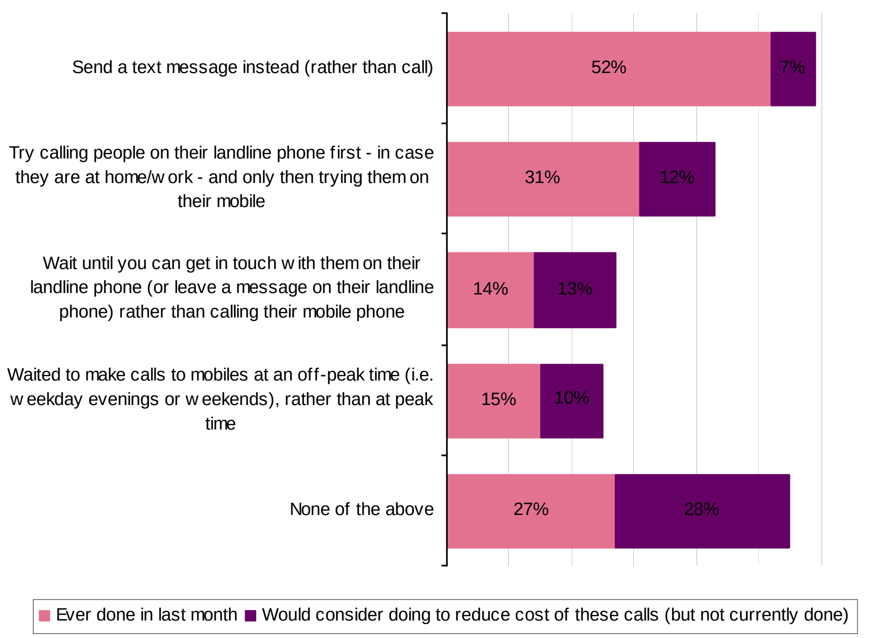
A6.38 In this situation, sending a text message rather than calling stands out as being the most common way that callers to mobiles currently look to reduce the cost of these calls when away from home – just over one half of mobile users who make calls to mobiles claimed to have taken this step in the last month. One third (31%) also mentioned that they had tried to call people on this fixed line phone(s) first, and only then trying the recipient on their mobile.

A6.39 Two further actions to reduce the cost of calls to mobiles when away from home had each been undertaken in the last month by approximately one in seven of those with mobile phones

- Waiting to make calls to mobiles at an off-peak time (15%)
- Waiting until you can get in touch on their fixed line phone(s) (14%)

Figure 14: Steps currently taken or considered to reduce the cost of calls to mobile phones when at home

Base: All with mobile phones making calls to mobile phones (1,781)

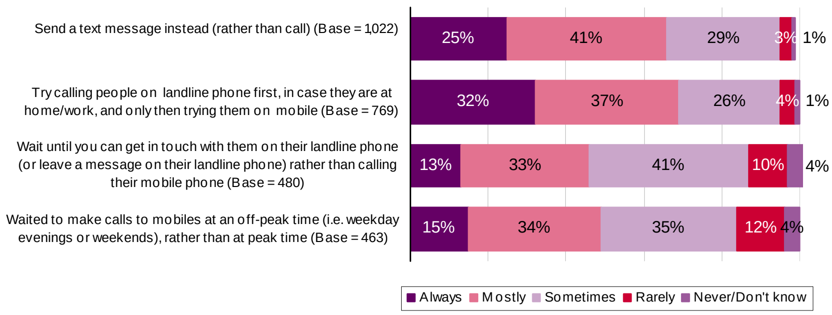


A6.40 If respondents stated that they were currently undertaking or would consider a particular measure to reduce the cost of calls to mobiles when away from home, they were also asked for the proportion of occasions when that action would be a realistic option. The findings are shown in Figure 15.

A6.41 The majority – from just under one half and three-quarters - of those currently doing or considering each measure claimed that they would be realistic options all or most of the time.

Figure 15: Frequency that each measure would actually be something individuals would consider doing to reduce the cost of calling mobiles when away from home

Base: All with mobile phones making calls to mobile phones and currently doing/considering each measure



Questionnaire

TT1. Which of these, if any, do you personally use (list included mobile phone)?

TT2. Do you have a landline telephone in your home?

Q1. Do you have more than one mobile phone number, or more than one SIM card, that you currently use?

Q2. And why do you have more than one number or SIM card?

Q3. And are these mobile phones or SIM cards connected to the same or different mobile phone networks e.g. T-Mobile, Orange, Vodafone, O2, 3?

Q4. And thinking about the calls that you make, whether from a landline or a mobile phone how often do you know whether you are calling a mobile phone number or not?

Q5. How often, if at all, do you make any calls to mobile phones whether from a landline or a

Q6. And thinking about the people you call on their mobile phones do you have more than one mobile phone number for any of them?

Q7. Thinking about all the times you call mobile phones, whether from a landline or a mobile phone, how often do you know which mobile phone network you are calling (e.g. T-Mobile, Orange, Vodafone, O2, 3)?

Q8. How satisfied or dissatisfied, if at all, are you with the cost of calls to mobiles from your landline phone at home?

Q9. I'd now like to read out some statements that other people have made about calling mobile phones. Taking your answer from this card, please tell me how much, if at all, you agree or disagree with each one?

- It doesn't really matter to me how much it costs to call a mobile number from my landline phone
- It doesn't really matter to me how much it costs to call another mobile from my mobile phone
- If I call from my landline phone, the cost of calling a mobile phone is the same whichever mobile network I am calling
- If I call from my mobile phone, it costs about the same to call mobiles on my network as those on different networks

Q10. Now I'd like you to picture the times when you are at home and thinking about calling people on their mobile phones, which, if any, of these have you done IN THE LAST MONTH to reduce the cost of these calls?

Q11. And which others, if any, would you consider doing to reduce the cost of these calls?

Q12. And thinking about times when you are at home and thinking about calling people on their mobile phones, how often would (READ OUT IN TURN EACH OPTION MENTIONED AT EITHER Q10 OR Q11) be something you would actually consider doing to reduce the cost of these calls?

- Waited to make calls to mobiles at an off-peak time (i.e. weekday evenings or weekends), rather than at peak time
- Tried calling people on their landline phone first – in case they are at home/work - and only then tried them on their mobile
- Waited until you can get in touch with them on their landline phone (or leave a message on their landline phone) rather than calling their mobile phone
- Made the call to their mobile over the internet (using VoIP)
- Called from your mobile (rather than your landline phone) – because you have inclusive minutes to use up
- Called from your mobile (rather than your landline phone) – when you know the person you are calling is on the same mobile network as you
- Sent a text message instead of calling

Q13. Before today, were you aware that some landline phone providers offer special tariff options which offer cheaper calls to mobiles for a slightly higher monthly/quarterly line rental?

Q14. And how interested would you be in a special tariff option for your landline phone at home which offered a 25% reduction in the cost of all calls to mobiles for a £1.50/month increase in your line rental?

Q15. Now I'd like you to picture the times when you are <u>not at home</u> and thinking about calling people <u>on their mobile phones</u>. Which, if any, of these have you done IN THE LAST MONTH to reduce the cost of these calls?

Q16. And which of the others would you <u>consider</u> doing to reduce the cost of these calls?

Q17. And thinking about times when you are not at home and thinking about calling people on their mobile phones, how often would (READ OUT IN TURN EACH OPTION MENTIONED AT EITHER Q15 OR Q16) be something that you would actually consider doing to reduce the cost of these calls?

- Waited to make calls to mobiles at an off-peak time (i.e. weekday evenings or weekends), rather than at peak time
- Tried calling people on their landline phone first – in case they are at home/work - and only then trying them on their mobile
- Waited until you can get in touch with them on their landline phone (or leave a message on their landline phone) rather than calling their mobile phone
- Sent a text message instead (rather than call)
- Swapped mobile phones/SIM cards depending on the mobile network of the person you are calling (thereby increasing the number of times that you make a call to someone on the same mobile network as you)
- Q18. And how interested would you be in obtaining an additional mobile phone number or SIM card which was connected to a different network. This would enable you to choose which network to use depending on the network of the person you were calling.

Annex 7

Pass through of wholesale termination charges to fixed-to-mobile calls

A7.1 In this annex, Ofcom considers the implications of pass through for the economic efficiency and equity concerns discussed in Section 5 and examines to what extent reductions in mobile termination rates have been passed through to the retail price for calls to mobile. There are two key questions which Ofcom needs to consider.

- To what extent have historic reductions in mobile call termination charges been passed through directly in the form of lower retail fixed to mobile call charges?
- What view should Ofcom take if some of the reductions in mobile call termination charges have been passed through by fixed operators to services other than fixed to mobile calls?

The theory of Pass through

A7.2 Ofcom notes that many suppliers compete to offer fixed to mobile calls (and only BT and Kingston have been found to have SMP in the retail narrowband voice markets). however one would not expect that the pass through of reductions in wholesale termination charges to fixed to mobile call prices would necessarily be 100%.

A7.3 Assuming an effective level of competition, we may expect in this context that fixed operators will adopt an approach consistent with Ramsey principles[47], whereby price is set above marginal cost such that fixed costs are recovered in inverse proportion to the (super) elasticities of service. Thus, a reduction in unit costs for one wholesale input may not be fully passed through into lower retail prices for the corresponding downstream product, as operators use the reduction in input costs to reduce prices on other services.

A7.4 From the perspective of economic efficiency, this approach has advantages over a situation where 100% of the reduction in the wholesale cost of a service is passed through directly into a lower retail price for that service. This is because operators will target price reductions at customers with the most elastic demand thus maximising potential demand and revenues across the full range of services.

A7.5 However, it is possible that Ofcom may have concerns on equity grounds, as the consumers who suffer the detriment of high fixed to mobile call prices may not necessarily benefit if savings in mobile call termination charges are used to reduce prices for other products. It is therefore worth looking at the actual data to see the extent to which reductions in termination rates have been directly passed through in the form of lower retail charges for FTM services, and indeed if there is any evidence of reductions in other services, as might be expected in a Ramsey pricing context.

Evidence of direct pass through

A7.6 In its response to the Preliminary Consultation document T-Mobile argued that the nature of competition in the retail fixed-to-mobile market is such that changes in mobile termination rates only partly flow through into retail fixed-to-mobile prices. T-

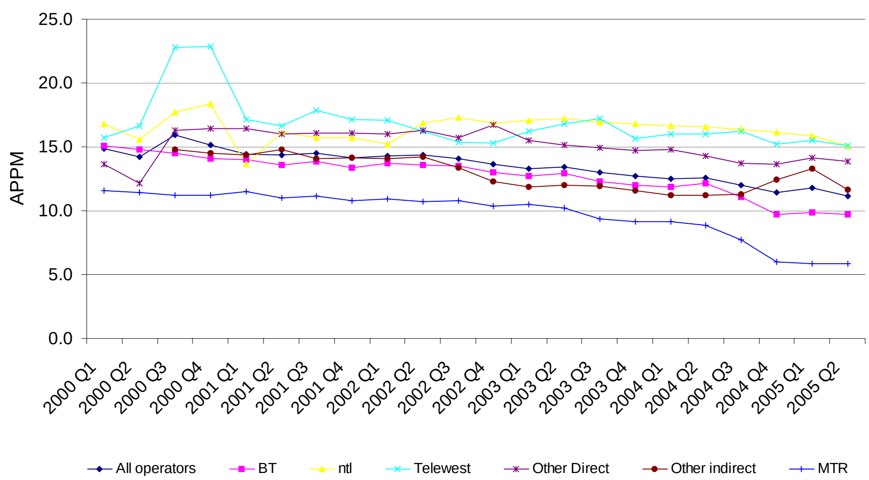
[47] Where price is set above marginal cost such that fixed costs are recovered in inverse proportion to the (super) elasticities of service.

Mobile claimed that a large proportion of the cuts in termination charges, around 40 per cent, have not been passed through to consumers in lower fixed-to-mobile prices.

A7.7 The analysis below attempts to assess the extent of direct pass through since Q1 2000. Ofcom has calculated average pence per minute (APPM) by dividing total fixed to mobile revenues by total fixed to mobile minutes and will therefore include fixed calls terminated on H3G's network (quarterly data supplied to Ofcom by fixed network operators does not distinguish between revenues from calls to different mobile networks). However, the derived termination rate, which is used for comparison, is calculated (appropriately) by dividing total termination revenues by total termination minutes for the four regulated 2G MNOs, and therefore this data excludes minutes and the resultant revenues from termination on H3G's network. Thus this analysis will tend to understate the extent of direct pass through, particularly in later periods, as H3Gs termination rates are unregulated and, on average, are substantially higher than the other MNOs.

A7.8 Figure 1 below shows the APPM in revenue by operator for fixed to mobile calls, compared with the calculated average mobile termination charge (in nominal terms). The average APPM has fallen from 14.8ppm in Q1 2000 to 11.2ppm in Q2 2005, a decline of 3.7ppm or 25% at a compound average growth rate ("CAGR") of -7.4%. Over the same period the average mobile termination charge has fallen from 11.6ppm to 5.9ppm, a fall of about 5.7ppm or 49% at a CAGR of -18.5%.

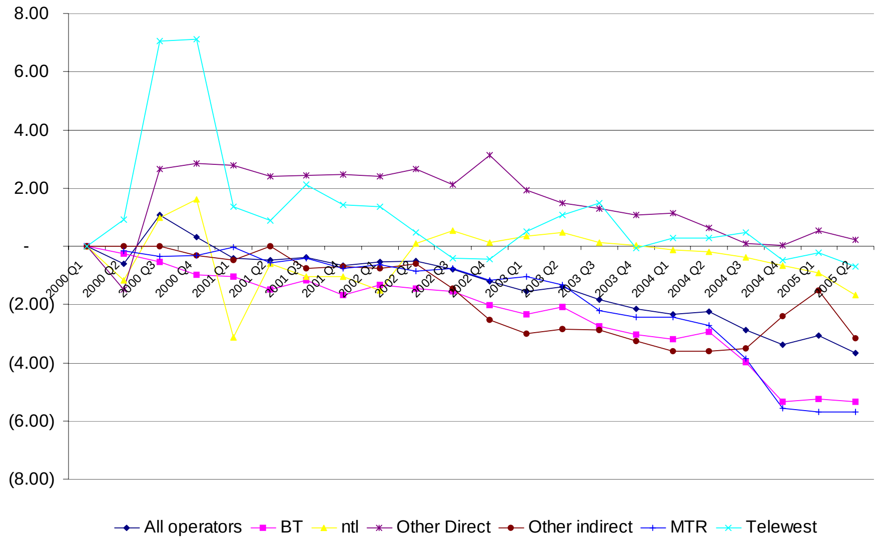
Figure 1 – APPM by operator, Q1 00 – Q2 05



Source: Ofcom Market intelligence

A7.9 Figure 2 shows the absolute reduction by operator. BT has clearly been the most active in directly passing through reductions in termination rates, with its APPM falling by 5.4ppm over the period compared to the average of 3.7ppm, while the cable operators (Telewest and ntl) have only directly passed through 0.7ppm and 1.67ppm respectively. However, there is some instability in the data for Telewest, ntl, and "other direct", although this is generally in earlier periods, which may indicate that the data should be viewed with some caution.

Figure 2 - Absolute change in APPM (Q1 2001 - Q2 2005)



Source: Ofcom Market intelligence

A7.10 It is also worth considering the impact of the higher H3G termination rates on the APPM figures for fixed operators. By Q2 2005 H3G had about 3.5m subscribers. H3G's effective average call termination charge, weighted by time of day, is currently just under 10ppm, almost double that of the other four MNOs. As a consequence, the results will tend to understate the level of direct pass through.

A7.11 The data on APPM suggests that, in the market as a whole, fixed operators have directly passed through about 64% of the reductions in mobile termination charges. BT has been considerably more active in this regard directly passing through 94% of the reductions. Indirect operators have directly passed through 56%, and cable operators have directly passed through between 12% and 29%.

A7.12 From an equity perspective the likely losers from high fixed to mobile charges (i.e. fixed only customers who call mobiles) are mainly older and less affluent. However, the evidence of the February 2006 survey suggests that they are also more likely to be BT subscribers (82% are BT's subscribers compared to an average of 75% for the UK as a whole) and therefore benefit from BT's high level of direct pass through. As noted in paragraph 5.21 above, it also appears that this group is less likely than the generality of consumers to make fixed to mobile calls.

A7.13 Ofcom has assessed the value of the reduction in mobile termination charges, and the subsequent change in retail fixed to mobile revenues, in order to assess the extent of direct pass through. To do this Ofcom compared actual revenues at the retail and wholesale levels with "unregulated" revenue, calculated by holding the mobile termination charges and the fixed to mobile APPM constant at the beginning of the period (Q1 2000) and then adjusting volumes based on a range of elasticity assumptions.

A7.14 This analysis gave a value for the reduction in mobile termination charges, between Q1 2000 and Q2 2005, of £1.1bn-£1.5bn; this compares to £611m - £1.1bn for the reduction in retail prices, giving a direct pass through figure of 55% - 74%. The midpoint of 64% is in line with the APPM analysis. BT is responsible for most of this, accounting for between 89%-99% of total direct pass through depending on the assumed elasticity.

A7.15 Ofcom recognises that the analysis in the preceding paragraphs may understate the extent of direct pass-through if there is a material time lag between reductions in termination charges and pass-through to retail prices. Confidential data gathered from FNOs indicates that this may be the case.

A7.16 Given the very wide range of services, in addition to fixed to mobile calls, which are offered by fixed network operators, any analysis of the extent of indirect pass-through would be highly complex and Ofcom has not attempted such an analysis at this time. Nevertheless, Ofcom notes that fixed network operators without SMP are obliged to compete against BT which has engaged in direct pass-through. It may, therefore, be reasonable to assume that providers without SMP do face competitive pressure to reduce retail prices generally in response to the direct pass-through implemented by BT.