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**Hutchison 3G UK Limited  
Response to  
Routing calls to ported telephone numbers  
Consultation on proposals**

**NON-CONFIDENTIAL**  
Redactions indicated by “[<]”

**26 October 2009**



**BASIC DETAILS**

**Consultation title:** Routing of Calls to Ported Telephone Numbers – Consultation on Proposals  
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James Westby

Signed (if hard copy)



## Executive Summary

Hutchison 3G UK Limited (“3UK”) welcomes Ofcom’s most recent review of the mobile number portability (“MNP”) arrangements in the UK. In particular, in relation to the routing of calls to ported numbers, we welcome Ofcom’s recognition of the inefficiencies of the current onward routing system and the disincentives to remove those inefficiencies placed on call originators by the financial schemes associated with it.

### The need for regulation

3UK has long been of the view that the current arrangements distort competition to the detriment of consumers and newer entrants. 3UK agrees with Ofcom that, given the levels of inefficiency that exists, the “do nothing” option is simply not acceptable. This inefficiency is calculated by Ofcom to be £14m per year annum now and rising to £19m per annum by 2021.

3UK believes reform will only be possible to the extent that there is regulatory intervention with decisive deadlines and directives. To date the other MNOs have not shared the same incentives as 3UK and newer entrants to improve the MNP system. Accordingly, 3UK strongly supports Option 4 (mandated direct routing).

Of the other three options considered by it, Ofcom states its preference for an industry-led move to direct routing (Ofcom’s “Option 2”) as being consistent with its principle of least interventionist approach. In 3UK’s opinion, this option is unlikely to succeed. Experience to date shows that MNP improvements will not be achieved expeditiously, if at all, unless Ofcom takes the lead and imposes firm deadlines. Past history has shown that industry is very unlikely to agree to and implement a new MNP system by itself, because many key players are financially incentivised to maintain the current system, despite its obvious shortcomings.

Should, however, Ofcom be minded to adopt Option 2, 3UK would commit to participating and taking an active role in implementing an industry solution.

### Incentives for removing routing inefficiencies

In addition to mandating Option 4, 3UK urges Ofcom to create the right incentives for efficiency ahead of a move to direct routing by creating the correct financial incentives (Ofcom’s “Option 3”).

Ofcom has stated that it does not favour Option 3, mainly because it is concerned that this would shift some of the burden of onward conveyance costs onto the fixed industry. However, 3UK believes Ofcom’s concern must be balanced against the overall burden to the fixed industry in respect of all calls to mobile numbers (ported or not) which has fallen significantly with reducing Mobile Termination Rates (“MTR”) and is likely to continue to do so. This also needs to be set against the financial distortions which for a number of years now have placed the burden on newer entrant net recipient operators such as 3UK.



These financial distortions include the donor passes all arrangement which allows the originators (including fixed operators) and donors to avoid paying the legitimate (and in the case of 3UK, regulated) MTR of a recipient operator. Further financial distortions exist for calls to numbers ported out of 3UK where other MNOs have been allowed to recover over and above their legitimate MTR charges.

	Actual to date	Estimated between October 2009 and March 2011
<b>Underpayment of MTR to 3UK</b>	[<]	[<]
<b>Overpayment of MTR to other MNOs</b>	[<]	[<]
<b>Net out payments of Donor Conveyance Charges by 3UK</b>	[<]	[<]

These anomalies summarised above, which exist despite Ofcom's own price controls imposed on the MNOs, continue to distort competition to the detriment of 3UK. 3UK proposes that Ofcom should immediately implement a modified Option 3 that takes these anomalies into account.

#### **Ofcom's Cost Benefit Analysis ("CBA")**

Ofcom's CBA finds positive Net Present Values ("NPV") of £16m and £26m (over seven and ten years, respectively) in moving to direct routing of mobile originated calls to ported mobile numbers. 3UK believes it is highly likely that Ofcom's NPV is significantly underestimated due to factors discussed in more detail in Section 4 of this response.

The cumulative effect of some of these factors is such that Ofcom's estimated positive NPV of the mobile to mobile scenario is likely to be understated by between £25m and £29.7m over seven years and between £31.3m and £37.1m over ten years. There also remain un-quantified second order benefits of direct routing which whilst they may be more difficult to calculate, nevertheless are likely to be significant and additional to Ofcom's own calculations.

Additionally, Ofcom's costs estimates do not take into account the synergies between building a messaging hub for porting and a central database ("CDB") for direct routing. The same system could be designed to perform both tasks, meaning that the costs of moving to direct routing could significantly reduce if it is implemented alongside a porting hub.

Finally, the NPV may yet be higher were the industry to adopt a commercial off-the-shelf solution as opposed to one built from scratch using NICC specification. 3UK believes that it remains open to the industry to adopt such a solution especially given that much of the work in procuring a system was already covered at UKPorting over the course of last year.



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## 1. Introduction

This submission responds to Ofcom's consultation on the *Routing calls to ported telephone numbers – Consultation on proposals*, published on 3 August 2009 ("the Consultation").

### 1.1. Ofcom's policy objective

In the Consultation, Ofcom states that its policy objective is to "[e]nsure that calls to ported numbers are routed efficiently to subscribers where the benefits outweigh the costs"<sup>1</sup>. Based on the CBA set out by Ofcom in the Consultation, it finds this to be the case with mobile originated calls to ported mobile numbers, but at present not in relation to any other scenario. Accordingly, this response is concerned primarily with the routing of calls to ported mobile numbers.

### 1.2. Ofcom's proposed options

Ofcom proposes four options in the Consultation to deliver its policy objective and respond to the inefficiencies identified. These include a counterfactual or "do nothing" option and three other options ranging from less intrusive to mandatory one which seek to ensure direct routing of mobile originated calls to ported mobile numbers. These options are:

- **Option 1:** the counterfactual or "do-nothing";
- **Option 2:** industry-led initiative to implement direct routing for mobile originated calls to ported mobile numbers;
- **Option 3:** changing the routing incentives for calls to ported mobile numbers; and
- **Option 4:** mandate direct routing for mobile originated calls to ported mobile numbers

3UK agrees with Ofcom that Option 1 is not acceptable given the order of inefficiencies that exist in the current onward routing system. However, 3UK does not agree with Ofcom's preference for Option 2.

3UK sets out in Annex 2 to this response a chronological summary of the attempts over many years to secure improvements to the MNP process through engagement with other MNOs which have not borne fruit. It is apparent from this chronology that MNP improvements will not be achieved expeditiously, if at all, unless Ofcom takes the lead and imposes firm deadlines. Ofcom has a firm evidence base, through its numerous consultations, dispute referrals, appeals and investigations to move to a mandated solution, and it is the only way in which change will be achieved. The current situation calls for decisive regulatory action.

When Ofcom acted decisively in November 2007 it produced a coordinated effort from the entire industry and would have produced results but for the legal challenge of Vodafone and others. By contrast, the preceding years saw barely any progress despite much encouragement by 3UK to reform the routing process. An industry-led process risks the same fruitless delay, to little or no purpose.

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<sup>1</sup> See 3.3.4 of the Consultation



Accordingly, 3UK believes that Ofcom's Option 4 is both justified and necessary as it has proved impossible to reach an industry consensus and action without such a regulatory backstop. 3UK agrees with Ofcom's proposal in this regard to appoint an external consultancy to work with the industry to define a technical specification within three months from commencement. Should Ofcom decide to adopt Option 4, 3UK proposes that Ofcom should allow the industry a time period of twelve months to implement it.

3UK also remains very concerned that Ofcom has left in place the financial arrangements which in its own admission distort competition and provide disincentives on other MNOs from implementing efficient routing of calls to ported numbers. 3UK therefore strongly supports the creation of right incentives for efficiency ahead of a move (via mandated Option 4 or otherwise) to direct routing via adoption of Option 3 (modified as discussed in Section 3).

3UK shall respond separately to Ofcom's consultation on "*Mobile Number Portability - A review of the porting process*", which was also published on 3 August 2009<sup>2</sup>. However, 3UK notes that there is significant overlap between the subject matter of these two consultations, and so they should not be looked at in isolation. In particular, the outcomes of each consultation process may have an impact on the costs of implementing each option. 3UK urges Ofcom to take account of these overlapping costs when deciding which of the options to mandate.

### 1.3. Structure of this response

This remainder of this response is structured as follows:

- Section 2: sets out the background of attempts to improve MNP system in the UK and discusses the need for firm deadlines;
- Section 3: discusses the need for additional regulatory action in creation of the right economic signals via a modified Option 3;
- Section 4: contains an assessment of Ofcom's CBA in more detail; and
- Section 5: sums up 3UK's assessment of Ofcom's options.

Additionally, this response includes:

- Annex 1: Answers the specific questions asked by Ofcom in the Consultation.
- Annex 2: Chronology of attempts to improve the UK MNP process.
- Annex 3: [§<]

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<sup>2</sup> [http://www.ofcom.org.uk/consult/condocs/gc18\\_mnp/mnpcondoc.pdf](http://www.ofcom.org.uk/consult/condocs/gc18_mnp/mnpcondoc.pdf)



## 2. The need for regulation

3UK has been committed to improving the MNP system since entering the market in 2003. Yet both its and latterly Ofcom's efforts to improve the system have been continually frustrated by the actions and inaction of the other MNOs.

### 2.1. Other MNOs' resistance to change

It is of note in this regard that the other operators' resistance to change only emerged once it was apparent that there would be at least one new entrant to the mobile market. In January 1999, the mobile operators agreed in principle to move to direct routing of calls to ported numbers. They said at the time that they considered that this could be implemented within twelve months<sup>3</sup>. This enthusiasm only diminished once the Government indicated that a new entrant was to be licensed through the 3G auction.

Ten years on, the four incumbent mobile operators, as a group, continue to profit from the inadequacies of the existing MNP system including the receipt of donor operator MTRs which are higher than their own regulated MTRs, a net in-flow of Donor Conveyance Charges ("DCC") and, crucially, scope for targeted retention activity. It is the new entrant operators and consumers who pay the price.

### 2.2. Need for leadership and decisive action

In November 2007, Ofcom took decisive action to mandate reform but was frustrated by Vodafone's and others appeal to the Competition Appeal Tribunal ("the CAT"). Despite this, and even though only nine months had passed since Ofcom's decision, industry had agreed, via the UKPorting forum, all key issues for implementation of the MNP routing solution. In fact, the industry was only a matter of weeks away from signing contracts with third party suppliers who would have implemented the new arrangements. It is extremely regrettable that Vodafone and others were able to derail such a productive project at such a late stage.

What the most recent developments have shown, if it was not already clear before, is that there is a need for firm leadership from Ofcom, including a regulatory back-stop if necessary. When Ofcom acted decisively in November 2007 and placed very specific conditions on Communication Providers, it produced a coordinated effort from the entire industry and would have produced results but for the legal challenge as discussed above. By contrast, the preceding five years saw barely any progress despite much encouragement by 3UK to reform the routing process.

3UK believes that it is important for all stakeholders considering MNP reform to have at the forefront of their minds the history that has gone before. With this in mind, and illustrating the need for regulatory leadership, Annex 2 of this response puts together a chronology of key events in the MNP regulatory sphere. It will be apparent from this chronology that it has proved impossible to reach an industry consensus on agreeing to and implementing a new MNP system. Equally, it is also apparent that regulatory action has not always been sufficiently decisive. We have seen consultations in June

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<sup>3</sup> See 3.5.5 of *Mobile Number Portability Determination Requests – Explanatory Document*, available at: [http://www.ofcom.org.uk/static/archive/oftel/ind\\_info/numbering/mnppetre.pdf](http://www.ofcom.org.uk/static/archive/oftel/ind_info/numbering/mnppetre.pdf)





2002<sup>4</sup> (when Of tel first recommended a CDB for ported numbers) and then again in August 2004<sup>5</sup>, November 2005<sup>6</sup>, November 2006<sup>7</sup>, March 2007<sup>8</sup> and July 2007<sup>9</sup>. We have also, in parallel, seen the industry MNP Operator Steering Group (and its predecessor, created under the aegis of the then regulator Of tel) conduct numerous investigations into the feasibility of implementing various proposals and recommendations. Yet we still do not have direct-routing (or recipient-led MNP<sup>10</sup>).

### 2.3. Summary and Conclusion

The continued lack of progress damages 3UK's business and is not good for Ofcom or the regulatory process in general. The continuing industry discord creates a drain on the resources of both the industry and the regulatory system as a whole (including Ofcom and the CAT). We have already seen four CAT appeals arising out of MNP issues<sup>11</sup> and MNP has also been relevant to the recent Mobile Call Termination appeals<sup>12</sup>. There have also been dispute referrals that have either been determined or are pending<sup>13</sup>. Finally, there are, of course, regulatory issues that remain to be completed: on enforcement action over DCCs, and reform of the MNP system itself.

<sup>4</sup> *Consultation on proposals to change the framework for number portability*, available at: <http://www.ofcom.org.uk/static/archive/oftel/publications/numbering/2002/nupo0602.pdf>

<sup>5</sup> *An assessment of alternative solutions for UK number portability*, available at: [http://www.ofcom.org.uk/consult/condocs/uk\\_numb\\_port/uk\\_numb\\_port\\_cons/uk\\_numb\\_port.pdf](http://www.ofcom.org.uk/consult/condocs/uk_numb_port/uk_numb_port_cons/uk_numb_port.pdf)

<sup>6</sup> *Number portability and technology neutrality*, available at: <http://www.ofcom.org.uk/consult/condocs/numport/np.pdf>

<sup>7</sup> *Review of General Condition 18 – Number portability*, available at: <http://www.ofcom.org.uk/consult/condocs/gc18/gc18r.pdf>

<sup>8</sup> *Amendment to charge control on Mobile Network Operators - Proposals for consultation*, available at: [http://www.ofcom.org.uk/consult/condocs/mno\\_charge\\_control/condoc.pdf](http://www.ofcom.org.uk/consult/condocs/mno_charge_control/condoc.pdf)

<sup>9</sup> *Arrangements for porting phone numbers when customers switch supplier*, available at: <http://www.ofcom.org.uk/consult/condocs/gc18review/numberportability.pdf>

<sup>10</sup> The question of need for recipient-led porting is covered in 3UK's separate response to Ofcom's consultation *Mobile Number Portability - Review of the porting process*, published 3 August 2009.

<sup>11</sup> *Hutchison 3G UK Limited v Office of Communications – CAT Case number 1066/3/3/06*, see: <http://www.catribunal.org.uk/238-628/1066-3-3-06-Hutchison-3G-UK-Limited.html>

*O2 (UK) Limited v Office of Communications – CAT Case number 1084/3/3/07*, see: <http://www.catribunal.org.uk/239-646/1084-3-3-07-O2-UK-Limited.html>

*T-Mobile (UK) Limited v Office of Communications (Donor Conveyance Charge) – CAT Case number 1093/3/3/07*, see: <http://www.catribunal.org.uk/238-655/1093-3-3-07-T-Mobile-UK-Limited.html>

*Vodafone Limited v Office of Communications – CAT Case number 1094/3/3/08*, see: <http://www.catribunal.org.uk/239-657/1094-3-3-08-Vodafone-Limited.html>

<sup>12</sup> *British Telecommunications plc v Office of Communications (Mobile Call Termination) – CAT Case number 1085/3/3/07*, see: <http://www.catribunal.org.uk/238-647/1085-3-3-07-British-Telecommunications-plc.html>

*Hutchison 3G UK Limited v Office of Communications (Mobile Call Termination) – CAT Case number 1083/3/3/07*, see: <http://www.catribunal.org.uk/239-645/1083-3-3-07-Hutchison-3G-UK-Limited.html>

<sup>13</sup> *Disputes from Hutchison 3G UK Limited against O2, Orange, T-Mobile and Vodafone about mobile call termination rates where calls are routed to a ported number - CW/00983/03/08*, see: [http://www.ofcom.org.uk/bulletins/comp\\_bull\\_index/comp\\_bull\\_ocases/open\\_all/cw\\_983/](http://www.ofcom.org.uk/bulletins/comp_bull_index/comp_bull_ocases/open_all/cw_983/)

*Disputes between H3G and each of O2, Orange and T-Mobile about donor conveyance charges - CW/00952/04/07*, see:



Put in simple terms, reform will only be possible to the extent that there is regulatory intervention with decisive deadlines and directives because other MNOs have not and do not share the same incentives as 3UK and newer entrants to improve the MNP system. Ofcom's Option 4 (to mandate direct routing for mobile to mobile ported traffic) represents regulatory action which is both justified and necessary as it has proved impossible to reach an industry consensus and action without such a regulatory backstop.

Finally, because any mandate for direct routing will only take effect in the future, 3UK believes that there is a need for an additional regulatory action which ensures a timely reform and one which creates the right incentives for efficiency ahead of a move (mandated or otherwise) to direct routing. Section 3 sets out 3UK views on how this could be achieved.



### 3. Incentives for removing routing inefficiencies

Ofcom correctly recognises the disincentives that the current system places on call originators in form of “donor passes all” of MTRs and donor conveyance financial schemes. However, it merely seeks to rely on the effect of these factors to fade away naturally over time in order to make a case for direct routing. This is despite the policy objective stated by Ofcom at paragraph 3.3.4 of the Consultation:

*“Our policy objective is to ensure that calls to ported numbers are routed efficiently to subscribers where the benefits outweigh the costs.” (emphasis added)*

Given above policy objective, an appropriate action is one which encourages efficient behaviour now and not possibly three to four years in the future. This could be achieved by removing the disincentives that Ofcom has recognised. To do otherwise would simply continue to promote and reward inefficiency.

Additionally it should not be forgotten, that had Ofcom’s original decision in November 2007 not been appealed, it is almost certain that mobile originated calls to ported mobile numbers would now be routed directly<sup>14</sup>. In this present consultation, Ofcom has demonstrated that its original determination to mandate direct routing of calls to ported mobile numbers was indeed the correct decision. Any further delay in incentivising efficient behaviour now is entirely unnecessary.

#### 3.1. Donor Conveyance Charges

3UK notes Ofcom’s concerns in this regard in changing the relevant economic signals, mainly the shifting of the burden of onward conveyance costs onto the fixed and mobile originators. 3UK believes this concern is misplaced when taking into consideration that for ten years now both the fixed and mobile originators have been allowed to get away with the so-called “burden” placing unfair costs on a recipient operator especially a new entrant like 3UK which, by its very nature, has a net in-flow of ported traffic. This burden has meant that 3UK has, since its launch in 2003, made net out-payments of approximately [£<] in donor conveyance charges to other MNOs<sup>15</sup>. 3UK calculates that it will continue to incur this net cost in excess of [£<] per annum until all calls to ported mobile numbers are directly routed.

#### 3.2. “Donor passes all” arrangement of MTRs

This financial anomaly is only exacerbated when one also considers the donor passes all arrangement that has allowed the originators and donors to avoid another “burden” of paying the legitimate (and in the case of 3UK, regulated) MTR of a recipient operator. This burden has meant that, for calls to numbers ported into 3UK, it has under recovered (and calls originators and donors have avoided payments) to date of approximately [£<] in MTR charges. 3UK calculates that it will incur further under-recoveries in MTR revenue of approximately [£<] between October 2009 and March 2010, and [£<] between April 2010 and March 2011.

<sup>14</sup> Ofcom’s November 2007 decision set a deadline of 1 September 2009 for the direct routing of ported mobile to mobile calls

<sup>15</sup> Ofcom’s enforcement action in respect of cost orientation of DCC between 25 July 2003 and 8 February 2008 still remains to be concluded.



By contrast, for calls to numbers ported out of an operator with a higher MTR where the originators pay (and other MNOs receive) a higher MTR than they would otherwise be required to, Ofcom has not considered the burden that already exists and has existed for a long time. This burden has meant that, for calls to numbers ported out of 3UK alone, the call originators have over paid and other MNOs have over recovered to date approximately [redacted] in MTR charges. 3UK calculates that the call originators will incur further overpayments and other MNOs will make over recoveries in MTR charges for calls to numbers ported out of it of approximately [redacted] between October 2009 and March 2010, and [redacted] between April 2010 and March 2011.

	Actual to date	Estimated between October 2009 and March 2011
<b>Underpayment of MTR to 3UK</b>	[redacted]	[redacted]
<b>Overpayment of MTR to other MNOs</b>	[redacted]	[redacted]
<b>Net out payments of Donor Conveyance Charges by 3UK</b>	[redacted]	[redacted]

These financial anomalies, summarised in the table above, exist not only for numbers ported between 3UK and other MNOs but also numbers ported amongst other MNOs. This is despite Ofcom's own price controls imposed on the MNOs by its decision of 27 March 2007 (revised by its decision of 2 April 2009 following the CAT's directions of the same date)<sup>16</sup>. Whilst Ofcom seeks to rely in the Consultation on the effect of these distortions to reduce by 2011, 3UK believes that it will nevertheless remain significant until direct routing is fully in place for all calls to mobile numbers.

### 3.3. Incentives for efficiency

3UK remains very concerned that Ofcom has left in place the financial arrangements which in its own admission distort competition<sup>17</sup>. 3UK therefore reiterates that the inefficiencies of the current system warrant immediate action. Accordingly, Ofcom should create the right incentives for efficiency ahead of a move (mandated or otherwise) to direct routing by requiring with immediate effect that for all onward routed calls to ported mobile numbers:

1. The originator (fixed or mobile), instead of a recipient, shall pay to a donor operator the DCC (currently 0.1ppm); and
2. The originator (fixed or mobile) shall pay to a donor operator, the recipient operator's MTR, instead of donor operator's MTR; and

<sup>16</sup> Ofcom's consultation on *Amendment to Charge Controls on Mobile Network Operators*, published 27 March 2007, which sought to address these financial anomalies, was suspended pending the outcome of CAT MTR appeals. However, following the CAT's direction of 2 April 2009 in the appeals, Ofcom concluded to leave the current arrangements in place at least until end of March 2011. The dispute brought by H3G in this matter to Ofcom, which was also suspended pending the outcome of CAT MTR appeals, remains to be determined.

<sup>17</sup> See, for example, 4.22 of *Amendment to charge control on Mobile Network Operators - Proposals for consultation*, available at: [http://www.ofcom.org.uk/consult/condocs/mno\\_charge\\_control/condoc.pdf](http://www.ofcom.org.uk/consult/condocs/mno_charge_control/condoc.pdf)



3. The donor operator shall pay to a recipient operator the recipient operator's MTR, instead of donor operator's MTR.

These changes to the financial schemes represent the additional regulatory action which is required in order to ensure a timely reform and create the right incentives for efficiency as noted above. Ofcom's Option 3 (changing the routing incentives for calls to ported mobile numbers) provides for some of the above. 3UK recognises that these changes would require:

1. Means by which the mobile operators share with others information of ported mobile numbers for billing reconciliation purposes or routing directly should they choose to as a result of facing changed economic signals. This could be achieved by:
  - using the "SRI look up" technique already in place for routing of Short Message Service ("SMS") which involves sending queries into the donor networks' databases to determine whether a number has been ported. The result of such a look up could be used for billing reconciliation and/or direct routing; or
  - modifying the current method of bilateral file exchanges between the donors and recipients such that the information is made available to all operators. This could be achieved, for example, by routing the files via the existing central system provided by Syniverse which would collate and make available the information of all ports, for example, daily, to all operators via simple File Transfer Protocol ("FTP") downloads. [3<]
2. Changes to wholesale billing systems for invoicing of ported traffic by utilising the information obtained from above means.

These changes are estimated to cost 3UK in the region of [3<] to [3<] and could be implemented within three months on our network. We also believe that the changes to the Syniverse system could be achieved within a reasonable amount of time and cost. In any event, we believe these charging principles would need to be implemented for the onward routing fixed originated calls to ported mobile numbers as part of the mobile to mobile direct routing solution for Option 4 or Option 3 to prevent any possible arbitrage opportunities that could arise from price differences between the two routing mechanisms. The costs incurred in building these changes would therefore be subsumed in the overall costs of moving to direct routing.

### 3.4. Overall burden on the fixed industry

3UK estimates that, over the period of Ofcom's current price control on mobile operators' mobile call termination charges, the fixed industry's costs of calling mobile numbers will have fallen by approximately £250m due to reducing MTRs, including £168m to date since April 2007 and £82m to follow in the period to March 2011<sup>18</sup>.

<sup>18</sup> This has been calculated using the volumes of fixed to mobile traffic from Ofcom's CBA and applying to those an average MTR across the MNOs derived from their latest market shares (by subscribers) available from Ofcom's market tables.



This is incremental to the costs 'avoided' of not having to pay 3UK's MTRs as discussed earlier in this section. These reductions need to be set against the costs of onward conveyance on fixed industry had it paid a DCC of 0.1ppm. Using Ofcom's volumes of fixed to mobile ported minutes in its CBA, 3UK calculates that this value over the price control period would be no more than £12m.

3UK submits that Ofcom's concern as to the shifting of burden of onward conveyance costs from the mobile industry to fixed industry as a result of the changes proposed above must therefore be balanced against the overall burden of fixed industry in respect of all calls to mobile numbers (ported or not) which is falling (and is likely to continue to do so)<sup>19</sup>, and the financial distortions set out above which exist today.

It is instructive to note in this regard the support for charging arrangements similar to the ones proposed above that was expressed in the response by Thus Telecom (primarily a fixed operator) to Ofcom's consultation of November 2006<sup>20</sup>. 3UK is also aware from its participation at the UKPorting that another large fixed operator, [3<], supported such an arrangement. What is more, this was also the view of the other MNOs expressed to Oftel in 1999<sup>21</sup>. 3UK is also aware that similar charging arrangements exist internationally in other countries where the 3 Group, and other MNOs' parent groups operate mobile networks, such as Ireland and Austria.

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<sup>19</sup> 3UK has made it very clear that it supports further significant reductions in MTRs after the current price control period that will presumably also reduce fixed-line operators' costs.

<sup>20</sup> See page 4 of Thus Telecom response to Ofcom's consultation of November 2006, available at: <http://www.ofcom.org.uk/consult/condocs/gc18/responses/thus.pdf>

<sup>21</sup> See 3.5.5 of *Mobile Number Portability Determination Requests – Explanatory Document*, available at: [http://www.ofcom.org.uk/static/archive/oftel/ind\\_info/numbering/mnnpdetre.pdf](http://www.ofcom.org.uk/static/archive/oftel/ind_info/numbering/mnnpdetre.pdf)



## 4. Assessment of Ofcom's Cost Benefit Analysis

Ofcom's CBA finds, in the case of mobile originated calls to ported mobile numbers, a positive Net Present Values ("NPV") of £17m and £26m over seven years and ten years, respectively. 3UK believes it is highly likely, although it has drawn the correct conclusion as a result of its analysis, that Ofcom's CBA almost certainly underestimates the benefits (and overestimates the costs) of moving to direct routing due to, *inter alia*, the reasons discussed below.

### 4.1. Volumes of onward routed minutes

In forecasting the volumes of onward routed minutes Ofcom's CBA assumes implicitly that the subscribers with ported mobile numbers receive, on average, the same number of call minutes as subscribers with non ported numbers<sup>22</sup>. This is because the proportion of subscribers with ported numbers<sup>23</sup> is used to estimate the proportion of total call minutes that are ported (and therefore incur onward routing). 3UK's own experience shows that subscribers with ported numbers tend to have a relatively more established calling circle and receive on average [3<]<sup>24</sup> more call minutes than those with non ported numbers.

In practice, Ofcom's assumption therefore underestimates the increase in call minutes to ported numbers. The impact of this effect can be seen by making a moderate adjustment to Ofcom's CBA by assuming that subscribers with ported numbers receive 10% more call minutes than those with non ported numbers. The resultant NPV for the mobile to mobile scenario in this case increases relative to the base case by £4.4m and £5.4m over seven and ten years, respectively<sup>25</sup>. Assuming that subscribers with ported numbers receive 20% more call minutes than those with non ported numbers, the resultant NPV for the mobile to mobile scenario in this case increases relative to the base case by £9.1m and £11.2m over seven and ten years, respectively<sup>26</sup>.

### 4.2. Call trap minutes

Ofcom assumes in its CBA that all five MNOs will have implemented call trap by 2012. This assumption has the effect of underestimating the likely actual increase in call minutes to ported numbers. In reality, only three MNOs have completed implementation of call trap with another one expected to have done so before 2012<sup>27</sup> which leaves one operator still not using call trap by 2012. Ofcom's sensitivity

<sup>22</sup> See A5.28 and A5.29 of the Consultation

<sup>23</sup> The starting point for proportion of subscribers with ported numbers is itself calculated using the total ported minutes in 2008 as a proportion of total traffic. See A5.36 of the Consultation.

<sup>24</sup> [3<]

<sup>25</sup> The increases in the NPVs for All Calls and Mobile terminating (i.e. mobile to mobile and fixed to mobile) scenarios range from £6.2m to £8.5m.

<sup>26</sup> The increases in the NPVs for All Calls and Mobile terminating (i.e. mobile to mobile and fixed to mobile) scenarios range from £13m to £17.8m.

<sup>27</sup> See A5.70 and A5.71 of the Consultation



analysis tests the impact of this assumption with a +/-20% variance of input and finds that the NPV of its base case for the mobile to mobile scenario increases by £10m in the high case scenario (i.e. where 20% fewer ported minutes are assumed to be call trapped)<sup>28</sup>.

Whilst it is unknown to 3UK whether and when the remaining MNOs will implement call trap, it is highly likely that the actual NPV will have higher values in the range of outputs given that only three MNOs have implemented call trap at the beginning of the period under consideration.

#### **4.3. Calls where the originator and the range holder are the same operator**

Ofcom assumes in its CBA that 20% of mobile to mobile ported minutes are not onward routed because the originating operator is same as the range holder operator<sup>29</sup>. The call to the ported number in this scenario is automatically directly routed. However it is important to note that in this scenario, the donor operator still applies a DCC of 0.1ppm (i.e. half of the cost of onward conveyance) to the recipient operator. Applying Ofcom's logic that costs and benefits flow through ultimately to the consumers<sup>30</sup>, it should be concluded that this DCC cost passes through to the consumer and must be treated logically as such in the CBA.

In order to take account of the above logic, Ofcom's CBA should be adjusted such that only 10% (instead of 20%) of mobile to mobile ported minutes are automatically directly routed (as a proxy to take into account the DCC charge applied to these calls). This adjustment has the effect of increasing the NPV of the mobile to mobile scenario relative to the base case by £12.9 and £16.2m over seven and ten years, respectively.

#### **4.4. Operator specific operating costs**

It is implicit in Ofcom's CBA that operator specific operating costs of direct routing will be additional to the existing costs of supporting onward routing. Whilst it is likely that some of the latter costs will remain to support onward routing of fixed originated calls to ported mobile numbers or as a general fall back to direct routing, the overall costs of supporting both routing schemes will not be cumulative. [3].

#### **4.5. Operator specific and Central Database capital costs**

It is assumed in Ofcom's CBA that all operator specific as well as CDB capital (and operating) expenditure is incurred based on the NICC technical specifications. As noted by Ofcom in the Consultation<sup>31</sup>, the NICC specification was over-engineered in some respects. Therefore, it is likely that these costs will be significantly lower should

<sup>28</sup> See A5.99 of the Consultation

<sup>29</sup> See A5.73 of the Consultation

<sup>30</sup> See 2.35 of the Consultation

<sup>31</sup> See 4.17 and A5.90 of the Consultation





the industry adopt a commercial off-the-shelf solution (as 3UK has consistently advocated<sup>32</sup>). [3<].

It is instructive to note in this regard that the responses to the Request for Information received by the MNP Operator Steering Group in 2005 were significantly lower compared to the quotations received at UKPorting<sup>33</sup>. 3UK firmly believes that it remains open to the industry to adopt an off-the-shelf solution. This is especially so given that much of the work in procuring a CDB was covered by UKPorting remains relevant and reusable.

Additionally, Ofcom's cost estimates do not take into account the synergies between building a messaging hub for porting and the CDB for direct routing. This would be particularly relevant if Ofcom were minded to decide that a recipient-led solution (as 3UK advocates) was the most appropriate solution for the customer porting process moving forward as part of its parallel consultation: *Mobile Number Portability - A review of the porting process*, published on 3 August 2009. The same system could be designed to perform both tasks, meaning that the costs of moving to direct routing could be significantly reduced if it is implemented alongside a porting hub.

#### 4.6. Summary

	7 Years		10 Years	
	NPV	Change relative to base case	NPV	Change relative to base case
<b>Ofcom's Base Case</b>	£16.3m		£26.0m	
<b>10% higher minutes received by ported subscribers versus non ported subscribers</b>	£20.7m	+£4.4m	£31.4m	+£5.4m
<b>20% higher minutes received by ported subscribers versus non ported subscribers</b>	£25.4m	+£9.1m	£37.2m	+£11.2m
<b>20% fewer call trapped minutes to ported numbers</b>	£24.0m	+£7.7m	£35.7m	+£9.7m
<b>10% fewer minutes automatically direct routed</b>	£29.2m	+£12.9m	£42.2m	+£16.2m

Following the discussion set out above, the conservative nature of Ofcom's CBA for mobile to mobile scenario over a horizon of seven and ten years can be summarised as per the table above.

<sup>32</sup> See Section 3 of 3UK's response to Ofcom's consultation on the "Arrangements for porting phone numbers when customers switch supplier- A review of General Condition 18", published 17 July 2007

<sup>33</sup> See 5.5 of 3UK's response to Ofcom's consultation on the "Review of General Condition 18 – Number Portability", published 16 November 2006



The cumulative effect of these factors is such that the NPV of mobile to mobile scenario is likely to be understated by between £25m and £29.7m over seven years and between £31.3m and £37.1m over ten years.

#### 4.7. Second order benefits

In addition to these points, Ofcom's CBA has not quantified the following second order benefits of moving to direct routing. These are:

##### 4.7.1. Protection from donor network failure (both commercial and technical)

This is of particular relevance given the uncertainties generated by the current economic climate. 3UK notes the comments made by the CAT on this subject in Vodafone's appeal<sup>34</sup>. However, we consider that these arguments do not address the issue under consideration – i.e. protection of ported customers against donor network failures. We agree with the CAT that there is suffering of equal, if not greater, significance for the customers remaining on the failed network, but Ofcom has (and had) not set out with an objective to build a means of defence against network failures per se for such customers in the first place, nor is direct routing (or any form of routing) by any means intended to be or capable of being a means of defence against failure of this type. To the extent it relates to MNP and the consumers' right to exercise their choice of using MNP, direct routing remains a key defence mechanism for the protection and continuation of that choice, and should remain at the heart of Ofcom's policy objective.

[3<].

##### 4.7.2. Protection from quality of service issues on the donor network.

3UK notes in relation to this point, the recent briefing by BT to the industry regarding the loss of incoming service to customers with ported numbers due to errors in management of the onward routed traffic on certain switches<sup>35</sup>. Whilst these failures occurred due to a failure of process between fixed networks, they nevertheless make evident the potential dangers of reliance on a donor network.

In an example of service issues in the mobile sphere, a series of recent outages in O2's network resulted in loss of services to a significant number of its customers. Whilst these outages were related primarily to data services (which by their very nature are directly routed) these types of examples demonstrate that it is entirely possible that customers with numbers ported out of O2 (and other networks) will remain vulnerable to potential problems on their old network<sup>36</sup>.

<sup>34</sup> See 109 to 111 of [http://www.catribunal.org.uk/files/Judgment\\_1094\\_180908.pdf](http://www.catribunal.org.uk/files/Judgment_1094_180908.pdf)

<sup>35</sup> <http://www.btwholesale-briefingportal.com/brief/view/b911a2d64f6eaea50a0b52a65f7c5651>

<sup>36</sup> [http://www.theregister.co.uk/2009/07/24/o2\\_roaming\\_failure/](http://www.theregister.co.uk/2009/07/24/o2_roaming_failure/) (last accessed 18 October 2009)

[http://www.theregister.co.uk/2009/07/28/o2\\_down\\_again/](http://www.theregister.co.uk/2009/07/28/o2_down_again/) (last accessed 18 October 2009)

<http://www.telegraph.co.uk/technology/mobile-phones/5880259/O2-network-crashes-across-UK.html> (last accessed 18 October 2009)



#### 4.7.3. *Protection from service interoperability issues*

UK believes these issues remain relevant to the consideration of call routing to ported numbers and notes the objections raised by some of the MNOs to the limited international roaming reach of new entrant operators. This is because international roaming arrangements are required for receiving internationally originated SMSs meaning that the customers who port in their numbers from a newer entrant are likely to have lesser ability to receive internationally originated SMSs than the non ported customers of an established MNO. 3UK understands that some MNOs have made conditional provisions in their bilateral MNP agreements with newer entrants to ensure same levels of international roaming connectivity for their ported in customers as the non-porting ones. These problems would be mitigated by the presence of a CDB which could be accessed by international signalling hub providers.

In its November 2006 consultation, based on a report prepared in 1993 for Oftel, Ofcom estimated the benefit of protection from donor network failure at £296 per ported subscriber in 2005 prices<sup>37</sup>. This figure not only included the cost of notifying others of a change in number but also the cost of temporary loss of service, cost of changing their number, and the cost of contracting with a new supplier. Ofcom noted, therefore, that the figure still represents a reasonable estimate of the average financial impact per customer affected<sup>38</sup>. For a hypothetical failure of an operator of 200,000 customers of which 15% ported out, the consumer benefit suggested by this estimate would be nearly £10m in 2008 prices.

3UK agrees that these benefits can be more difficult to calculate, but nevertheless, as illustrated above, they are still likely to be significant and additional to Ofcom's current calculations.

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<http://news.bbc.co.uk/1/hi/technology/8161938.stm> (last accessed 18 October 2009)

<sup>37</sup> See 3.26 of <http://www.ofcom.org.uk/consult/condocs/gc18/gc18r.pdf>

<sup>38</sup> See A1.59 of <http://www.ofcom.org.uk/consult/condocs/gc18review/statement/statement.pdf>



## **5. Assessment of Ofcom's options**

This section summarises 3UK's views on Ofcom's proposals to implement direct routing of mobile originated calls to ported mobile numbers against the backdrop outlined in the previous sections.

### **5.1. Option 1: do nothing**

3UK agrees with Ofcom that a "do nothing" option is not acceptable given the level of inefficiency and disincentives that exist in the current onward routing system and the financial arrangements surrounding it.

### **5.2. Option 2: industry-led direct routing**

As discussed in Section 2, 3UK believes that reform will only be possible to the extent that there is regulatory intervention with decisive deadlines and directives because other MNOs have not and do not share the same incentives as 3UK and newer entrants to improve the MNP system.

Accordingly, 3UK is not supportive of this option. However, should this turn out to be Ofcom's preferred option following representations from all stakeholders, 3UK would commit to take an active role in formulating and implementing an industry solution. In addition, 3UK believes that Ofcom must set strict deadlines, together with the option of imposing financial penalties for failing to meet those deadlines and must assume a leader's role remaining as close as possible to the overall implementation process through to the eventual delivery of the CDB.

### **5.3. Option 3: changing the routing incentives for calls to ported mobile numbers**

When considering Ofcom's policy objective of ensuring efficient routing of calls to ported numbers, 3UK firmly believes that Option 3 represents an appropriate approach - one which encourages efficient behaviour now and not possibly three to four years in the future. To leave in place the current economic signals would simply continue to promote and reward inefficiency.

As outlined in Section 3, 3UK is supportive of Option 3 (modified as discussed in that section) which creates the right incentives for efficiency ahead of a move (mandated or otherwise) to direct routing. 3UK believes that the technical arrangements for this could be achieved within reasonable amount of time and cost.

### **5.4. Option 4: mandate direct routing**

The industry has seen that when Ofcom acted decisively in November 2007 it produced a coordinated effort from the entire industry that would have produced results but for the legal challenge of Vodafone and others. By contrast, the preceding years saw barely any progress despite much encouragement by 3UK to reform the routing process. Accordingly, 3UK believes that in addition to Option 3, Option 4 is both justified and necessary in order to deliver Ofcom's stated policy objective.



3UK agrees with Ofcom's proposed next steps in this regard, namely, appointment of an external consultancy to work with the industry to define a technical specification within three months from commencement. Following a final statement to mandate direct routing 3UK proposes that Ofcom should allow the industry a time period of twelve months to implement it.

Finally, 3UK believes that Ofcom should remain as close as possible to this process once the consultant or advisor is appointed and be prepared to step in to resolve potential impasses.



## **ANNEX 1: Answers to the specific questions asked by Ofcom**

Set out below are 3UK's responses to the specific questions asked by Ofcom in annex 4 of the Consultation. These answers should be read in the context of 3UK's response as a whole.

**Question 3.1: Do you agree that there is a problem in the way mobile originated calls to ported mobile numbers are routed? If not, why not?**

Yes.

**Question 3.2: Do you agree with our assessment of the issues associated with onward routing?**

Yes.

**Question 4.1: Do you agree with our proposed approach for assessing the net benefit? If not please explain why not.**

As discussed in Section 4, 3UK believes Ofcom's approach is likely to have underestimated the benefits by as much as £37m over ten years.

**Question 4.2: Do you agree that we have identified the relevant cost drivers resulting from a move to direct routing? If not please explain why not.**

Yes. However, as discussed in Section 4, 3UK believes that Ofcom's approach is likely to have overestimated the costs.

**Question 5.1: Do you agree with our assessment of doing nothing? If not, please explain why.**

Yes.

**Question 5.2: Do you consider that an industry agreed solution is likely to emerge that would deliver direct routing no later than 2012? If not, please explain your reasons. Would you be supportive of such a solution?**

No. 3UK does not support such a solution. For the reasons set out in Section 2, 3UK believes that reform will only be possible to the extent that there is regulatory intervention with decisive deadlines and directives because the other MNOs do not share the same incentives as 3UK and newer entrants to improve the MNP system.

However, should this turn out to be Ofcom's preferred option following representations from all parties, 3UK would commit to take an active role in formulating and implementing an industry solution.

**Question 5.3: What steps do you consider Ofcom should take to ensure that such an industry commitment is serious? Do you agree with the proposed steps set out by Ofcom or are there additional measures that should be taken?**



Should Ofcom be minded to adopt Option 2, 3UK believes that Ofcom must set strict deadlines, together with the option of imposing financial penalties for failing to meet those deadlines.

**Question 5.4: What steps do you consider should be taken to ensure that any industry solution that emerges does not foreclose the opportunity for other mobile operators to participate in the short term or longer term?**

3UK considers Ofcom is rightly concerned in this regard and believes that the mandated direct routing Option 4 addresses more adequately its concern.

Should, however, Ofcom be minded to adopt Option 2, it should consider amendments to GC18 to ensure there is no possibility of foreclosure to other mobile operators. 3UK notes that this would also be required in order to introduce an obligation for all mobile operators to share information on ported numbers to facilitate direct routing. 3UK is also mindful of its obligations under competition law in this respect.

**Question 5.5: If there was a firm commitment to an industry-led solution, what role would you expect Ofcom to play?**

Should Ofcom be minded to adopt Option 2, 3UK believes that Ofcom must assume a leader's role remaining as close as possible to the overall implementation process through to the delivery.

**Question 5.6: Do you agree with Ofcom's proposal for a backstop to mandate direct routing in the event that an industry initiative fails? Do you agree that reviewing the situation in late 2010/early 2011 is appropriate before deciding on the need to mandate?**

Yes.

**Question 5.7: Do you agree with our assessment of Option (3)? Please set out your reasons.**

No. For the reasons set out in Section 3, 3UK believes that Ofcom's concerns with Option 3 are misplaced. In addition to Option 4, Option 3, with some modifications discussed in Section 3, represents an appropriate regulatory action which is required in order to ensure a timely reform and create the right incentives for efficiency

**Question 5.8: If Ofcom was to take Option (3) forward, what would be the costs involved in (i) making changes to wholesale billing systems and (ii) other costs? Please explain the basis of your estimates.**

See Section 3.

**Question 5.9: Do you agree with Ofcom's assessment that mandating direct routing for mobile originated calls to ported mobile numbers is likely to be the most effective way of removing routing inefficiencies? If not, what other factors that we should take into consideration, and why are they relevant to our analysis?**



Yes.

**Question 5.10: Do you agree that if Ofcom were to mandate direct routing, the obligation should be designed in a way that would avoid mobile operators having to use direct routing where the scale of ported traffic is not sufficient to justify the up-front investment to implement direct routing?**

3UK is sympathetic to the concerns regarding smaller operators, however, as discussed previously, Ofcom should implement the changes in Option 3 in order to create the right economic signals for smaller operators to join up to a direct routing solution. In any event smaller operators would have the obligation of providing their ported out numbers to a CDB in order that the information is fully up to date (see 5.12 below).

**Question 5.11: Do you agree that by framing the obligation in a way that obliges mobile operators to route calls to ported mobile numbers in the same way as non ported traffic should avoid the risks of any unintended consequences? If not, please comment on how this obligation could best be framed.**

Yes. However, a consequence of such an obligation could be that at least one transit operator would need to be able to directly route calls on behalf of an operator that uses transit service to route calls to non ported traffic. This would however depend on the technical solution that is finally agreed by the industry following the appointment of an external consultancy as proposed by Ofcom.

**Question 5.12: Do you agree that the obligation to provide information on ported mobile numbers should apply to all mobile network operators from the start and not just the five incumbent MNOs? Do you agree that if there is a central database of ported mobile numbers, this should contain all ported mobile numbers including those of newer entrants who would not be obliged to implement direct routing from the start?**

Yes, this would be required in order for the five MNOs to be able to route directly calls to those numbers that they port in from other mobile operators.

**Question 5.13: What do you consider to be an appropriate timescale for implementation of direct routing from the point at which Ofcom issues a final decision? Please provide a full and detailed explanation as to why you agree or disagree with the 2012 target date proposed by Ofcom.**

Given that much of the groundwork to a project of this type (both commercially and technically) has been carried out by UKPorting, 3UK believes a time period of twelve months from the decision is entirely reasonable.

**Question 6.1: Do you agree that it is appropriate for Ofcom/industry to appoint a qualified independent third party to work with industry to develop a provision technical specification for direct routing? If not, please state why.**

Yes.





**Question 6.2: Do you agree with the criteria for selecting an independent expert/consultancy? If not, please state what different/additional skills or qualities this independent party should bring?**

3UK agrees with Ofcom's criteria.

**Question 6.3: If you would like to recommend suitable experts/consultancies to Ofcom, please do so, on a confidential basis.**

[Redacted].

We also urge Ofcom to allow stakeholders to have the opportunity to veto Ofcom's choice of appointee in certain limited circumstances. This is necessary given the nature of the confidential information that stakeholders will be expected to disclose to the appointee.

We would envisage that the reason for the veto would need to be disclosed to Ofcom, and that a stakeholder would need to provide sufficient justification for its decision. Examples of valid reasons to veto might include: a) if the stakeholder has had previous unsatisfactory dealings with the proposed appointee; or b) a recent dispute with the proposed appointee regarding their professional advice.

**Question 6.4: Do you agree that three months is an appropriate period of time to produce a provisional technical specification from which stakeholders can derive reasonable accurate cost estimates? If not, explain why and detail what you consider to be an appropriate time scale.**

Yes – as stated above, much of the ground work to this project has already been carried out under the auspices of UKPorting.

**Question 6.5: Do you agree that a further three months is a sufficient period of time to derive cost estimates based on the provisional technical specification? If not, please explain why and detail what period you think would be appropriate.**

Yes.

**Question 6.6: Do you agree that the conditions we have set out as being necessary to make this process successful in its aims are appropriate?**

Yes. In addition, following our experience with the UKPorting process, 3UK believes it is vital that the representatives sent by each stakeholder are authorised to make decisions and commitments at the meetings. Unacceptable delays will occur if even the smallest decisions have to be taken back for sign-off by each participant after each meeting. Further, Ofcom should consider requiring operators and other stakeholders to commit to providing nominated personnel to engage with the independent consultant or advisor for the whole three month period. From our experiences at the UKPorting meetings, we have seen that the consistency of resource will be conducive to the decision-making process.



**Question 6.7: Do you have any other suggestions which would help to make this process constructive and effective?**

Following our experience with the UKPorting process, 3UK believes that Ofcom should remain as close as possible to this process once the consultant or advisor is appointed and be prepared to step in to resolve potential impasses. It is vital that Ofcom remains involved in the process, and that representatives of Ofcom attend all meeting between industry stakeholders and the consultant or advisor. This is especially important in this instance, because of the parallel exercise that Ofcom will be carrying out regarding the porting process. These two elements have strong synergies, and so Ofcom will need to be fully aware of the on-going work of the consultant or advisor, because this will inform its work on the porting process. Ofcom's active involvement would also make it more likely that decisions can be made more quickly, and Ofcom's proposed timeframes met.

**Question 6.8: Do you agree with Ofcom's proposed next steps following responses to this consultation? If not, how do you think Ofcom should proceed to bring this assessment of calls to ported numbers to a final decision?**

Yes.

**Question A6.1: Do you have any comments on the assumptions used in the CBA?**

See Section 4.



## ANNEX 2: Chronology of attempts to improve the MNP process

January 1999	First MNP solution in January 1999 (MNP1)
January 1999	Early agreements in principle from MNOs that there should be a move towards direct routing within 12 months.
Late 2001	MNP2 was rolled out reducing port times to one week from the previous figure of 15 to 25 working days and moving to a donor-led PAC process.
[REDACTED]	[REDACTED]
July 2002	Oftel published a consultation on "Proposals to change the Framework for Number Portability" suggesting, as ways to mitigate the weaknesses of the onward routing system: (i) improvements to the existing onward routing system, or (ii) the implementation of a central database.
Early 2003	3UK entered the market and joined the MNP2 platform.
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
August 2004	Ofcom issued a consultation into number portability in fixed systems.
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
November 2005	Ofcom issued consultation paper on number portability and technology neutrality.
[REDACTED]	[REDACTED]
January 2006	3UK responded to Ofcom's November 2005 consultation.



[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
March 2006	Ofcom issued its Statement "Number portability and technology neutrality".
May 2006	3UK appealed Ofcom's March 2006 Statement.
[REDACTED]	[REDACTED]
June 2006	CAT case management conference relating to 3UK's appeal held. During the hearing, Ofcom described its 3UK's concerns relating to MNP as "urgent".
[REDACTED]	[REDACTED]
Late 2006	3UK issued review notices to other MNOs in relation to DCC costs and the MTR charging principles of ported traffic.
November 2006	Ofcom issued consultation paper on "Review of General Condition 18 – Number portability".
January 2007	3UK responded to Ofcom's November 2006 consultation.
March 2007	Ofcom issued consultation paper on "Amendment to charge control on Mobile Network Operators".
June 2007	3UK responded to Ofcom's March 2007 consultation.
May 2007	O2's appealed Ofcom's finding on it of SMP, in particular, in relation with calls to ported in numbers.
July 2007	Ofcom issued statement and consultation paper on "Arrangements for porting phone numbers when customers switch supplier". It amended GC18 to require reduction of port lead times from 5 to 2 working days by 31 March 2008.
April 2007	3UK referred disputes against T-Mobile, O2 and Orange to Ofcom on DCC.
August 2007	Ofcom issued its determination in the DCC disputes. It determined that DCC be reduced from 0.8 ppm to 0.1 ppm.
September 2007	3UK responded to Ofcom's July 2007 consultation.
October 2007	T-Mobile appealed Ofcom DCC determinations, in



	particular, its interpretation of GC 18.
November 2007	Ofcom issued its Statement "Telephone number portability for consumers switching suppliers". It amended GC18 to require direct routing of mobile to mobile calls and two hour recipient led porting by 1 September 2009.
January 2008	Vodafone appealed Ofcom's Decision of November 2007, in particular, its cost benefit analysis for requiring change.
[REDACTED]	[REDACTED]
March 2008	Industry reduced port lead times from 5 to 2 working days.
March 2008	3UK referred disputes against other MNOs on MTR charging principles for ported traffic.
September 2008	CAT remitted Ofcom's November 2007 Decision and UK Porting disbanded
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
August 2009	Ofcom issued the consultation paper on "Routing of calls to ported telephone numbers". Ofcom separately issued a consultation paper titled "Mobile Number Portability Review of the porting process" which looked at various options in relation to the consumer porting process.



**ANNEX 3: [REDACTED]**