

## **Annex C – Vodafone review of Ofcom’s cost benefit analysis**

This section considers the elements input into Ofcom’s cost benefit analysis of porting process change, looking at Ofcom’s assessment of the benefits that consumers might reasonably receive from a changed process, and at the view of the operators’ costs of deploying any change. We are not clear that Ofcom’s method of defining hypothetical willingness to pay from a minority of customers suggests that any benefit is inferable or intervention warranted. Within that limitation, we see that any benefits that can reasonably be derived from the survey data are very likely substantially less than Ofcom states, and that there is a very real risk that solution implementation costs have been understated, so therefore do not consider that the values of net benefit Ofcom derives are in any way robust. We agree with Ofcom that of the four alternatives, option D, donor led one day, must generate the best result, but are not clear that it is likely to be sufficiently favourable to justify intervention, particularly where a majority of consumers appear to state that they are not willing to pay anything for a porting process change. Any attempt to “re-balance” the result between options by conflating calculated benefits with dubious preference data for recipient led over donor led is strongly resisted.

Before diving into the detail, Vodafone considers than an initial high level view of the relative weight of the four options is of value.

### **Relative net benefits generated by Ofcom’s own outputs – a preliminary view**

An initial inspection of the four options laid out by Ofcom suggests that the simplest and clearest way to consider their relative financial outcomes is on an incremental basis, i.e. putting aside for the moment the do nothing option, to see what additional benefits and costs are achieved from moving from the lowest cost outcome, the donor led one day solution, towards the highest cost outcome, the recipient led two hour option, to see whether the incremental benefit of each shift is justifiable against the incremental expenditure of that change.

This stage of the review uses Ofcom’s methodology, assumptions and outputs without question or adjustment – it is merely an examination of where the logic of Ofcom’s cost benefit analysis might lead. It unequivocally concludes that the least cost solution of those assembled by Ofcom (donor led one day, option D) produces the best net benefit and also the best return on the capital investment required.

The consultation document explains Ofcom’s view that the likely level of costs to achieve a donor led (DL) one day solution i.e. a one day acceleration, is an initial capex of £1.75m followed by annual outflows of £1.55m (with some replacement capital expenditure from year 8). The current year DCF of the total outflows, assuming ten years of opex post implementation, at 3.5% cost of capital amounts to £13.8m. Ofcom has assessed the benefits of the DL one day solution over ten years of benefits at a PV of £32.2m<sup>1</sup>: this gives Ofcom’s central case for the DL one day solution of a net benefit of £18.4m.

To substitute a recipient led (RL) one day solution for a donor led one involves a higher level of costs – an additional £10.75m capex or £12.5m in total and an additional opex of £1.69m or £3.24m per year in total. This incremental spend is equivalent to an extra

---

<sup>1</sup> This is the Ofcom lower value from table 12, i.e. the “definitely” result from the survey data, rather than the “definitely and probably” result that Vodafone rejects

PV outflow of £23.8m (on a ten year basis). What is Ofcom’s assessment of the additional benefits of RL one day over DL one day? Zero<sup>2</sup>. So the incremental outflows of £23.8 for zero benefit switch the £18.4 assessed positive CBA from the DL one day to a negative £5.4m. This does not appear to be a positive change.

It is also possible to consider the incremental costs of moving from the DL one day option to either the DL two hour or the RL two hour options. The former increases capex by £10.2m and opex by £1.88m, a total PV outflow of £25.3m. Ofcom has concluded that there is an additional PV of benefit of £13.8m over the ten year period, a net movement of negative £11.5m, reducing the benefit, as Ofcom’s table 12 shows, from the £18.4m of the DL one day to £6.9m.

Similarly, for the move from DL one day to RL two hour, an increase in capex of £12.45m and an increase in opex of £2.17m are incurred, leading to an increase in the outflows of £29.7m in PV terms, which when set against the additional benefit of £13.8m, gives a net negative increment of £15.9m, reducing the net present value to £2.5m.

Purely from a financial point of view, when working with Ofcom’s numbers, any movement away from option D, the DL one day would appear to be totally unjustifiable, with further expenditure producing a less beneficial result, and in particular a very significantly increased initial capital expenditure as table C.1 below shows:

	Initial capex	10 year PV at 3.5%			
		Outflows	Benefits	Net vs. DL one day	Overall net benefit
	£m	£m	£m	£m	£m
DL one day option D	1.8	13.8	32.2		18.4
Increment to:					
RL one day option C	10.7	23.8	Nil	-23.8	-5.4
DL two hour option B	10.2	25.3	13.8	-11.5	6.9
RL two hour option A	12.4	29.7	13.8	-15.9	2.5

Table C.1: Summary of Ofcom’s options

This is a significant observation – it suggests that using its own numbers and assumptions, Ofcom will have to work hard with its assessment of any un-quantified benefits of options A - C to derive a result that objectively prefers one of these over option D.

But this is to work within the confines of a simple cost benefit analysis. There is a further way to approach project analysis other than simple NPV, by looking at expected payback or the return on capital investment. If one continues to assume that Ofcom has captured the industry total costs and benefits correctly, the most obvious immediate observation from table C.1 above is how much lower the initial capex

<sup>2</sup> As Ofcom 5.133

outflow is for option D than the other three. So one way of looking at option D is that intuitively it is much more likely that a positive return on capital would be made – Ofcom is suggesting that for option D a £1.75m capital outflow will give a positive benefit of £18.4m over ten years, whereas for option A the £14.2m capital outlay will give a positive benefit of only £2.5m over ten years.

Extending this viewpoint, for option D, Ofcom forecasts future annual benefits of £4.16m and annual costs of £1.55m, a net inflow of £2.61m per year. So on option D, a capital outflow of £1.75m is expected to generate a net annual inflow of £2.61m – a payback period of less than a year. Option A however is forecast to obtain benefits of £5.93m per annum with annual costs of £3.72m, a net inflow of £2.21m per year. This annual inflow, smaller than option D, has to recover the capex cost of £14.20m, eight times greater than option D.

Equally to move from option D to option C, the capital expenditure goes up seven fold, and the annual surplus falls from £2.61m to £0.92m – this cannot be a rational shift.

Table C.2 below summarises this for all four options.

Ofcom forecast of annual cash flows	Initial outlay	Annual flows			Ratio initial outflow to annual inflow
		In	Out	Net surplus	
D – one day DL	£1.75m	£4.16m	£1.55m	£2.61m	0.67
C – one day RL	£12.50m	£4.16m	£3.24m	£0.92m	13.59
B – near instant DL	£11.95m	£5.93m	£3.43m	£2.50m	4.78
A – near instant RL	£14.20m	£5.93m	£3.72m	£2.21m	6.42

Table C.2: Comparison between initial outlay and net annual flows, options A -D

So option D on an undiscounted basis could give payback in 0.67 years, and option A in 6.42 years, with more than double that for option C. But this is to assume perfect forecasting - given the presence of any uncertainty on the size of the benefits (and as Vodafone shows below the potential overstatement of the benefits is substantial) as well as escalating uncertainty on the level of costs with cycle time reductions and process method shifts, it is hard to see how any objective project appraisal would entertain options A, B or C over option D for a second.

### **Cost benefit analysis outline**

There are four significant variable elements in Ofcom’s cost benefit analysis:

- The benefits from change, i.e. the annual flow of positive benefits that come from each of the options A to D, as opposed to the do nothing option;

- The costs of implementing each option, in terms of both capital and operating expenditure;
- The number of years over which to assess whether a positive or negative result is obtained;
- The discount rate to be used in the calculation.

Each of these elements is considered in turn below.

### **Ofcom’s assessment of the benefits from a faster process**

In 5.108 and following Ofcom outlines the method it used to derive a value for the benefit to the porting individual of a faster process: “*in order to get an indication of the value of the benefits to individuals of moving to a shorter porting process, we commissioned a survey to establish willingness to pay*” (Vodafone emphasis). Vodafone accepts the point that the survey may give an indication, but it is less clear that the result is sufficiently robust to be adopted as an adequate expression of the minimum value of benefits in the cost benefit analysis such that real operator funds should be committed. Vodafone makes below a series of insights and observations on Ofcom’s methodology that suggest that both the overall quantum of the benefits and the differential benefit of a two hour porting interval over a day interval have been overstated, and also that the benefits case in itself has not been properly established.

### **Issues of principle**

Before examining the mechanics of the calculation of consumer benefits, it is worth considering the underlying principles of the approach. Ofcom has adopted a hypothetical willingness to pay (WTP) survey based method, so the consumer is asked how much he or she would be willing to pay, definitely or probably for a faster porting process than the existing two days, either for a change to a one day process or to an immediate one. Ofcom has suggested that those who indicate that they would definitely pay supplies a lower bound of WTP and that the sum of those who would either definitely or probably pay can be interpreted as the upper bound of WTP. The questionnaire itself provides possible payments, 50p, £5, £10, and £20 – at no stage is the consumer asked if he/she is willing to pay sums different from, or outside these limits.

The results of the survey are then translated into an average WTP of the consumer, multiplied by the number of ports per year to produce an annual benefit from the process change, and this notional benefit is then fed in to the cost benefit analysis to balance against the real costs to the industry of that change to see if there is a net positive value. Ofcom concludes that there is, and thus comes to the interim conclusion that there is merit in changing the existing porting interval (but also concludes that there is insufficient evidence to form a view as to whether a porting method change, involving as it does extra costs, can be justified).

Ofcom’s justification for the benefit valuation methodology that it has adopted is minimal. The only observation it makes of its method is contained in 5.116 – 5.118:

*“This may provide a conservative estimate of the individual benefits, for two primary reasons. Firstly, it does not account for the possibility that the rate of porting could increase from current porting levels if the process was shortened.*”

*Therefore, the 2.6m figure might underestimate the annual number of porters going forward. Secondly, as discussed earlier, this estimate of benefits is based only on survey respondents who indicated that they would definitely pay for an immediate process. Therefore if some of the respondents who indicated that they would probably pay or may or may not pay do in fact value the move to a near-instant process, the figure could understate the total mobile user’s willingness to pay.”*

Vodafone considers that this explanation is inadequate. There is no expectation that the consumer would really be asked by the operators to pay for the process change, nor that a two-tier process might result in those relatively few consumers who indicated a material WTP being asked to pay to receive a faster service, with the remaining customers receiving the existing free of charge two day process. Instead Ofcom is attempting to use a *hypothetical* result from a survey of WTP to justify *real* industry expenditure to accelerate the porting process for all customers.

It is evident that Ofcom is interested in process cycle times of the mobile porting process but what evidence is there that the consumer attaches much priority to or interest in the change? As can be seen from the actual survey results that Ofcom has used to generate the benefit assessment shown in tables C.3 and C.4 below, in fact the majority of respondents were not willing to pay even 50p for a process change. This lack of interest of the majority of customers in changing the porting process is not a new observation. As part of the July 2007 consultation<sup>3</sup>, Ofcom published in Annex 6 results of some consumer research it had commissioned. At this point the process took five days. A6.14 records that *“those who had ported their number were asked how, if at all, the process could be improved. The most common suggestion was to reduce the time taken, 42% overall saying it should be faster and/or instant”*. In effect therefore the survey indicated at a time when the porting process period was five days, 58% of those who had ported made no suggestion that the porting interval needed to be reduced! In same consultation Ofcom reports a very small difference in intention to port between a one day and three day process.<sup>4</sup> Similarly, in the previous consultation<sup>5</sup>, Ofcom in A8.1 reports that *“eight in ten of those who have ported their number were satisfied with the time the process took – but they often think it was completed in a day or so”* – this again suggests that the actual time that the process took was of little importance or relevance to customers.

There is available to Ofcom an untapped source of information on consumer reaction to porting process speed: the fact that in April 2008 the porting period was reduced from five to two days. If consumers attached much benefit to the process period then this change should have resulted in a significant increase in porting volumes. Ofcom has information on the actual volumes of ports both before and after this point, as a result of the Section135 data collection exercise that it commissioned from the operators at the end of 2008, but Vodafone can see no reference to this data in the current consultation in this context or in any other. From its own observations Vodafone has seen no material difference in porting volumes as a result of the change in porting process – granted there may be other distorting factors, ⚡, but it is obvious to Vodafone that the change in the volume of ports in the circumstance where the porting period has been reduced by three days must be relevant data: Ofcom is seeking to suggest that the volume of ports may rise if a reduction of one or two days in the porting interval were to occur without reference to real data of what actually happened

---

<sup>3</sup> Ofcom: arrangements for porting phone numbers when customers switch supplier, 17<sup>th</sup> July 2007

<sup>4</sup> Ibid, annex 6 figure 8

<sup>5</sup> Review of General Condition 18 – Number portability 16<sup>th</sup> November 2006

after a three day reduction - the fact that Ofcom has not sought to at least disclose and discuss this real evidence and its merits or demerits is perplexing.

It might be argued by Ofcom that even in the absence of any meaningful data suggesting the preference of consumers for a two day over a five day porting interval, the survey response usefully indicates the real WTP for a faster process than two days. Vodafone sees several difficulties with this approach. The most obvious is that the question is hypothetical. There is an inherent risk of error from translating a hypothetical intention to pay into a real one, that the casual suggestion of “how much you are willing to pay for an improvement” would not in reality result in such a large real payment by the consumer. So if the consumer were to be expected in the future to be confronted with a request to pay X for the faster porting process, then there is a strong risk that a lower proportion than indicated by the survey results would actually pay<sup>6</sup>.

The issue is complicated by the further difficulty that the consumer is only being asked on his/her WTP for the process period change, rather than for the process itself – one cannot be certain that consumers are not implicitly valuing the porting process itself in their responses. The problem is that the way the survey question is raised it is ambiguous as to whether respondents are valuing just the increase in speed from the current system, which is suggested by the first part of the question: *“would you be willing to pay to make the process quicker?”*, or are they valuing number portability overall, which is suggested by the second half of the question: *“how likely would you be on the scale here to pay a one-off fee to do this if the price was... [50p, £5, £10, £20] and the process was (a) immediate, (b) one day”*.

It is quite likely that people are responding to the value of number portability overall, since this is what was asked immediately before their response was collected. So when 32% said that they would be definitely be prepared to pay 50p for a near instant process, it is possible that some or perhaps most of these would also be prepared to pay 50p for the existing process (if it were charged for). So Ofcom should not be using the 32% to derive the level of benefit, but rather only the difference between 32% and whatever the percentage would be for those that would pay 50p for the existing number portability arrangements, which are in effect the base case or counterfactual in Ofcom's CBA.

So to get a true valuation against the counterfactual, Ofcom should have asked: *“How likely would you be on the scale here to pay a one-off fee to port your number if the price was... [50p, £5, £10, £20] and the process was (a) immediate, (b) one day, or (c) 2 days (existing arrangements)”*. In the alternative the question could have been asked in the manner *“if you had to pay £X for two day porting, how much more would you be willing to pay for immediate or one day porting?”* By failing to ask the question in this manner to eliminate and/or quantify this possibility, the utility of the survey is considerably diminished – one can reasonably expect that all of the benefits have been overestimated by this effect.

Further to this one needs to question the value of the lowest response – *“would you be willing to pay 50p for a reduction to the process?”* Given that the majority of ports relate to the circumstance where a consumer is taking out a contract that may involve a financial commitment of several hundred pounds, one must question whether a

---

<sup>6</sup> WTP studies of this hypothetical bias suggest that only “definitely pay” responses (as opposed to “probably pay” responses) can be construed as being an approximately valid indicator of real payment intentions, for example see Blomquist, Blumenschein & Johannesson , 2008, at <http://www.springerlink.com/content/52x373076ww32q8w/fulltext.pdf>

willingness to pay only 50p constitutes a derisory de-mimimis sum that might be more a product of being asked a question on change than a real commitment to pay or a positive valuation of that change. Turning the response round, Vodafone would see that a consumer who was only willing to pay 50p for a process change did not attach any significant value to that change. It is hard to see a 50p response as a real commitment to pay worthy of inclusion in the benefits case.

Significantly unlike many other WTP studies, there is no suggestion that the consumer will ever actually be asked to pay – it is industry that will be expected to bear the costs<sup>7</sup>. But this raises a distributional issue. These additional costs will be passed on to the consumers in other ways, for example in higher retail rates; but this will apply to all consumers, not just those who express a WTP for a faster porting process. So the survey question should have sought to elicit a response to the relative valuation of different impacts – e.g. “would you wish a reduction in the porting process period if it led to higher call costs”?

Ofcom has suggested that the “definitely pay” proportion is a conservative lower bound of WTP, with the upper bound indicated by the sum of the “definitely and probably pay” results. In Vodafone’s view the problems outlined above make it likely that only the definitely pay result of the hypothetical question will have any validity, and may still overstate WTP in practice.

There is a further tricky point to get over that there really should be some evidence from the survey that a majority of consumers are willing to pay for any process improvement. This is a matter that Ofcom never addresses. In fact it can be seen from table C.4 below, only 32% are definitely willing to pay a derisory 50p for a change to an immediate process, whatever that may mean, and only 44% in total are definitely and willing to pay. 9% were undecided, and 48% probably or definitely unwilling to pay. In Vodafone’s opinion this means that the majority of customers are not willing to pay *anything* for *any* change. It is hard to see from this evidence how Ofcom can decide on their behalf that they should.

### **Ofcom’s survey data**

Ofcom’s benefit data is generated from the response to a single question as part of a much bigger survey. It is worth quoting the question in full:

*“Q16: If you change your mobile phone network and decide to keep your phone number, it currently takes about 2 days for your new network to change your number over. Would you be willing to pay to make the process quicker?”*

*How likely would you be on the scale here to pay a one-off fee to do this if the price was 50p, £5, £10, or £20 and the process was:*

- a) immediate*
- b) one day”*

---

<sup>7</sup> There is no way that a single threshold could be set, so that sufficient benefits would arise. For example if the fee were set at 50p, only 32% would be willing to pay, so that the average revenue per port would be only 16p, unlike the £1.57 that Ofcom factors in below. Similarly a threshold of £5 would only give revenue from 10% of customers, or 50p average and so forth.

Ofcom presents the results of this in tables 10 and 11, at least for those who responded that they would definitely or probably pay – what is not shown here (but provided in annex 7) is the proportions of those who would not pay. Vodafone gives the whole results below in tables C.3 and C.4. Firstly for one day porting:

	<b>Pay 50p</b>	<b>Pay £5</b>	<b>Pay £10</b>	<b>Pay £20</b>
Definitely pay	24%	7%	3%	2%
Probably pay	17%	10%	5%	3%
May or may not pay	8%	8%	6%	5%
Probably not pay	9%	16%	17%	14%
Definitely not pay	42%	60%	68%	76%
POSITIVE	41%	16%	8%	5%
NEGATIVE	51%	76%	85%	90%

Table C.3: Consumer willingness to pay for one day porting

Secondly for immediate porting:

	<b>Pay 50p</b>	<b>Pay £5</b>	<b>Pay £10</b>	<b>Pay £20</b>
Definitely pay	32%	10%	5%	3%
Probably pay	12%	11%	6%	3%
May or may not pay	8%	9%	7%	6%
Probably not pay	9%	14%	16%	15%
Definitely not pay	39%	56%	66%	73%
POSITIVE	45%	22%	11%	6%
NEGATIVE	48%	70%	82%	88%

Table C.4: Consumer willingness to pay for immediate porting

The first obvious point that must be made is that in both cases, the majority of customers did not wish to pay anything, not even 50p, for any improvement to the porting process – only 32% are willing to pay 50p for the switch to immediate porting. Looking at those hypothetically willing to pay a larger sum than 50p, the proportion willing to pay £5 or more for immediate porting is only 10%. As mentioned above, it is not obvious therefore why the majority who do not wish to pay should end up doing so to subsidise the minority who do wish to pay – how small the minority is who are willing to pay a meaningful amount will become clearer in the section below. This insight is reinforced by the issue of the risk of slamming if the recipient led process were to be adopted – if substantial additional expenditure were to become necessary to eliminate



a new risk that will only arise because of the wishes of a very small minority to port faster, why should the “silent majority” pay for this?

The second observation is the relative lack of interest in paying for an immediate over a one day process. This is indicated by subtracting table C.3 from table C.4, as follows:

	Pay 50p	Pay £5	Pay £10	Pay £20
Definitely pay	8%	3%	2%	1%
Probably pay	-5%	1%	1%	0%
May or may not pay	0%	1%	1%	1%
Probably not pay	0%	-2%	-1%	1%
Definitely not pay	-3%	-4%	-2%	-3%
POSITIVE	3%	4%	3%	1%
NEGATIVE	-3%	-6%	-3%	-2%

Table C.5: Consumer willingness to pay for immediate porting over one day porting

This on the face of it suggests a pretty minimal interest in the process cycle change to immediate porting over any possible change to one day porting (and one that is less than linear, when the reverse might be expected) – this somewhat surprising result reinforces the suspicion that there is some implicit valuation in the responses of a WTP for the existing two day process.

### **Ofcom’s generation of benefit data**

With these very significant caveats on the usability of the data we can proceed to an examination of Ofcom’s specific method of benefit valuation. Ofcom has used the survey results to generate four outputs for the willingness to pay:

- of those who would definitely pay for one day porting – Ofcom has calculated an annual benefit of £4.16m;
- of those who would either definitely or probably pay for one day porting – an annual benefit of £8.67m;
- of those who would definitely pay for immediate porting – an annual benefit of £5.93m;
- of those who would either definitely or probably pay for immediate porting – an annual benefit of £10.24m.

As discussed above Vodafone sees very little value in the use of the hypothetical “definitely plus probably pay” to generate a meaningful estimation of benefits, but for completeness the values are calculated in the work below.

The average WTP has been assessed by Ofcom by drawing for each scenario a curve of rising % of customers and falling sum payable: Ofcom has then calculated the available benefits as the area under that curve, to give an average benefit per customer, multiplying this by its calculation of the annual number of ports. The result is an assessed annual industry benefit which is taken into the cost benefit analysis. For the four outputs above, the following elements are used:

Willingness to pay and assessed overall benefit	One day porting		Immediate porting	
	Definitely pay	<i>Definitely &amp; probably pay</i>	Definitely pay	<i>Definitely &amp; probably pay</i>
Ofcom £ per average customer	<b>£1.57</b>	£3.25	<b>£2.25</b>	£3.87
Ofcom assessed no of ports per year	<b>2.642m</b>	2.642m	<b>2.642m</b>	2.642m
<b>Ofcom benefit</b>	<b>£4.16m</b>	£8.67m	<b>£5.93m</b>	£10.24m

Table C.6: Ofcom view of annual willingness to pay

It is important to decompose the method a little. Vodafone has criticisms of both the derivation of the willingness to pay of the average customer, and of the annual number of ports.

### Annual porting volumes

Taking the latter first, the volume of ports has been obtained by Ofcom from survey data as follows:

There are 47.125m adults in the UK (as per CAPI survey)  
 89% of adults have a mobile phone (Ofcom market intelligence)  
 14% of customers switch each year (CAPI survey)  
 45% of switchers port (CAPI survey)

Therefore  $47.125m * 89% * 14% * 45% =$  number of ports per year = 2.642m

As Vodafone pointed out in its appeal on the previous MNP decision, there are easier and more reliable ways to discover the number of ports in a year, such as asking the mobile operators how many ports they have carried out. In fact Ofcom has actually done this as part of its 2008/09 Section 135 data collection exercise, so should be in possession of this data, but has unaccountably failed to use it. It is surprising that this information has not been used to generate an appropriate input value – indeed Vodafone cannot see that Ofcom has made use in the consultation of much of the data collected by the onerous Section 135 request, the extent of which was protested at the time.

Whilst the split of ports by operator is obviously not available to Vodafone (unlike Ofcom),  $\propto$ . But this number is in itself too high for inclusion in the calculation, since it only is legitimate to value the benefit for those porting customers who will be in a

position to take any “benefit” from any change to the existing process. There are at least three categories of such customers who will be outside the scope of benefit:

- Those totally excluded from the proposed regulation, i.e. the bulk ports of enterprise customers, where the emphasis is on a controlled and managed and potentially complex migration at a suitable future date of the customer’s choosing.
- Those where particular circumstances of their account require an additional process loop. This will apply to “multi-line accounts”, i.e. the position where the legitimate possessor of the phone is not the account holder/bill payer and is thus not necessarily free to port the number. Ofcom acknowledges this in A6.9 k) “*multi-line accounts may require additional checks and/or the DSP (donor service provider) may be able to contact the registered account holder to verify the request.*” As far as Vodafone is concerned, until the registered account holder has given their permission e.g. a government ministry allowing a former employee to port away their office mobile number, the prospective port should not be allowed to happen, so there is a likelihood that the porting timetable would in effect have to be suspended until the necessary registered account holder approval is granted. This suspension will limit the real degree of time reduction from the current two days and hence the degree of benefit that the prospective porting customer can obtain. Clearly this suspension is more relevant to a recipient led process – in the case of donor led process, the registered account holder issue has already been addressed as part of the granting of the PAC (but could also lead to a longer PAC issuing interval than the 2 hours currently envisaged by Ofcom).
- Those where the method of their acquisition of their new handset prevents the possibility of any benefit arising from a near-instant or one day port. Ofcom presumably has in mind, in the case of the near-instant recipient led porting, the scenario of an existing O2 customer walking into a Vodafone store and coming out again shortly with their new Vodafone handset (and potentially contract) and with their O2 number ported across to Vodafone. But by no means all customer accounts, whether contract or pre-pay are acquired in that way – as well as dedicated branded stores (network operator and MVNO) there are dealers, electrical/electronic retailers, more general sales channels (e.g. Asda or Tesco), on-line stores (both of the network operator/MVNO and others) and also telesales. A substantial proportion of sales are made through on-line, telesales, and general retailing channels, for example. Vodafone does not propose to consider in detail how the alternative Ofcom revisions to the porting process might apply in all of these routes to market, but it is clear that in some cases the porting process may occur at a separate time and in a different way from the customer account acquisition, and/or there is a natural delay in the process since the device is shipped by post, and that as a result the change in porting speed to one day or near-instant may be rendered either unavailable or irrelevant.

Where a port takes place under any of the three conditions above, the port itself may be outside the scope of Ofcom’s proposed changes, or the customer may be unable to receive or recognise the calculated benefits of a change to one day or immediate process. In order to recognize this factor, Vodafone has ✕ discounted the total volume of ports ✕ so that there will be assumed to be approximately 2.1m<sup>8</sup> consumer ports

---

<sup>8</sup> ✕

across which the benefit calculation might be presumed to be assessed in the year 2009, rather than the 2.642m assumed by Ofcom. This adjustment immediately reduces the benefits as table C.7 below:

Willingness to pay and assessed overall benefit	One day porting		Immediate porting	
	Definitely pay	<i>Definitely &amp; probably pay</i>	Definitely pay	<i>Definitely &amp; probably pay</i>
Ofcom £ per average customer	£1.57	£3.25	£2.25	£3.87
Ofcom assessed no of ports per year	2.642m	2.642m	2.642m	2.642m
<b>Ofcom benefit</b>	<b>£4.16m</b>	<i>£8.67m</i>	<b>£5.93m</b>	<i>£10.24m</i>
Adjusted ported volumes	2.1m	2.1m	2.1m	2.1m
<b>Revised benefit</b>	<b>£3.30m</b>	<i>£6.89m</i>	<b>£4.71m</b>	<i>£8.14m</i>

Table C.7: Ofcom view of annual willingness to pay – adjusted porting volumes

The annual benefits have thus been reduced by 21% to account for this error.

### **Willingness of the average customer to pay for process change**

The average customer’s willingness to pay for any process change (in terms of a reduction in cycle time) has been derived from the survey data encapsulated in tables C.3 and C.4 above. What is not clear from Ofcom’s brief description of its method in paragraphs 5.114 is how much of the benefit it applies is derived from interpolation and extrapolation, rather from the survey data itself – this is only evident from inspection of the underlying spreadsheet.

Taking one of the four cases calculated by Ofcom, the willingness to definitely pay for one day porting, the specific datapoints obtained from the survey are limited to four, as per table C.8 below.

Would pay	
% of base	Amount
1.64%	£20
3.23%	£10
6.52%	£5
24.19%	50p

Table C.8: Consumer willingness to pay for one day porting

Taking these four points, one could consider that from this data:

- 1.64% of the base would pay £20;
- 3.23% - 1.64% of the base (1.59%) would pay £10;
- 6.52% - 3.23% of the base (3.29%) would pay £5;
- 24.19% - 6.52% of the base (17.67%) would pay 50p;
- 100% - 24.19% of the base (75.81%) would pay nothing.

A simple calculation of these results would suggest that the average consumer would be willing to pay 74p (the sum of the product of each of these bullet points) – but in fact Ofcom has calculated the average, as can be seen in table C.7 above, as £1.57. So how has this additional benefit (more than doubling the result) been obtained from the four observations? Basically Ofcom has extrapolated and interpolated the four points by assuming that all customers (apart from the very last) will pay something, measured along a curve that has a value above £20 for the first customer, intersecting the £20 line for the 1.64% percentile down to zero for the last customer. To do this, Ofcom has drawn a graph that links the four datapoints by three straight lines, and also generated values above £20 for the 0% to 1.64% range of customers, and below 50p for the 24.19% to 100% range of customers. The graph that Ofcom has drawn looks like figure C.1 below:

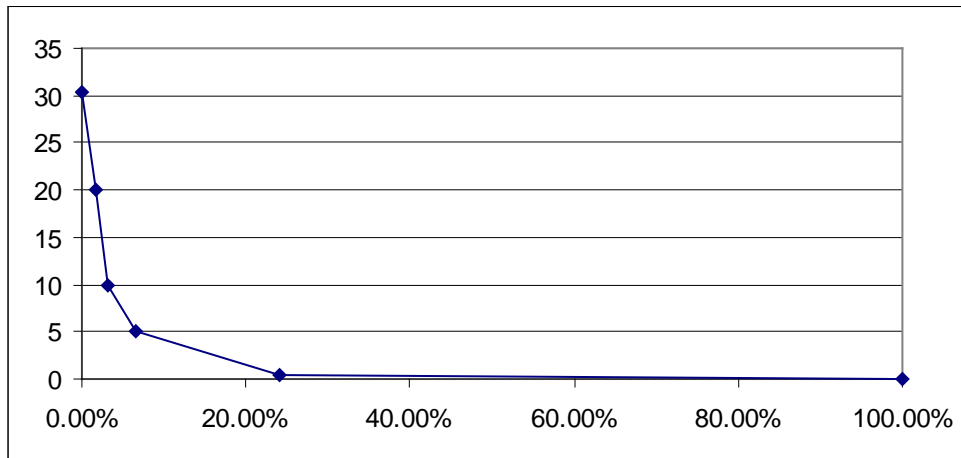


Figure C.1: Willingness to definitely pay for one day porting

In producing the curve and calculating the area underneath it, Ofcom has made interpolations not only between the observed points but also outside them, so that it is assumed that above those 1.64% who have indicated they are willing to pay £20, there is a smaller proportion willing to pay more, so that the highest sum a customer is willing to pay is deemed by Ofcom to be £30. Also Ofcom extrapolates below the 50p datapoint, all the way down to a zero point at the origin, on a straight-line basis<sup>9</sup>, so as

<sup>9</sup> This is actually a different method from the above £20 extrapolation, which simply projects the £10 to £20 interpolated line beyond £20 up to the zero customer axis. The method Ofcom is

the survey is indicating 24.19% are willing to pay 50p, it in effect estimates that 62.10% (half way between 24.29% and 100%) are willing to pay 25p. These interpolations materially increase the calculation of the willingness to pay for the average customer, over the simple 74p described above. The components of the overall £1.57 calculated benefit are shown in table C.9 below.

Willingness to pay at value threshold	Proportion of customers	Proportion of overall benefit and contribution to benefit per average customer		
		From interpolation & extrapolation	From survey results	Cumulative total
Over £20	0 to 1.64%	8p - 5.4%		5.4%
<b>£20</b>	<b>1.64%</b>		<b>33p - 20.8%</b>	26.2%
£10 - £20	1.64% to 3.23%	8p - 5.1%		31.3%
<b>£10</b>	<b>3.23%</b>		<b>16p - 10.1%</b>	41.4%
£5 - £10	3.23% to 6.52%	8p - 5.2%		46.6%
<b>£5</b>	<b>6.52%</b>		<b>16p - 10.5%</b>	57.1%
50p - £5	6.52% to 24.19%	40p - 25.3%		82.4%
<b>50p</b>	<b>24.19%</b>		<b>9p - 5.6%</b>	88.0%
Below 50p	24.19% to 100%	19p - 12.0%		100.0%
Totals		83p - 53.0%	<b>74p - 47.0%</b>	<b>£1.57</b>

Table C.9: Ofcom calculation of willingness to pay

It is not clear that any of this interpolation above £20 and below 50p is warranted from the response to the survey. Ofcom notes in its footnote 107 “*as this demand curve is based on limited information (only four price points) it is possible that the area under the curve is an over or under estimation of the average willingness to pay*”. Vodafone agrees with the principle, but sees some difficulty in agreeing that Ofcom may have underestimated the benefit through this process of interpolation and extrapolation. In Vodafone’s opinion Ofcom have pushed the interpretation of the possible benefit some way above what can be reasonably concluded from the four survey points.

Several issues arise from this method of calculation of the benefits:

- As has been seen less than half of the assessed benefits actually derive from the survey results – the majority is being derived from a straight line interpolation between each set of survey points or beyond the extremes of the survey points

---

using for the below 50p extrapolation assumes that all customers, except the very last one are willing to pay a non-zero amount for one day porting.

- Vodafone may accept that it is probably reasonable to extrapolate *between* the values output by the survey, i.e. to project a curve between £20 and 50p. However Vodafone does not see that it is reasonable to assume that any customers would be willing to pay more than £20, or that those who have said they would not be willing to pay 50p can be deemed therefore to be willing to pay 49p or some lesser sum. Cutting off the top and bottom elements from this graph will reduce the assessable benefit by 8p for the >£20 estimation and 19p for the <50p estimation, a total of 27p.
- It can be seen from the table above that fully one quarter of the benefits 40p (25.3%) are derived by drawing a straight line between £5 and 50p. But this is on analysis unwarranted: inspection of the four survey results, reproduced in table C.10 below strongly suggests that, the shape of any reasonable interpolation between the survey values of £20 and 50p would plot a gradually declining curve, not a series of straight lines.

Would pay	
% of base	Amount
1.64%	£20
3.23%	£10
6.52%	£5
24.19%	50p

Table C.10: Consumer willingness to pay for immediate porting

Figure C.2 below is a roughly drawn attempt to produce a possible shape for the curve.

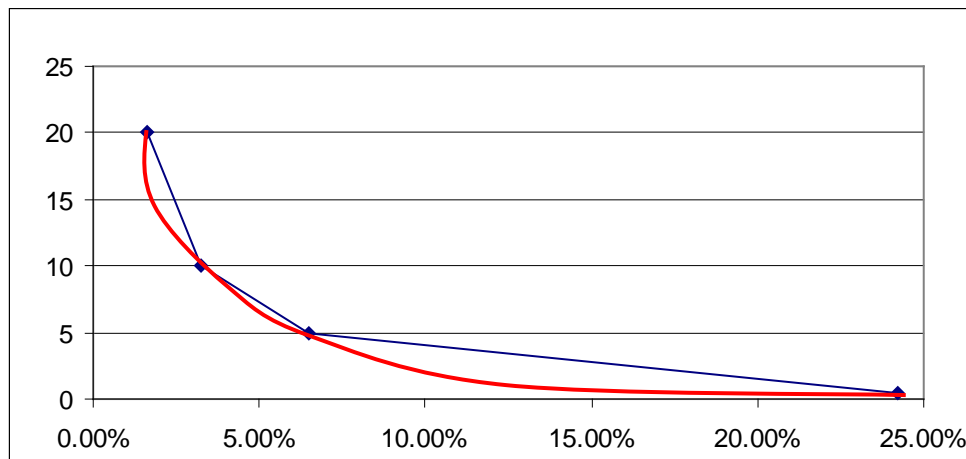


Figure C.2: Possible curve between £20 and 50p

- It is clear that such a curve considerably reduces the area of benefit underneath it as opposed to that created by straight line: in particular the area

between the £5 and 50p points needs to be adjusted downwards. Vodafone suggests that this area alone might reasonably be halved, taking another 20p of the overall benefits out of the valuation. (This halving is probably in fact still too conservative.)

- Overall therefore Vodafone considers that Ofcom’s method has overestimated the assessable willingness to pay that can be reasonably generated from the survey results by 47p i.e. 27p plus 20p or approximately 30% per average customer.

Re-doing the table with these adjustments reduces the total calculated benefit per average customer from Ofcom’s £1.57 per year to £1.10. Table C.11 below shows both absolute benefits per average customer and the revised relative percentages from each customer grouping, with the cells that have been adjusted being shaded.

Willingness to pay at value threshold	Proportion of customers	Proportion of overall benefit and contribution to benefit per average customer		
		From interpolation	From survey results	Cumulative total
Over £20	0 to 1.64%	0%		0%
<b>£20</b>	<b>1.64%</b>		<b>33p - 29.8%</b>	29.8%
£10 - £20	1.64% to 3.23%	8p – 7.2%		37.0%
<b>£10</b>	<b>3.23%</b>		<b>16p – 14.5%</b>	51.5%
£5 - £10	3.23% to 6.52%	8p – 7.5%		59.0%
<b>£5</b>	<b>6.52%</b>		<b>16p – 14.9%</b>	73.9%
50p - £5	6.52% to 24.19%	20p – 18.1%		92.0%
<b>50p</b>	<b>24.19%</b>		<b>9p – 8.0%</b>	100.0%
Below 50p	24.19% to 100%	0%		
Totals		36p – 33%	<b>74p - 67.0%</b>	£1.10

Table C.11: Revision of assessable benefits

Vodafone notes that this still leaves a significant proportion of the benefits, 29p, being derived (directly and by interpolation) from the 50p response – as discussed above there is doubt as to whether a hypothetical willingness to pay a derisory 50p for the process change is any real commitment or valuation at all.

Apart from the reduced size of these benefits, the other significant observation from the observed results is the degree of skew, in terms of customer willingness to pay. It can be seen that 51% of the calculated benefits or willingness to pay relate to only 3.23% of the customer base, and 73.9% to only 6.52% of the base. The obvious question that arises from this is that if the benefits/willingness to pay are so unevenly distributed



across the customer base, why should they in effect be recovered across the whole of the base – or to put it another way, why should the majority who are not interested in paying for the process change pay for the demands of a very small minority? This is a very real issue that Ofcom must somehow address if it wants to make its case that any of the options for change is justifiable.

Repeating this exercise of re-interpolating and revaluing for the remaining three potential benefit options, i.e. definitely and probably pay for one day, definitely pay for immediate and definitely and probably pay for immediate<sup>10</sup>, to calculate the willingness to pay per average customer and the total overall industry level of benefit per year gives the following results as in table C.12 (although as discussed above Vodafone sees no real merit in the inclusion of the hypothetically probably pay survey result in the benefit valuation).

Willingness to pay and assessed overall benefit	One day porting		Immediate porting	
	Definitely pay	<i>Definitely &amp; probably pay</i>	Definitely pay	<i>Definitely &amp; probably pay</i>
Ofcom £ per average customer	£1.57	£3.28	£2.25	£3.87
Ofcom assessed no of ports per year	2.642m	2.642m	2.642m	2.642m
<b>Ofcom benefit</b>	<b>£4.16m</b>	<i>£8.67m</i>	<b>£5.93m</b>	<i>£10.24m</i>
VF no of consumer ports per year	2.10m	2.10m	2.10m	2.10m
VF £ per average customer	£1.10	£2.50	£1.63	£3.14
<b>VF benefit i.e. VF average rate * VF no of ports</b>	<b>£2.31m</b>	<i>£5.25m</i>	<b>£3.43m</b>	<i>£6.59m</i>
Reduction in calculated benefit	44%	39%	42%	36%

Table C.12: Revision of assessable benefits

But there are further related issues with the overall benefits that need to be considered.

### **Difference between one day and immediate results**

The first obvious point is that as tables C.3, C.4 and C.5 above indicate the survey responses appear to attach relatively little difference in willingness to pay between a change to a one day process and a change to an immediate process. On the face of it, this result is somewhat surprising – if there is a perceived benefit to survey respondents to a faster process, it would intuitively appear more likely that respondents would attach limited value to a reduction from two to one days, and much more value to a reduction from two days to zero days, in the inverse of a linear valuation. So for instance in table C.12 above, if the willingness to pay for a one day reduction is £1.10,

<sup>10</sup> Full details are contained in tables C.33 to C.38 at the end of this annex

one might expect a valuation of a two day reduction to be at least double this sum, rather than only 50% greater (£1.63).

So the survey response appears to suggest that a halving of the process interval is much more important in relative valuation than eliminating it altogether. The most obvious explanation to this counter-intuitive survey result is that, as discussed above, to some degree there is included in the responses some valuation of a willingness of customers to pay for the existing two day process interval.

An attempt can be made to identify the possible willingness to pay for the existing method, by assuming a linear valuation of time. In the case of one day porting the definitely pay outcome has been calculated as being worth £1.10 per average customer and the further change to immediate £1.63, so therefore the 24 hour difference from one day to immediate must be worth £0.53. Assuming a linear benefit per day, therefore the benefit for the reduction from two days to one might also be 0.53p, and hence willingness to pay for the existing two day process might be £1.10 minus £0.53, or £0.57. On this very simplistic basis the benefit from a 24 hour reduction from two day to one day porting might be £0.53 and from to day to immediate porting £1.06, all per average customer.

Vodafone does not suggest that this calculation is sufficiently strong to attempt to use it to adjust the estimate of the WTP, but rather that it brings into question the robustness of the survey and hence the existing valuation of the benefits. It gives further credence to the idea that the “definitely plus probably pay” result, however calculated, is too high.

### **Immediate and “near-instant” are not the same thing**

A further issue is the fact that the survey question part b) actually specifically asks for a willingness to pay if the process is “immediate”. Ofcom casually notes in A7.2 that “*we have interpreted “immediate” to be equivalent to near-instant, or two hour porting*”. The main body of the consultation goes a little further and states in 5.108 “*we asked mobile phone owners how much they were willing to pay for a faster MNP process. Specifically they were asked how much they were willing to pay for an immediate (or near-instant) process*”.

Vodafone cannot see how Ofcom can make this imaginative leap – that where customers were asked “immediate” this could be construed as or implied to be “two-hour”. The two are simply not the same. The concise Oxford dictionary defines immediate as “occurring or done at once or without delay”. How Ofcom can consider that when survey respondents were asked immediate they understood that this really meant a two hour delay is beyond Vodafone’s imagination. “Immediate” to Vodafone would imply that at the point the new contract is signed, the port takes place, so that instantly thereafter the customer takes possession of his new phone, new SIM with old number and leaves the shop with all processes completed. This may obviously not be practical for the mobile industry, but practicality was not at the issue of the question, which was addressed to the abstract issue of the willingness of the customer to pay for an “immediate” port, not a two hour port.

At the very least, the incremental benefit that Ofcom has calculated for the immediate solution over the one day should be discounted to allow for the fact that immediate actually is being used to justify a two hour interval. So for example we have calculated a willingness to pay per average customer of £1.63 for immediate and £1.10 for one day porting, implying an incremental willingness to pay of £0.53 for the 24 hour

difference between the two. The £1.63 should be adjusted downwards to reflect the difference between immediate and near-instant or two hour – Vodafone would suggest that any such adjustment should not be simply linear, i.e. approx 7.5p per working hour (assuming 7 per day) but that some form of “immediacy premium” should be accounted for. On top of this however, an examination of Ofcom’s annex 6, where specifications for options A – D are provided, appears to suggest that “near-instant” options A and B actually means 2 + 2 hours, with the first two hours for the PAC issue process for a donor led process, or for the authentication process if recipient led (A6.9 e). It is not clear also whether the 2+2 process should apply across the entire week, i.e. 24/7 or it is to apply only during working hours. All of this suggests that immediate should be interpreted as rather longer than two hours. At the very least however 15p or two sevenths of a working day should be taken out of this benefit (and a similar adjustment be made to the definitely and probably pay value). Table C.13 below shows this conversion of the willingness to pay from immediate to near instant for the calculated per customer values from table C.12 above.

<b>Computed willingness to pay per average customer</b>	<b>Definitely pay</b>	<i>Definitely &amp; probably pay</i>
Immediate	£1.63	£3.14
One day	£1.10	£2.50
Thus the 24 hour increment	£0.53	£0.64
Per working hour	£0.075	£0.09
2 hour adjustment	£0.15	£0.18
<b>Implied 2 hour result</b>	<b>£1.48</b>	£2.96

Table C.13: Conversion of “immediate” to near instant results

## VAT

The cost benefit analysis is in effect a balance between two contrasting elements – the hypothetical willingness of consumers to pay for a change to the porting process measured against the real incurred cost to the operators of providing that process change: if the willingness to pay is greater than the costs, then Ofcom judges that there is a net benefit. But it is clear that the two parts of the balance are not being measured in a consistent manner. On the willingness to pay side, what is being assessed is the sum consumers are willing to contribute. However because of the impact of sales tax, the sum the operators would actually notionally receive to weigh against their real incremental costs is diluted by VAT. It is the reduced sum that should be brought into account in any cost benefit analysis, otherwise the measurements are not like with like.

Table C.14 below adjusts the willingness to pay per average customer to compensate for this (for simplicity the present temporary VAT rate has been used).

Willingness to pay and assessed overall benefit	One day porting		Immediate porting	
	Definitely pay	<i>Definitely &amp; probably pay</i>	Definitely pay	<i>Definitely &amp; probably pay</i>
Unit rate from table Y above	£1.10	£2.50	£1.48	£2.96
Unit rate discounted by VAT	£0.96	£2.17	£1.29	£2.57

Table C.14: Reassessment of willingness to pay

Overall therefore, in Vodafone’s view the benefits of a shorter process cycle time as assessed by Ofcom need to be adjusted downwards for a multiplicity of reasons:

- An overestimate of the annual volume of consumer (i.e. non bulk etc) ports;
- An overall overestimate of the benefits to the average consumer that can be determined from the shape of the curve of the survey results;
- A failure to ask a control question to exclude the willingness to pay for the existing process interval (not actually quantified or adjusted for in this analysis);
- The fallacious equation of immediate with two (four?) hour;
- VAT.

The results of these adjustments can be shown in table C.15 below.

Willingness to pay and assessed overall benefit	One day porting		Immediate porting	
	Definitely pay	<i>Definitely &amp; probably pay</i>	Definitely pay	<i>Definitely &amp; probably pay</i>
Ofcom £ per average customer	£1.57	£3.28	£2.25	£3.87
Ofcom assessed no of ports per year	2.642m	2.642m	2.642m	2.642m
<b>Ofcom benefit</b>	<b>£4.16m</b>	<i>£8.67m</i>	<b>£5.93m</b>	<i>£10.24m</i>
VF no of consumer ports per year	2.10m	2.10m	2.10m	2.10m
VF £ per average customer	£0.96	£2.17	£1.29	£2.57
<b>VF benefit i.e. VF average rate * VF no of ports</b>	<b>£2.00m</b>	<i>£4.57m</i>	<b>£2.70m</b>	<i>£5.40m</i>
Reduction in calculated benefit	52%	47%	54%	47%

Table C.15: Reassessment of annual benefit

We conclude therefore that whilst the nature of the survey in itself precludes precise valuation of the benefit, our work above suggests that the annual benefit might lie around £2.0m for the one day, and £2.7m for the two hour alternative, rather than the significantly higher values proposed by Ofcom.

### Impact of benefit change on Ofcom’s cost benefit analysis

Converting these annual benefits, using the assumptions in Ofcom’s cost benefit analysis, i.e. ten years of post implementation benefit assessment, and a discount rate of 3.5%, gives the results shown in table C.16 below. Given that in Vodafone’s view the inclusion of the “probably pay” survey results in the evaluation of WTP has no merit the cost benefit analysis only uses the definitely pay outcomes:

<b>Assessed overall benefit, per annum and PV of 10 year benefit period, 3.5%</b>	<b>One day porting</b>	<b>Immediate porting</b>
Ofcom annual benefit	£4.16m	£5.93m
<b>Ofcom 10 year PV of benefits</b>	<b>£32.27m</b>	<b>£46.06m</b>
Recalculated annual benefit	£2.00m	£2.70m
<b>Recalculated 10 year PV of benefits</b>	<b>£15.60m</b>	<b>£21.00m</b>
Reduction in PV	£16.67m	£25.06m

Table C.16: PV of benefits

Looking at how the benefits calculation is applied, Ofcom’s cost benefit analysis shows in table 12 on page 64 a present value of costs, benefits and the net result for the four options for change, A – D with lower and upper bands of benefits. This table is reproduced below as C.17.

<b>Ofcom values unadjusted</b>	<b>Present values £m with 10 year payback at 3.5% cost of capital</b>		
	<b>Costs</b>	<b>Benefits</b>	<b>Net present value</b>
A – near instant RL	43.5	<b>46.1</b>	<b>2.5</b>
B – near instant DL	39.2	<b>46.1</b>	<b>6.9</b>
C – one day RL	37.7	<b>32.3</b>	<b>-5.4</b>
D – one day DL	13.8	<b>32.3</b>	<b>18.4</b>

Table C.17: Ofcom assessment of costs and benefits

Substituting the Vodafone calculated revised benefits into the cost benefit analysis without making any other change to the assumptions, i.e. to the costs, the period over which the assessment is made, or the cost of capital gives the following result shown in table C.18:

Cost benefit analysis with revised annual benefit	Present values £m with 10 year payback at 3.5% cost of capital				
	Costs	Benefits		Net present value	
		Ofcom	VF	Ofcom	VF
A – near instant RL	43.5	46.1	21.0	2.5	-22.5
B – near instant DL	39.2	46.1	21.0	6.9	-18.2
C – one day RL	37.7	32.3	15.6	-5.4	-22.1
D – one day DL	13.8	32.3	15.6	18.4	1.8

Table C.18: CBA with Ofcom & Vodafone assessment of benefits

The difference is striking – only option D returns a positive result once the annual benefits are reassessed. On the face of it therefore the incremental costs and benefits of moving away from option D towards either a faster or a recipient led process would not appear to be justifiable.

It is not clear however that option D is unambiguously preferable to the do nothing option, since the apparent PV is so small, especially given the ten year assessment period. It is necessary to turn to the other elements of the cost benefit analysis, to see if Ofcom has adopted reasonable values for these, to arrive at an overall assessment of Ofcom’s published NPVs, shown in table C.17 above.

We note that in 5.155 onwards Ofcom suggests that the relative rankings of A – D might need to be adjusted to reflect some view of the preference for recipient led over donor led. Vodafone is not convinced of Ofcom’s data or the robustness of the interpretation of this matter. This is a topic returned to in the section on the overall review of the cost benefit results below.

### **The costs of implementing solutions A-D**

The consultation document explains Ofcom’s view that the likely level of costs to achieve a donor led (DL) one day solution is an initial capex of £1.75m followed by annual outflows of £1.55m as table C.19 shows:

	Capex	Annual opex
	£m	£m
PAC speed upgrade	✂	✂
MNO costs (total)	✂	✂
CDB cost	✂	✂
Processing opex	✂	✂
<b>Total</b>	<b>1.75</b>	<b>1.55</b>

Table C.19: Ofcom view of costs of DL one day solution<sup>11</sup>

The ten year DCF of the total outflows, at 3.5% cost of capital amounts to £13.8m.

To substitute a recipient led (RL) one day solution involves a higher level of costs – these are shown in table C.20 below as increments over the DL one day solution.

	Capex			Annual opex		
	DL one day	Extra for RL one day	Total RL one day	DL one day	Extra for RL one day	Total RL one day
	£m	£m	£m	£m	£m	£m
PAC speed upgrade	✂	✂	✂	✂	✂	✂
MNO costs (total)	✂	✂	✂	✂	✂	✂
CDB cost	✂	✂	✂	✂	✂	✂
Processing opex	✂	✂	✂	✂	✂	✂
<b>Total</b>	<b>1.75</b>	<b>10.75</b>	<b>12.5</b>	<b>1.55</b>	<b>1.69</b>	<b>3.24</b>

Table C.20: Ofcom view of costs of RL one day solution

Thus the RL one day solution costs on Ofcom’s estimate an extra £10.75m capex and an extra £1.69m annual opex, equivalent to an extra £23.8m of outflows on a ten year basis. It is also possible to consider the incremental costs of moving from the DL one day option to either the DL near instant or the RL near instant options. These are tabulated below in C.21:

<sup>11</sup> The solution additionally involves replacement capex in year 8, but for simplicity this is excluded from this and subsequent tables

	Capex			Annual opex		
	DL one day	Extra for DL near instant	Total for DL near instant	DL one day	Extra for DL near instant	Total for DL near instant
	£m	£m	£m	£m	£m	£m
PAC speed upgrade	✂	✂	✂	✂	✂	✂
MNO costs (total)	✂	✂	✂	✂	✂	✂
CDB cost	✂	✂	✂	✂	✂	✂
Processing opex	✂	✂	✂	✂	✂	✂
<b>Total</b>	<b>1.75</b>	<b>10.20</b>	<b>11.95</b>	<b>1.55</b>	<b>1.88</b>	<b>3.43</b>

Table C.21: Ofcom view of costs of DL near instant solution

Overall, the extra £10.2m capex and £1.88m opex constitute a further £25.3m incremental outflow on a ten year PV basis. Similarly, for the move from DL one day to RL near instant, the following incremental costs are incurred:

	Capex			Annual opex		
	DL one day	Extra for RL near instant	Total for RL near instant	DL one day	Extra for RL near instant	Total for RL near instant
	£m	£m	£m	£m	£m	£m
PAC speed upgrade	✂	✂	✂	✂	✂	✂
MNO costs (total)	✂	✂	✂	✂	✂	✂
CDB cost	✂	✂	✂	✂	✂	✂
Processing opex	✂	✂	✂	✂	✂	✂
<b>Total</b>	<b>1.75</b>	<b>12.45</b>	<b>14.20</b>	<b>1.55</b>	<b>2.17</b>	<b>3.72</b>

Table C.22: Ofcom view of costs of RL near instant solution

The incremental capex and opex costs amount to an additional ten year outflow of £29.7m for A over D.

We can see that between options D and A, the level of costs increases with the reduction in process cycle, and with the shift from DL to RL. This is tabulated below in C.23.



	Capex £m	Annual opex £m
D - Donor led one day	1.75	1.55
D to B - Increment for process cycle time reduction	10.20	1.88
D to C – increment for process method shift	10.75	1.69
D to A – increment for both	12.45	2.17

Table C.23: Ofcom view of incremental costs of process changes

Whilst we are clear that the rankings of cost between options, i.e. D cheapest and A most expensive would appear reasonable, we are less certain that the absolute values for each of the increments are necessarily correct. Implementation of D over the present method represents a reduction in process cycle time from two days to one. There would appear to be some form of industry consensus that this might be achieved with relatively minor tweaking of existing systems, whereas dropping from one day to near instant cycle time would probably mean that some existing systems would not be capable of this radical acceleration, resulting in the need for substantial process redesign and system development and modification. Similarly the process shift from DL to RL would involve not only extensive existing system redesign but also new processes and systems would have to be built from scratch, particularly in the area of authentication and slamming avoidance, and in the provision of a communications hub. Ofcom appears to suggest that if both the method shift and the cycle time reduction were implemented, the incremental cost of cycle time reduction on top of process method shift (C over A) would be small, only £1.5m. Vodafone is not so sanguine about this – the move from C to A would mean that these new systems of authentication and slamming avoidance would have to work, reliably and with no exceptions in (or virtually in) real time.

Vodafone is clear that the degree of uncertainty on the level of costs will increase with the complexity of the change from the existing position – thus D’s costs can probably be derived with the most degree of certainty. B is effectively “turbo-charging” an existing set of known tasks, whereas C and A involve progressively greater voyages of discovery, so there is every risk that actual costs incurred may be higher and the degree of absolute and relative forecast error greater, particularly in the case of A.

So, what reason is there to consider that Ofcom’s view of costs is appropriate? Ofcom has assembled its view of costs from the best information available to it, but there are a large number of uncertainties in the data sources, which are generally the work related to UK Porting and the relatively recent Section 135 general information request, and also in the method Ofcom has used to put together the costs of the various options. For example in the case of option A Ofcom explains in 5.55 that “*the estimates have been formed using information obtained from operators about the costs of a near instant recipient led process through the UK Porting working parties*”. Undoubtedly this was a necessary source, but it must be realised that as Ofcom explains in 5.56 and 5.57 at the time of its abandonment (as a result of Vodafone’s successful appeal) UK Porting had not completed its work – particularly unresolved were major issues of process design for example with respect to authentication, the central hub and so forth. Given that basic process points were still unclear, it is obvious that any view of costs, both for

expenditure incurred centrally, and for costs incurred by individual operators was still provisional, and must remain so.

Ofcom has also used the 2008/09 Section 135 information request as a data source – here Vodafone supplied Ofcom with as much detail as was available on Vodafone's view of what its own costs were likely to be, but again these were given in the light of work relating to the unresolved nature of the UK Porting specifications, rather than as a result of any spontaneously conducted new work, so their provenance is fundamentally the same. In our submission we pointed out that the value we supplied was not only an estimate but also a partial one in the sense that it did not cover all relevant systems and activities.

The operator responses have been included by Ofcom into its estimates. Opex for both central and local costs has then largely been derived as a proportion of capex – this may or may not be reflective of the real outcome. So whilst Ofcom has devoted four pages of the consultation to building up the costs of option A, much of it is in reality conjectural. In many ways the apparent level of detail gives a spurious air of precision to the estimate.

One of the uncertainties of the process proposed by UK Porting was its scope – to whom it actually would be applied, in terms of channel and operator. Vodafone expressed doubt at the time, and continues to be unclear on this point as to what Ofcom is actually envisaging – as to whether for example an MVNO such as Tesco Mobile would be obliged to offer near-instant porting at all supermarkets where phones were sold, and if not, what would be required to be offered by the MVNO, and whether the MVNOs' costs of performing this had been factored in to any estimate (and similarly all other networks' and MVNOs' costs of interacting with Tesco Mobile included). Either the costs of providing these porting opportunities need to be included, or as we note in the benefit section above the assessed benefits of any porting process change need to be reduced to reflect the restricted pool of porters who could be construed as being able to benefit from the change.

For other options, such as B, the DL near-instant, rather than assembling the costs on a bottom up basis, Ofcom has been reduced to identifying the pieces required for near-instant that are specific to RL, and deducting the assumed value of them from the total of option A – option B is thus dealt with in a page and a half in the consultation. Given the difference in result between B and A, this suggests that Ofcom is assuming that the costs of the DL specific components, primarily real time authentication is only £2.25m both centrally and individually across operators. This appears implausibly low. Option C, RL one day appears to be similarly derived, in effect by deducting from option A (the RL near instant) a view of the near-real time acceleration elements, but retaining the RL specific components. Option D, the DL one day, has been derived in a manner that appears to be a little more bottom up, but the provenance of the estimates that Ofcom has used is totally unclear – paragraphs 5.98 and 5.99 appear to suggest that Ofcom has come up with the costs on its own.

So from this very brief summary of Ofcom's method of cost estimation, one cannot form the view that any of the assessed costs are anything other than estimates, based on incomplete specifications, that may or may not represent the real costs of any of the options. It is also evident that the absolute differences in cost between the options, critical for any relative ranking of the alternative options may not be correct. So for example let us assume that the actual capital cost of real-time authentication, i.e. the difference between A and B, is not the £2.25m of the current estimate, but £5m. But what might this mean? Is Ofcom's view of option A correct in total i.e. it actually

currently includes £5m for this element, in which case the cost of B must fall by £2.75m? Or is B currently correct, in which case A must go up by £2.75m? Without a properly grounded bottom up calculation of the costs for each option, there is no way to be certain of anything. This is not a particularly helpful position to be in for a cost benefit analysis.

In relation to internal costs, ✗.

While Vodafone cannot know precisely how other operators’ costs would be affected, its own review suggests that this are prima facie grounds for believing that Ofcom’s assessment of the costs of option A might be light.

### **Overall differential results for A - D**

Overall, applying Ofcom’s view of costs, and Ofcom’s assessment of benefits, over ten years at 3.5%, Ofcom derives net present values in 2009 of the four options as follows:

- Option A, near instant RL, positive £2.5m
- Option B, near instant DL, positive £6.9m
- Option C, one day RL, negative £5.4m
- Option D, one day DL, positive £18.4m

Relatively little sensitivity analysis is published by Ofcom in the consultation<sup>12</sup> on the costs of implementing the process changes – annex 6 briefly considers scenario outputs where costs and benefits are varied up and down, individually and in combination, and concludes that option D even under a low benefit high cost scenario still produces a positive value, unlike the other three options, but no view by Ofcom is taken as to the probability of any alternate outcomes. As discussed above Vodafone does not agree with this proposition.

A very simple approximation of the possible range of error might be to examine the consequences of say a 20% increase to the level of initial capex and a 10% increase to the ongoing opex (except where directly related to the capex) with a view to establishing the criticality of this change alone to the overall cost benefit analysis outcome. This is relatively easily achieved in the Ofcom spreadsheet, and table C.24 below shows the results.

---

<sup>12</sup> Although the spreadsheet supplied to the operators does permit it

Ofcom values	Present values £m with 10 year payback at 3.5% cost of capital				
	Ofcom costs	Costs uplifted	Change	Resulting net present values	
				Original Ofcom	Uplifted costs
A – near instant RL	43.5	49.7	6.2	2.5	-3.6
B – near instant DL	39.2	43.5	4.3	6.9	2.6
C – one day RL	37.7	41.8	4.1	-5.4	-9.5
D – one day DL	13.8	14.5	0.7	18.4	17.7

Table C.24: Ofcom assessment of costs and benefits at 3.5% - adjusting costs upwards

It can be seen that the outcome of option D is relatively insensitive to cost fluctuations, but that this is not so for the other options - the value of the increase is greater for options A to C. For option A the increase has had the impact of tipping the definitely pay NPV from positive to negative, even with Ofcom’s view of benefits. It is obvious however that the degree of sensitivity of the benefits is likely to be greater than that of the costs.

Option D is clearly some way ahead in any A – D ranking, both on this basis and on the simple payback or return on investment method discussed in table C.2 above. It is hard to see how any objective project appraisal would entertain options A, B or C over option D for a second.

### **Cost of capital and the period of assessment**

In the cost benefit analysis, Ofcom has used a low cost of capital and a long payback period. Clearly both of these will tend to increase the significance of later periods in contributing to the overall quantum of discounted benefit. Vodafone does not believe either the 3.5% cost of capital or the 10 year of benefit employed by Ofcom to be appropriate. It is necessary to consider the merits of each and their contribution to the overall result.

### **3.5% or 11.5% cost of capital?**

Ofcom have used a low rate of cost of capital, of 3.5%. It has justified it on the grounds that this is this social discount rate to be used “*when evaluating policy proposals for which the benefits accrue directly to consumers*”<sup>13</sup>. Vodafone does not agree with this approach. If the government were funding the project, and any risk could be diversified amongst other government funded projects, 3.5% might apply. But since it is funded by

<sup>13</sup> Ofcom consultation at 5.152, d)

MNOs and must share the same risk profile as investment generally in mobile networks a discount rate equal to the mobile industry WACC of 11.5% should be applied.

There is a further point associated with the use of the social rate. Ofcom in the cost benefit analysis is balancing the consumer benefits of process change with the operator cost of providing that change. But it can be reasonably assumed that any costs that the operators incur, and any resulting implied annual deficit, will be passed on to consumers in general, for example through retail charges. But given that the costs will be a mixture of initial and ongoing cash outflows, the way the operators will interpret this will be in effect converting the total outflows they experience into an annual impact at their rate of capital. To value therefore the benefit to one particular segment of consumers i.e. those few who indicated WTP for a revised porting process at one cost of capital, whilst assessing the cost to the consumer base in general, who will actually be paying for the benefit of the few, at another cost of capital, would seem perverse.

Varying Ofcom’s cost benefit for this factor alone, will reduce the PVs of both costs and benefits in the following manner:

Ofcom input values unadjusted	Present values £m with 10 year payback					
	Costs		Benefits		Net present value	
	3.5% CoC	11.5% CoC	3.5% CoC	11.5% CoC	3.5% CoC	11.5% CoC
A – near instant RL	43.5	29.5	46.1	27.5	2.5	-2.0
B – near instant DL	39.2	26.3	46.1	27.5	6.9	1.2
C – one day RL	37.7	25.6	32.3	19.3	-5.4	-6.3
D – one day DL	13.8	8.7	32.3	19.3	18.4	10.6

Table C.25: Assessment of costs and benefits at 3.5% and 11.5% cost of capital

The adjustment in itself thus makes relatively little difference to the overall set of outcomes apart from strengthening the emphasis towards option D (but also significantly reducing its absolute benefit), and flipping option A from positive to negative. Vodafone notes that Ofcom itself may be ambivalent on the use of 3.5%, since its sensitivity analysis on table A5.1 gives the cost of capital as one of the potential variables, but then in practice runs all published outcomes with 3.5%.

### Why ten years?

Ofcom uses a ten year benefit period for assessment, i.e. a ten year period of post launch benefits are assumed, over the period 2012 – 2021. Ofcom’s justification for this period is contained in 5.152c): “the decision to use this time horizon is based on the anticipated life time of the assets required to implement direct routing (e.g. the operator specific capital investment is assumed to have a useful life of ten years and will be installed in 2011.” In Vodafone’s view this is misguided. It is not clear what relevance

the network assets required to implement direct routing have to the largely retail, computer based assets required to implement faster porting. Ofcom’s own analysis of the required capital costs for the porting process change breaks them down into two elements – those required by each MNO and those common central costs – the latter, based on the assessment of UK Porting have been assigned a life of 7 years – so included in the annual outflows of years 8, 9 and 10 are annualised replacement capex. A replacement asset life cycle of no more than 7 years is more appropriate for the whole of the porting process change.

Inside a mobile operator, projects are no doubt appraised internally with a much higher hurdle rate and over a shorter time period. There is a very strong risk therefore that a project that has been “justified” on a much less stringent basis will take scarce funds away from superior projects that might offer the customer base in general more real benefits, such as investment in coverage or new technology.

We also note that in the parallel routing consultation (where there is a strong emphasis on the longer life network assets than there obviously is in the process consultation where more shorter life retail assets are involved) Ofcom is clearly ambivalent between seven and ten years – indeed its major summary in table 1 of that consultation shows outputs in both. It is inconsistent for Ofcom to use merely a ten year payback appraisal in the case of process change.

Overall therefore, Vodafone considers it is on balance more appropriate to consider any porting process change on the basis of the maximum of seven years of benefits and a cost of capital of 11.5% (although it is still worth observing what a ten year benefit assessment provides). Applying seven years and 11.5% to Ofcom’s input values of costs and benefits gives the following results in table C.26 below, in comparison with the values in table C.25 above which are for a 10 year 3.5% basis.

Ofcom values at 11.5% cost of capital	Present values £m with 7 year payback at 11.5% cost of capital		
	Costs	Benefits	Net present value
A – near instant RL	25.3	22.1	<b>-3.2</b>
B – near instant DL	22.4	22.1	<b>-0.3</b>
C – one day RL	22.1	15.5	<b>-6.6</b>
D – one day DL	7.2	15.5	<b>8.3</b>

Table C.26: Assessment of Ofcom costs and benefits at 11.5% over 7 years

Here it becomes even clearer that even if Ofcom’s assessment of the annual costs and benefits are correct, option D is the most reasonable of the four options.

### **Overall cost benefit analysis**

Vodafone has thus examined the two major inputs of the cost benefit analysis, the valuations of the benefits and of the costs, and found the former in particular to be

materially overstated, and also looked at the general parameters of the model, i.e. the cost of capital and the length of evaluation and found the former to be too low and the latter too long. The individual impact of each of the changes has been considered in the sections above.

It is appropriate to combine these necessary variations to examine their collective impact, for each of options A to D. Table C.27 below shows the range of results for option A, recipient led near-instant porting. Only the Ofcom 10 year 3.5% version gives a positive NPV, and that is scarcely above zero.

<b>Option A – recipient led near instant porting</b>	<b>Present values £m</b>		
	<b>Costs</b>	<b>Benefits</b>	<b>Net</b>
<b>Ofcom inputs at 10 years, 3.5%</b>	<b>43.5</b>	<b>46.1</b>	<b>2.5</b>
Ofcom inputs at 10 years, 11.5%	29.5	27.5	-2.0
Ofcom inputs at 7 years, 11.5%	25.3	22.1	-3.2
Vodafone benefit, Ofcom costs at 10 years, 3.5%	43.5	21.0	-22.5
Vodafone benefit, Ofcom costs at 10 years, 11.5%	29.5	12.5	-17.0
<b>Vodafone benefit, Ofcom costs at 7 years, 11.5%</b>	<b>25.3</b>	<b>10.1</b>	<b>-15.2</b>

Table C.27: Option A alternative NPV results

Table C.28 shows the range of results for option B, donor led near instant porting:

<b>Option B – donor led near instant porting</b>	<b>Present values £m</b>		
	<b>Costs</b>	<b>Benefits</b>	<b>Net</b>
<b>Ofcom inputs at 10 years, 3.5%</b>	<b>39.2</b>	<b>46.1</b>	<b>6.9</b>
Ofcom inputs at 10 years, 11.5%	26.3	27.5	1.2
Ofcom inputs at 7 years, 11.5%	22.4	22.1	-0.3
Vodafone benefit, Ofcom costs at 10 years, 3.5%	39.2	21.0	-18.2
Vodafone benefit, Ofcom costs at 10 years, 11.5%	26.3	12.5	-13.8
<b>Vodafone benefit, Ofcom costs at 7 years, 11.5%</b>	<b>22.4</b>	<b>10.1</b>	<b>-12.3</b>

Table C.28: Option B alternative NPV results

Option B would appear to be less bad than option A, but unlikely to produce a favourable result. Option C, the recipient led one day process, gives the following results:

Option C – recipient led one day porting	Present values £m		
	Costs	Benefits	Net
<b>Ofcom inputs at 10 years, 3.5%</b>	<b>37.7</b>	<b>32.3</b>	<b>-5.4</b>
Ofcom inputs at 10 years, 11.5%	25.6	19.3	-6.3
Ofcom inputs at 7 years, 11.5%	22.1	15.5	-6.6
Vodafone benefit, Ofcom costs at 10 years, 3.5%	37.7	15.6	-22.1
Vodafone benefit, Ofcom costs at 10 years, 11.5%	25.6	9.3	-16.3
<b>Vodafone benefit, Ofcom costs at 7 years, 11.5%</b>	<b>22.1</b>	<b>7.5</b>	<b>-14.6</b>

Table C.29: Option C alternative NPV results

Option C never seems to have a favourable outcome. Finally, table C.30 below shows the outputs for option D, donor led one day porting:

Option D – donor led one day porting	Present values £m		
	Costs	Benefits	Net
<b>Ofcom inputs at 10 years, 3.5%</b>	<b>13.8</b>	<b>32.3</b>	<b>18.4</b>
Ofcom inputs at 10 years, 11.5%	8.7	19.3	10.6
Ofcom inputs at 7 years, 11.5%	7.2	15.5	8.3
Vodafone benefit, Ofcom costs at 10 years, 3.5%	13.8	15.6	1.8
Vodafone benefit, Ofcom costs at 10 years, 11.5%	8.7	9.3	0.6
<b>Vodafone benefit, Ofcom costs at 7 years, 11.5%</b>	<b>7.2</b>	<b>7.5</b>	<b>0.3</b>

Table C.30: Option D alternative NPV results

Option D gives a positive result over any of these circumstances, but using Vodafone’s assessment of the likely benefits, the NPV is very small.

It is evident that there is generally no material difference arising from a seven year or a ten year evaluation, so to some extent arguments on the length of period of evaluation



are moot. A to C give similarly negative results, and D is approximately equally break-even. Tabulating in C.31 below two of the reported results for each option, the Ofcom case over ten years and 3.5%, and the Vodafone view of benefit with the Ofcom view of cost, over seven years at 11.5% shows that the relative ranking of the outputs has moved somewhat:

<b>NPV of net benefits under original Ofcom and revised Vodafone outcomes</b>	<b>Ofcom costs and benefits, 10 year, 3.5%</b>	<b>Ofcom costs, Vodafone benefits, 7 year, 11.5%</b>
A – near instant RL	2.5	-15.2
B – near instant DL	6.9	-12.3
C – one day RL	-5.4	-14.6
D – one day DL	18.4	0.3

Table C.31: Revised NPVs of options A to D

Under the Ofcom valuation, whilst donor led always generates a better result, the near instant recipient led solution is preferable to the one day recipient led outcome. This arises from the view that while recipient led is a more expensive approach than donor led the incremental cost of near-instant over one day recipient led is less than the incremental benefit from the change.

However, under the Vodafone assessment of the benefits that may be reasonably generated from the survey data, the near instant and one day recipient led generate a virtually equally bad negative NPV, but one that is worse than the also negative near instant donor led – it is only the one day donor led option that produces a non-negative result, but that is one that is not materially different from zero.

Flipping the evaluation around, and looking at it as table C.2 above in terms of payback on the initial capex, but leaving this unchanged from the Ofcom value, and using the Vodafone view of annual benefits, one can see the following result:

<b>Forecast of annual cash flows with Vodafone benefit and Ofcom outflows</b>	<b>Initial outlay</b>	<b>Annual flows</b>			<b>Ratio initial outflow to annual inflow</b>
		<b>In</b>	<b>Out</b>	<b>Net in</b>	
D – one day DL	£1.75m	£2.0m	£1.6m	£0.4m	4.4
C – one day RL	£12.50m	£2.0m	£3.2m	£-1.2m	Never
B – near instant DL	£11.95m	£2.7m	£3.4m	£-0.7m	Never
A – near instant RL	£14.20m	£2.7m	£3.7m	£-1.0m	Never

Table C.32: Comparison between initial outlay and net annual flows, options A -D

This shows the position very starkly – under the Vodafone view of the likely reasonable assessment of benefits, in options A, B and C the annual outflows are greater than the annual benefits, so no progress is ever made on recovering the initial investment. In order to even break even on each annual flow, the benefit under option A must be boosted by 37%. In order in undiscounted terms to recover the initial outlay in 6.5 years, as per table C.2, one somehow has to more than double the annual benefits of option A.

### **Potential re-weighting between recipient led and donor led**

Ofcom in its summary of the relative rankings of A – D, comments that “*our estimation of the benefits of the four options does not account for the fact that it is likely that consumers would be willing to pay more for a recipient led than for a donor led process, reflecting their stated preference for the former*<sup>14</sup>”.

Ofcom goes on to suggest in 5.156: “*our sensitivity analysis shows that if consumers value a recipient led process compared to a donor led process at a ratio of 1.35:1 option A would be the highest ranking policy option. Given the consumer preference ranking discussed in paragraph 5.125, this could be possible.*” Ofcom is obviously aware of the implausibility of this line of argument since footnote 118 qualifies this point:

*“We are unsure why some respondents valued a recipient-led process over a donor led process in the survey taken, and therefore need more information before we can accurately comment on this point. For example it is possible that the main reason that survey respondents would value a recipient led process is because they believe it would be faster. Given that consumer preference for a faster porting process is already captured in our analysis, consumers would need to value a recipient led process for other reasons, such as the reduction in unwanted retention activity, for the preference to have an impact on our analysis.”*

Quite so. Following the trail back into the survey question to which Ofcom is alluding (in the additional material supplied at Vodafone’s request), one discovers that 53% of consumers preferred recipient led and 20% preferred donor led (2.7:1 weighting) when asked the following question in December 2008:

*“Q14. When changing from one mobile network to another, if you wanted to keep your existing mobile phone number, which of these processes would you most prefer:*

- a) You contact your current mobile network telling them that you want to take your existing phone number to a new network, then contact your new network for them to complete the process; or*
- b) Your new mobile network automatically contacts your existing network to complete the process”; or*
- c) No preference/ don’t know”*

---

<sup>14</sup> Per consultation at 5.155

Vodafone is able to recognise a leading question when it sees one – we are astonished that as many as 20% of the answers were for a) and as few as 53% were for b) when the question was couched in this manner. It would have been equally possible to say “do you want a process where you are always in control of your choice of operator, or do you want to run the risk of someone transferring your phone to another network without your permission” and expect this to be objective.

There is a limit to which surveys can attempt to capture meaningful insights into preference between donor and recipient led models of porting. As noted in the main body of this response, the practical operation of any particular porting process and the resulting customer experience depends as much on the detail of the particular process in question as whether it is nominally donor or recipient led. To elicit an informed response in a survey context, it would be necessary somehow to convey in a neutral and objective way the key practical features of the particular process concerned – something that is not easy to achieve through a single survey question.

As Ofcom appears to recognise, the question actually posed falls some way short in this regard. Picking up Ofcom’s suggestion quoted above that from the mischaracterisation of RL and DL in Q14 might mistakenly suggest to respondents that RL is faster leads to the thought that in the WTP question that generates the valuation of benefits respondents might be equating speed with simplicity of process, and valuing the latter rather than the former, when in reality the process would be equally simple irrespective of whether the process cycle was two days, one day or “immediate”.

The further and easily missed point is that somehow Ofcom is attempting to make the imaginative leap between preference and willingness to pay, that the dodgy results of Q14 above might be made to suggest that all consumers would pay more for RL than DL. Vodafone agrees with Ofcom that it has no usable data on consumer preference between DL and RL, and absolutely nothing on how any preference might be construed as relative willingness to pay.

Ofcom in its suggestion of re-ranking quoted above appears to suggest that recipient led should or might be up-weighted over donor led, with 1.35:1 being the break-even measure. This appears to merely be the mathematical result obtained from Ofcom’s CBA results where the NPV of option D is £18.4m, and for option A is £2.5m, with assessed benefits of £46.1m. Inflation of the assessed benefits of option A by 35% to £62.2m makes the net benefit of option A £18.7m, i.e. greater than option D. But this is mere sophistry. Conflating the WTP benefit from faster process cycle time with some spurious apparent preference for RL over DL to pretend the benefits can be magnified beyond the survey results is totally unjustifiable<sup>15</sup>, and we are glad that Ofcom does not appear to be seriously advancing this point in the main body of the consultation.

However we note that table A5.2 in the sensitivity analysis extraordinarily does appear to take this suggestion seriously at least from a hypothetical point of view – it appears to explore what might happen to options A – D if the recipient led benefit were to be up-rated (or more properly over-stated) in the manner above. Unsurprisingly it concludes that increasing the benefits for the RL options over that already calculated would give a better result for those options.

---

<sup>15</sup> A proponent of this argument would have to say “we believe consumers value a faster process at the rate of £1.57 per average customer in the case of an immediate port. We also believe that more consumers prefer a recipient led process than a donor led one, therefore we can see that customers would pay more than £1.57 for a recipient led process”!

If one were to try and think in this dubious manner, however, one might argue that Ofcom has the whole sensitivity calculation backwards. It cannot imagine more benefits for RL; all it can do is to reduce the benefits for DL. If one can somehow construe (from the data that isn’t there) that consumers financially value DL less than RL the implications of attempting any adjustment to the calculated WTP for process cycle time would not result in an inflation of the benefits for RL above those already calculated but a deflation of them for DL. So for example if we have a WTP of £1.57 for an immediate process, then this should be interpreted as the base value for RL, with a lower value for DL. Pretending for a moment that a relative weighting of 1.35:1 has any evidential basis, then DL might provide 26% less benefit than RL. Playing in Ofcom’s sandbox, one should for option D thus take the assessed one day benefit of £32.3m and discount this by 26% to £23.9m. Given option D’s costs of £13.8m this would reduce the NPV from £18.4m to £10.1m, a figure that is still comfortably above all of the Ofcom NPVs of the remaining options.

In fact to get option A into first place, one must reduce option D down to option A’s NPV of £2.5m. Given option D’s costs of £13.8m this would imply a benefit of £16.3m or a halving of the assessed benefit, a weighting of 2:1 between DL and RL. The only problem with this re-ranking is that now both options B and C are negative, and the benefit of A and D is only £2.5m, putting into question the value of any process change whatsoever.

If one were to attempt this strange exercise with the Vodafone set of benefits, the only result would be to force option D to be negative as well. Vodafone sees no virtue in any of these re-weighting calculations however. If the intention of Ofcom was to attempt to distinguish between RL and DL in terms of willingness to pay in order to provide differential benefits for both process type and process cycle time in the CDB it should have asked more focused, objectively set questions. Since it did not, Vodafone sees that any attempt to “fudge” the relative rankings of A – D imperils the objectivity and evidence-based nature of Ofcom’s consultation. Vodafone welcomes the fact that Ofcom appears to draw back from this position “*while our current research suggests a preference for a recipient led process, we are not able to determine the extent of that preference.*”<sup>16</sup>

---

<sup>16</sup> Consultation A5.10

**Detail of the re-working of the benefits.**

Tables C.9 and C.11 above detail how the extrapolated head and tail of Ofcom’s benefit calculation for the average user is removed, and how the curve between the £5 and 50p observations is adjusted, in the case of the definitely pay for one day porting from £1.57 to £1.10. The tables C.33 to C.38 below show how a similar exercise is conducted:

- to amend the WTP for definitely pay for immediate porting from £2.25 per average customer to £1.63;
- to amend the WTP for definitely and probably pay for one day porting from £3.28 per average customer to £2.50;
- to amend the WTP for definitely and probably pay for immediate porting from £3.87 per average customer to £3.14.

The results for these three cases, as well as for the definitely pay one day scenario are summarised in table C.12 above.

Willingness to pay at value threshold	Proportion of customers	Proportion of overall benefit and contribution to benefit per average customer		
		From interpolation & extrapolation	From survey results	Cumulative total
Over £20	0 to 2.79%	19p – 8.7%		8.7%
<b>£20</b>	<b>2.79%</b>		<b>56p – 24.8%</b>	33.5%
£10 - £20	2.79% to 4.79%	10p – 4.5%		38.0%
<b>£10</b>	<b>4.79%</b>		<b>20p – 8.9%</b>	46.9%
£5 - £10	4.79% to 10.35%	14p - 6.2%		53.1%
<b>£5</b>	<b>10.35%</b>		<b>28p - 12.4%</b>	65.5%
50p - £5	10.35% to 32.43%	50p – 22.1%		87.6%
<b>50p</b>	<b>32.43%</b>		<b>11p – 4.9%</b>	92.5%
Below 50p	32.43% to 100%	17p – 7.5%		100.0%
Totals		110p – 48.9%	<b>115p– 51.1%</b>	<b>£2.25</b>

Table C.33: Ofcom calculation of WTP, definitely pay for immediate

Willingness to pay at value threshold	Proportion of customers	Proportion of overall benefit and contribution to benefit per average customer		
		From interpolation	From survey results	Cumulative total
Over £20	0 to 2.79%	0%		0%
<b>£20</b>	<b>2.79%</b>		<b>56p – 34.1%</b>	34.1%
£10 - £20	2.79% to 4.79%	10p – 6.1%		40.2%
<b>£10</b>	<b>4.79%</b>		<b>20p – 12.5%</b>	52.4%
£5 - £10	4.79% to 10.35%	14p – 8.5%		60.9%
<b>£5</b>	<b>10.35%</b>		<b>28p – 17.0%</b>	77.9%
50p - £5	10.35% to 32.43%	25p – 15.2%		93.1%
<b>50p</b>	<b>32.43%</b>		<b>11p – 6.9%</b>	100.0%
Below 50p	32.43% to 100%	0%		
Totals		48p – 29.8%	<b>115p – 70.2%</b>	<b>£1.63</b>

Table C.34: Vodafone revision of WTP, definitely pay for immediate

Willingness to pay at value threshold	Proportion of customers	Proportion of overall benefit and contribution to benefit per average customer		
		From interpolation & extrapolation	From survey results	Cumulative total
Over £20	0 to 5.01%	35p – 10.8%		10.8%
<b>£20</b>	<b>5.01%</b>		<b>100p – 30.5%</b>	41.3%
£10 - £20	5.01% to 8.55%	18p - 5.4%		46.7%
<b>£10</b>	<b>8.55%</b>		<b>35p - 10.8%</b>	57.5%
£5 - £10	8.55% to 16.05%	19p - 5.7%		63.2%
<b>£5</b>	<b>16.05%</b>		<b>37p – 11.4%</b>	74.6%
50p - £5	16.05% to 40.95%	56p – 17.1%		91.7%
<b>50p</b>	<b>40.95%</b>		<b>13p – 3.8%</b>	95.5%
Below 50p	40.95% to 100%	15p – 4.5%		100.0%
Totals		143p – 43.5%	<b>185p- 56.5%</b>	<b>£3.28</b>

Table C.35: Ofcom calculation of WTP, definitely &amp; probably pay for one day

Willingness to pay at value threshold	Proportion of customers	Proportion of overall benefit and contribution to benefit per average customer		
		From interpolation	From survey results	Cumulative total
Over £20	0 to 5.01%	0%		0%
<b>£20</b>	<b>5.01%</b>		<b>100p–40.1%</b>	40.1%
£10 - £20	5.01% to 8.55%	18p – 7.1%		47.2%
<b>£10</b>	<b>8.55%</b>		<b>35p – 14.2%</b>	61.3%
£5 - £10	8.55% to 16.05%	19p – 7.5%		68.8%
<b>£5</b>	<b>16.05%</b>		<b>37p – 15.0%</b>	83.8%
50p - £5	16.05% to 40.95%	28p – 11.2%		95.0%
<b>50p</b>	<b>40.95%</b>		<b>13p – 5.0%</b>	100%
Below 50p	40.95% to 100%	0%		
Totals		65p – 25.8%	<b>185p- 74.2%</b>	<b>£2.50</b>

Table C.36: Vodafone revision of WTP, definitely &amp; probably pay for one day

Willingness to pay at value threshold	Proportion of customers	Proportion of overall benefit and contribution to benefit per average customer		
		From interpolation & extrapolation	From survey results	Cumulative total
Over £20	0 to 5.96%	33p – 8.6%		8.6%
<b>£20</b>	<b>5.96%</b>		<b>119p- 30.8%</b>	39.4%
£10 - £20	5.96% to 11.27%	27p – 6.9%		46.3%
<b>£10</b>	<b>11.27%</b>		<b>53p – 13.7%</b>	60.0%
£5 - £10	11.27% to 21.56%	26p – 6.6%		66.6%
<b>£5</b>	<b>21.56%</b>		<b>51p – 13.3%</b>	79.9%
50p - £5	21.56% to 44.85%	52p – 13.5%		93.4%
<b>50p</b>	<b>44.85%</b>		<b>12p – 3.0%</b>	96.4%
Below 50p	44.85% to 100%	14p – 3.6%		100.0%
Totals		152p- 39.2%	<b>235p- 60.8%</b>	<b>£3.87</b>

Table C.37: Ofcom calculation of WTP, definitely &amp; probably pay for immediate

Willingness to pay at value threshold	Proportion of customers	Proportion of overall benefit and contribution to benefit per average customer		
		From interpolation	From survey results	Cumulative total
Over £20	0 to 5.96%	0%		0%
<b>£20</b>	<b>5.96%</b>		<b>119p- 38.0%</b>	38.0%
£10 - £20	5.96% to 11.27%	27p – 8.5%		46.5%
<b>£10</b>	<b>11.27%</b>		<b>53p – 16.9%</b>	63.4%
£5 - £10	11.27% to 21.56%	26p – 8.26%		71.6%
<b>£5</b>	<b>21.56%</b>		<b>51p – 16.4%</b>	88.0%
50p - £5	21.56% to 44.85%	26p – 8.3%		96.3%
<b>50p</b>	<b>44.85%</b>		<b>12p – 3.7%</b>	100.0%
Below 50p	44.85% to 100%	0%		%
Totals		79p- 25.0%	<b>235p- 75.0%</b>	<b>£3.14</b>

Table C.38: Vodafone revision of WTP, definitely & probably pay for immediate