Assessment of eir's calculation of intangible benefits for 2015/16

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1 Introduction

As part of its application to the Commission for Communications Regulation (ComReg) for funding in respect of the provision of the universal service obligation (USO) for the 2015/16 financial year, in March 2017 eir submitted a report prepared on its behalf by Frontier Economics ('Frontier'). This report estimated and reported on the intangible benefits that accrued to eir as the universal service provider (USP) in 2015/16[1] (the 'Frontier Intangible Benefits Report'). ComReg has commissioned Oxera to review the Frontier Intangible Benefits Report.

This Oxera report also refers to the Frontier Intangible Benefits Report for 2010/11 in certain instances, as the Frontier 2010/11 report included a section with responses to Oxera's comments and recommendations on the 2009/10 application.[2] While those responses were not repeated in the Frontier Intangible Benefits Report for this application, they remain relevant to the current assessment as the methodology and the intangible benefits model eir uses for 2015/16 are largely the same as those used in its 2010/11 USO funding application.[3]

The principles and methodologies for assessing whether the USO represents a net cost that places an unfair burden on the USP are set out in ComReg Decision D04/11[4] ('**D04/11**'). Decisions 31, 35, 36 and 37 deal with the calculation of intangible benefits.

In accordance with **Decision No. 31** of D04/11, the calculations submitted by Frontier on behalf of eir for the financial year 2015/16 set out:

(a) the benefit (in monetary terms) that the USP derives as a commercial operator;

(b) the benefit (in monetary terms) that the USP derives as a result of the USO; and

(c) a reconciliation with reasoning to explain the incremental difference between (a) and (b).

eir's estimates and the final Oxera assessment of the intangible benefits are summarised in Table 1.1.

[1] Frontier Economics (2017), 'Intangible Benefits of Universal Service Provision in Ireland – 2015/16; A report prepared for eir', March.
[2] See the Frontier Intangible Benefits report for 2010/11 pp. 77–84 (Frontier Economics (2016), 'Intangible Benefits of Universal Service Provision in Ireland – 2010/11; A report prepared for eir', July).
[3] We note that the model used for estimation of the marketing benefit was changed in the final 2013/14 USO funding application due to availability of more granular data for this financial year. The same revised methodology for the marketing benefit was also used in the final 2014/15 and 2015/16 USO funding applications.
[4] ComReg (2011), 'Decision on the costing of universal service obligations: Principles and Methodologies', Decision D04/11, 31 May.

Table 1.1 Estimates of the intangible benefits for 2015/16

Intangible benefit	eir application (€)	Oxera assessment (€)
Enhanced brand recognition	739,171	739,171
Life cycle	15,885	0
Ubiquity	11,716	11,600
Marketing	106,715	1,692
Total	**873,487**	**752,463**

Note: Individual estimates for intangible benefits are rounded.

Source: Oxera analysis and Frontier Intangible Benefits Report.

Decision No. 35 of D04/11 states that 'the net cost calculation must assess the benefits, including intangible benefits, to the USP.' Where these positive effects exist, they should be deducted from the direct net costs of the USO to obtain the overall net cost (or benefit) of being the USP. Decision No. 35 also identifies four categories of intangible benefits which, at a minimum, should be taken into account: **brand recognition, ubiquity, life cycle and marketing benefits**.[5]

In identifying these benefits, **Decision No. 36** of D04/11 states that, for the identification of benefits, ComReg will observe the following key principles:

- the benefits represent effects on a USP of providing the USO which have not been accounted for in the direct costing methodology (for example, any benefits that are directly identifiable to specific revenue streams, including indirect and replacement call revenues are excluded as they are accounted for in the direct net cost calculation);
- avoid the double counting of benefits;
- the benefits are those accruing to the USP, as a consequence of being the designated USP (any benefit arising from the fact that the USP is a large player in the market is to be excluded from the calculations).[6]

Decision No. 37 of D04/11 states that 'the methodologies to assess the value of the benefits that will actually be used cannot be prescribed in advance of receiving an application for USO funding from the USP.' Decision No. 37 also states that 'ComReg will actively continue to evolve and refine a number of potential methodologies for the purposes of valuing the benefits of the USO.'

In reviewing the Frontier Intangible Benefits Report, we have focused on the following.

- Understanding and assessing eir's rationale for adopting the particular methodologies for estimating the value of the four identified benefits. This included assessing changes in the methodology used in eir's 2015/16 USO funding application, primarily by reference to eir's intangible benefits report for the 2009/10 USO funding application (the 'WIK 2009/10 Intangible Benefits Report'),[7] as the application for the previous year, 2014/15, is under appeal. However, we have also assessed whether there were any changes in the intangible benefits methodology used between eir's 2014/15 and 2015/16 USO funding applications.

[5] ComReg (2011), op. cit., Decision No. 35.
[6] Ibid., Decision No. 36.
[7] WIK-Consult (2012), 'Intangible Benefits of Universal Service Provision in Ireland; Report for eircom for the 2009/10 financial year', 30 November.

- Considering the extent to which Oxera's previous recommendations, which were in existence at the time of this application's submission and arose from Oxera's assessment of the WIK 2009/10 Intangible Benefits Report, have been incorporated.[8]
- Assessing eir's empirical analysis.
- Evaluating the consistency of eir's approaches with D04/11.
- Liaising with ComReg's consultants, TERA Consultants ('TERA'), in relation to its analysis of the direct net cost calculation for 2015/16. This has been done to ensure there is no overlap or double counting between revenues accounted for in the direct net cost and the intangible benefit estimates.
- Comparing eir's approach and estimates with international approaches.

Overall, we conclude that the approaches adopted by eir, and the estimates of the intangible benefits, are reasonable for inclusion in the calculation of the net cost to eir of providing the USO for the financial year 2015/16.

The remainder of this report is structured as follows:

- sections 2–5 review the four categories of intangible benefits identified in D04/11, i.e. enhanced brand recognition, life cycle, ubiquity and marketing;
- section 6 concludes;
- Annex A1 considers eir's methodology and calculation of intangible benefits in the context of international approaches.

[8] References in this report to 'previous recommendations' are references to recommendations made by Oxera following its assessment of the WIK 2009/10 Intangible Benefits Report. Oxera (2013), 'Assessment of WIK's calculation of intangible benefits', 1 February.

2 Enhanced brand recognition

The benefits of enhanced brand recognition refer to the benefits that the USP enjoys from having a greater brand perception, goodwill and corporate reputation among customers, stakeholders and other parties as a result of the provision of various universal services that are the responsibility of the USP.

eir's universal service obligations during the relevant period included the following:[9]

- provision of access at a fixed location;
- provision of a printed telephone directory;
- provision of public pay phones;
- provision of services to consumers with disabilities;
- provision of measures to assist consumers to control their expenditure.

D04/11 states that the benefit of enhanced 'brand recognition is often closely associated with brand loyalty, which allows the USP to gain and retain more customers than it would in the absence of the USO.'[10] Potential new customers may be more likely to choose the USP than its competitors owing to the benefits of eir's corporate reputation as a provider of USO services. Similarly, existing customers may be willing to pay a premium to be served by the USP and/or remain with it instead of switching to an alternative provider owing to its associated positive brand image.

2.1 D04/11

D04/11 outlines five possible methods for estimating the value of enhanced brand recognition:[11]

- use valuation multiplies implicit in the USP's transaction price;
- identify and capitalise cash flows generated by brand recognition, corporate reputation and goodwill;
- use the depreciated replacement cost;
- carry out primary research/survey data;
- undertake regression techniques.

ComReg considers that one, or a combination, of these methods can be used to estimate brand value. It also notes that, given the practical challenges involved in using surveys and valuation approaches, it may be beneficial to use a combination of both to ensure a robust estimate.

eir uses two of the approaches identified in D04/11, by combining the survey data with a microeconomic model that estimates the additional cash flows that are generated from enhanced brand recognition.

[9] Information received from ComReg.
[10] ComReg (2011), op. cit., para. 4.14.
[11] Ibid., pp. 57–58.

2.2 eir's approach for the 2015/16 application

eir reports a total benefit due to enhanced brand recognition of €0.74m.

eir estimates the USO-induced brand benefit as the profit gain enjoyed by eir due to its USP status. It does this by estimating the difference between its actual profit—where eir is the USP and some subscribers are willing to pay a USO-related premium—and its profit in the 'counterfactual' scenario—where eir is no longer the USP and does not receive any USO-related premium.

eir uses a combination of the approaches outlined in D04/11. First, eir uses a customer survey to gather data to estimate the additional amount that subscribers are willing to pay for its services as a result of it being the USP. This is one of the key inputs into the calculation of the enhanced brand recognition benefit, and is referred to as lambda (λ). The results of the survey are then used to estimate the additional profit that eir can generate by being able to charge higher prices for its services as a result of the USO.[12] These steps are further described below.

2.2.1 Calculation of the additional willingness to pay for the USO

In 2014, eir commissioned a survey from Ipsos MRBI, an independent research company, the results of which it used to estimate the enhanced brand benefit for 2015/16.[13] This involved asking a sample of [✂] eir residential fixed-line subscribers a series of qualitative and quantitative questions through a phone interview.

For the 2015/16 application, the calculation of the wiliness to pay is based only on the responses from customers who did not receive a DSP subsidy.[14] This is because the DSP subsidy was stopped on 1 January 2014, while the survey was conducted when the DSP subsidy was still offered. As a result, a sample of [✂] eir residential fixed-line (non-DSP) subscribers is used in the analysis.

The survey is designed to identify the subscribers who value the USO, referred to as marginal consumers. These customers are identified based on two approaches, as explained in Box 2.1.

[12] Frontier Intangible Benefits Report, p. 7.
[13] The same survey was also used to estimate the enhanced brand recognition for the 2010/11, 2011/12, 2012/13, 2013/14 and 2014/15 USO funding applications.
[14] Prior to 2014, some customers received a telephone allowance from the Department of Social Protection ('DSP') under the Household Benefits scheme. The scheme effectively provided these customers with a discount on their fixed-line service bill. eir still received the full bill amount for the services the customers use, but a proportion is paid by the DSP rather than the customer directly.

Box 2.1 Approach to identifying marginal consumers

Marginal customers are those who:

1. Are aware of eir's USO activities
   a. Are aware that eir is the USP (Q13); and/or
   b. Are aware that eir is the only provider of the majority of listed USO services (Q11)
2. Would feel negatively towards eir if it stops providing at least one USO service (Q14); and
3. Would be likely to switch to another provider if eir stops providing all of its USO services (Q16).

eir uses two different approaches to identify marginal consumers. Approach 1 identifies these customers based on the three questions above. Approach 2 differs from Approach 1 in that it excludes criterion 1b (Q11) from its determination of marginal customers.

eir uses the two approaches because it is concerned that Approach 1 could be overly selective and may not capture the marginal customers accurately. In particular, there might be eir customers that are aware that eir is the USP (1a above), while at the same time they might not be aware of some of eir's USO services (1b above). As eir notes, 'these customers could still feel negatively towards eir if it stops providing USO services to the extent they would consider switching away from eir. As such, these customers would be willing to pay a premium for the USO and eir would likely be able to extract this willingness to pay through its pricing.'

eir uses the midpoint of Approach 1 and Approach 2 to generate the central estimate for the enhanced brand recognition benefit.

Source: Frontier Intangible Benefits Report, pp. 16–17.

To calculate the willingness to pay for the USO, the marginal consumers are presented with a hypothetical scenario in which they decide to switch away from eir. They are given a choice between a provider that offers USO services, and another provider that does not offer these services but is identical in all other respects. They are then asked how much extra they would be willing to pay for the services of the provider that offers the USO services (Q17.2). This question is intended to separate out the willingness to pay for the USO from the willingness to pay for other eir attributes that contribute to its brand value.

For those customers who value the USO, their stated willingness to pay is considered, while all other respondents are treated as having zero willingness to pay. The estimated willingness to pay is then calculated by averaging over all respondents and dividing by their average monthly bill, in order to express the average willingness to pay as a percentage of the bill.[15]

The estimated willingness to pay is presented in Table 2.1.

[15] The average bill information was collected during the survey based on respondents' recollection rather than actual bills and expenditure.

Table 2.1 Estimated USO premium (λ)

	Approach		
Parameter	**1**	**2**	**Mid-point**
Number of respondents (after exclusions)[1]	[✂]	[✂]	**-**
Average willingness to pay (€/month)	[✂]	[✂]	[✂]
Average monthly bill (€)	[✂]	[✂]	[✂]
Willingness to pay (% of bill) (λ)	0.23%	0.44%	**0.34%**

Note: [1] [✂].

Source: Frontier Intangible Benefits Report, pp. 18–19.

Based on the survey, the willingness to pay was estimated as 0.34%.

2.2.2 Calculation of additional profits

The benefit from enhanced brand recognition is estimated by calculating the additional profits that eir can generate by being able to charge higher prices for its services as a result of the USO. This is the difference between eir's actual profit where some subscribers are willing to pay a USO-related premium and eir's profit in a counterfactual scenario where it is no longer the USP and therefore receives no USO-related premium.

The difference in profits is estimated by deriving a profit gain formula based on a microeconomic model. As explained above, eir considers a representative 'average' consumer and models eir's profit maximisation over the demand of this consumer under two scenarios: one in which eir is the USP, and one where it stops providing the USO services. This calculation is shown in Box 2.2 below.

Box 2.2 Profit gain formula for enhanced brand recognition

$$Profit\ gain = (p^* - \mathrm{c})q^* - (p^*(1 - \lambda) + \lambda\frac{c}{2} - \mathrm{c})(q^* - \left(\frac{\lambda}{1-\lambda}\right)\frac{bc}{2}) -$$

$$-(p^w - c^w)\theta(\frac{\lambda}{1-\lambda})\frac{bc}{2}$$

Where:

- $b = \frac{q^*}{p^* - c}$ = the slope of the demand function;
- λ = the average additional willingness to pay for the USO across all subscribers (as a % of the bill);
- q^* = the current number of eir residential subscribers in economic areas;
- p^* = eir's current annual average revenue per user ('ARPU') for residential subscribers;
- c = the average avoidable cost per fixed subscriber line in economic areas;
- θ = proportion of retail customers that eir acquires as a result of being the USP that would otherwise be eir wholesale customers;
- $(p^w - c^w)$ = eir's current annual margin for wholesale subscribers.

Source: Frontier Intangible Benefits Report, pp. 11–12.

The formula is derived based on a microeconomic model using a number of assumptions:

- eir considers its average representative subscriber when setting its prices;
- the representative subscriber has an average willingness to pay for the USO (calculated based on survey data);
- demand functions are linear. In moving from the actual to the counterfactual scenario, the inverse demand function rotates inwards, such that at each quantity the willingness to pay in the counterfactual scenario is (1 – λ) times the willingness to pay in the factual scenario;
- cost function is assumed to be linear. This means that the variable costs per fixed-line subscription are constant;
- eir sets price and quantity to maximise profits. The current price level therefore corresponds to the profit-maximising equilibrium price given the current demand curve. In the counterfactual scenario, the price charged is the profit-maximising equilibrium price given the new demand curve.

eir's approach also takes account of the difference in profits that it is able to generate from different types of customers. In particular, it assumes that:

- a proportion of retail customers that eir acquires as a result of being the USP would otherwise be served by eir's wholesale customers; and
- eir would generate a wholesale margin on these customers.

Any shift of customers from other operators to eir therefore increases eir's retail revenue, but decreases its wholesale revenue. eir only gains the difference

between its overall margin and its wholesale margin on each customer it acquires as a result of the USO.

The different parameters that are used to estimate the benefit are set out in Table 2.2.

Table 2.2 Estimates for enhanced brand recognition

Parameter	2015/16 application
Willingness to pay for USO (% of bill), λ	0.34%
Total number of residential subscribers living in economic areas	[✂]
Number of subscribers, q*	[✂]
Annual ARPU, p*	[✂]
Annual avoidable costs per fixed line per year (in economic areas), c	[✂]
Slope of the demand function, b	[✂]
Adjustment for wholesale profits	[✂]
Estimated profit gain	**739,171**

Source: Frontier Intangible Benefits Report, pp. 21.

Based on these estimates, eir reports a total benefit due to enhanced brand recognition of €0.74m.

2.3 Oxera's assessment

eir's high-level principles for estimating the enhanced brand benefit are consistent with the principles followed in the WIK 2009/10 Intangible Benefits Report, however, the specific model used is different and the application of the principles has been modified to take account of Oxera's previous recommendations. We also note that the methodology for calculating enhanced brand recognition benefits and the intangible benefits model eir used for 2015/16 is similar to those used in its final 2014/15 USO funding application.

The rest of this section considers different aspects of the theoretical framework and empirical estimation of enhanced brand recognition.

Theoretical framework

Based on a previous recommendation from Oxera, eir revised its microeconomic model so that the profit gain is implicitly dependent on the number of subscribers who value the USO through the calculation of the willingness to pay for the USO. In the 2015/16 application, lambda (λ) represents the average willingness to pay over all subscribers—those who are willing to pay for the USO brand, and those who are not. As a result, the more subscribers who value the USO, the greater the average willingness to pay, and thus the greater the estimated profit gain.

The purpose of this change was to ensure that the enhanced brand recognition model does not yield counterintuitive predictions. In particular, the change leads to a more intuitive approach for estimating the enhanced brand recognition, as the benefit is now dependent on the proportion of subscribers who value the USO. We consider that this is an improvement on the approach adopted in the WIK 2009/10 Intangible Benefits Report.

Sample size

Based on a previous recommendation from Oxera, eir doubled the sample size for the 2015/16 application to [✂] . However, only [✂] respondents were considered for inclusion in the analysis, because one of the questions (Q17.1) used to identify the willingness to pay for the USO led respondents to overestimate their true willingness to pay.[16] Therefore, another question measuring the willingness to pay for the USO brand more directly was used to estimate the willingness to pay for the USO (Q17.2). We agree that the wording in Q17.2 is more likely to yield more accurate and reasonable responses to assess willingness to pay for the USO brand.

In addition, the calculation of the willingness to pay is based only on the responses from customers who did not receive a DSP subsidy. This is because DSP subsidy was stopped on 1 January 2014, while the survey was conducted when the DSP subsidy was still offered. Therefore, only [✂]responses were used in the analysis.

We note that the DSP subsidy was withdrawn in January 2014 and therefore, the same issue would have affected the enhanced brand recognition benefits estimated in the 2014/15 application. However, in the 2014/15 application, eir continued to estimate the enhanced brand recognition benefits separately for DSP and non-DSP subscribers in order to ensure consistency with the previous applications. We determined that this approach was appropriate in the 2014/15 assessment.

We consider that conceptually these two approaches for dealing with the withdrawal of the DSP subsidy have the following implications.

- **Use responses from non-DSP subscribers only to estimate the willingness to pay for the USO (eir's methodology for the 2015/16 application).** This approach would implicitly assume that once the DSP subsidy is withdrawn, the customers that used to receive the DSP subsidy ***would change*** their willingness to pay for the USO to that of non-DSP subscribers.
- **Use responses from both DSP and non-DSP subscribers to separately estimate the willingness to pay for the USO (eir's methodology in the previous applications).** This approach would implicitly assume that even when the DSP subsidy is withdrawn, the customers that used to receive the DSP subsidy ***would not change*** their willingness to pay for the USO.

We have asked eir to clarify the rationale for the change in the methodology. eir explained that the change in approach reflects its judgement that a customer's willingness to pay for the USO may have been driven to some extent by whether that consumer received a DSP subsidy. However, eir recognised that the differences between the estimated willingness to pay for DSP and non-DSP customers may not have been driven solely by the DSP subsidy, but instead by other differences between these customers. eir added that the difference between the two approaches would have a minor impact on the estimated

[16] After eir reviewed the first (approximately) [✂] responses, it was determined that asking about willingness to pay for the USO indirectly through the question about the 'required discount not to switch from eir' (Q17.1) led to unreasonable responses and inflated estimates of the true willingness to pay for the USO brand. For example, some respondents stated that, if eir stopped providing the USO and there was an alternative provider offering exactly the same services as eir (excluding the USO), they would require a discount to stay with eir, which was in excess of their current bills.

enhanced brand recognition benefits of around €0.04m. We consider that absent a new survey, the approach taken by eir is appropriate.

Ultimately the stated willingness to pay of [✂] consumers was used when estimating the additional willingness to pay for the USO under Approach 1, and the stated willingness to pay of [✂] consumers was included in Approach 2 (see Box 2.1 above). This is due to the fact that only these respondents were considered to be marginal customers.[17] Oxera would have more confidence in drawing conclusions from the results, and would consider the results to be more reliable, if larger sample sizes could be used.

Survey questions

We also note that some people were asked Q16A and others Q16B, even though the final approach used to estimate the willingness to pay did not require customers to be split into two samples.[18] The use of Q16B could cause confusion among respondents as it would require them to consider multiple scenarios. In addition, while we acknowledge that a number of the qualitative questions in the survey are used to understand customers' feelings towards the USO, a number of questions seem to serve the same purpose.[19] The responses to these questions are not directly used by Frontier in estimating the willingness to pay for the USO and Oxera recommends that consideration be given to omitting these questions from the survey the next time it is commissioned.

Inclusion of business customers

In the previous applications, eir confirmed that the estimate of the enhanced brand recognition does not capture the benefit from eir's business customers. It stated that this is consistent with the approach taken in other jurisdictions (i.e. the UK and France). eir noted that business customers are much less likely to assign value to the USO than residential customers, as it is reasonable to assume that the main objective of business customers is to maximise profits. It is also unlikely that customers of a company would be aware of the company's choice of fixed telecoms supplier.[20] Therefore, businesses would choose their fixed telecoms supplier based on the optimal combination of price and quality irrespective of whether the supplier is the USP. We consider that this approach is reasonable for this application given the relatively small number of business customers.

We asked eir to clarify why the number of eir subscribers is based on the number of eir's fixed lines as opposed to the number of eir accounts. In the Frontier Responses, eir stated that the difference in the number of lines and the number of accounts has a very marginal impact on the estimated intangible

[17] This response was provided in the Frontier Intangible Benefits Report for 2010/11 (p. 79). This response remains relevant for the 2015/16 application as the same survey was used in the USO funding applications from 2010/11 to 2015/16.
[18] Q16A asks: 'assuming there is no impact on the services that you receive, how likely or unlikely would you be to switch to another provider that offers exactly the same services that eir currently provides you?'. Q16B asks: 'assuming there is no impact on the services that you receive how likely or unlikely would you be to switch to another provider that offers exactly the same services that eir currently provides you, but also provides the full range of universal services including those that eir has stopped providing?'.
[19] For example, Q15 asks (in qualitative terms) about the willingness to pay for eir's services in the event of a reduction in the scope of services. This is similar to Q14, which asks customers about their feelings directly, and is therefore a more appropriate measure of customers' feelings towards the USO. Q14 is also ultimately used to identify marginal customers.
[20]This response was provided in the Frontier Intangible Benefits Report for 2010/11 (p. 79). This response remains relevant as the methodology for calculating enhanced brand recognition benefits, and the intangible benefits model eir uses for 2015/16, are the same as those used in its final USO funding applications from 2010/11 to 2015/16.

benefits.[21] In addition, eir clarified, and we agree, that for the purposes of estimating intangible benefits the number of lines was used consistently throughout the calculations.

2.4 Summary

Oxera considers that the approach adopted by eir to estimate the USO-induced brand benefit is reasonable, and overall the application of the approach is in accordance with D04/11 and fit for the purpose of assessing the intangible benefits and overall net cost of the USO. We consider that the value estimated by eir for the enhanced brand benefit of €0.74m is reasonable for the 2015/16 application.

[21] We have been unable to test the impact of the assumption on the estimate of enhanced brand recognition, as the intangibles model is based on data for individual fixed lines.

3 Life-cycle benefits

Life-cycle benefits arise when a proportion of the subscribers who are currently unprofitable become profitable in the future as a result of changes in their usage of phone services. It may therefore be beneficial for the USP to provide services to these customers in the short term in order to reap the future benefits when they become economic.

3.1 D04/11

In D04/11, ComReg stated that customers who become profitable over their lifetime should be considered an intangible benefit.[22]

To calculate this benefit, information on customers who are currently uneconomic but may become profitable in the future is required. It is important therefore to link household telephone expenditure with characteristics that vary over time, such as the age of customers.

3.2 eir's approach for the 2015/16 application

eir estimates the life-cycle benefits in the financial year 2015/16 to be €15,885.

eir uses a net present value approach to estimate the profits generated from uneconomic customers in each year over their lifetime, based on forecasts of future volumes, prices and avoidable costs. The present value of this stream of profits is then calculated for each customer. Customers who have a positive net present value (from a life-cycle perspective) are considered to be economic and are removed from the list of uneconomic customers when the direct net cost of the USO is calculated. The benefit is therefore calculated as the reduction in the estimated net cost of the USO due to the removal of customers and areas that are uneconomic in a single year, but economic from a life-cycle perspective.

The benefit is estimated by using a 'revenue mark-up' which is calculated according to the Head of Household (HoH) telecommunications expenditure by age, and population forecasts (by age) in Ireland. This adjusts eir's revenue in the static models to capture dynamic life-cycle effects. The estimated mark-up for 2015/16 was [✂].

eir applies the calculated revenue mark-up to the total revenues in each MDF area in the Area Model, and total revenue in the Customer Model, to calculate net costs.[23] The life-cycle benefit is calculated by taking the difference in the estimated net cost in the Area and Customer Models, with and without the revenue mark-up. Oxera has also confirmed with TERA that there was no overlap or double counting between revenues accounted for in the direct net cost and the intangible benefit estimates.

Variations in revenue over a five-year period are used and annualised into equal amounts for the five years. eir has used a time horizon of five years as it considers that eir's customer lifetime is the appropriate time period to use when calculating the life-cycle benefits.[24]

[22] ComReg (2011), op. cit., para. 4.22.
[23] These models are used in estimating the direct net cost of the USO. The Area Model estimates the net cost of providing services to uneconomic areas. The Customer Model estimates the net cost of providing services to uneconomic customers in economic areas. The mark-up is applied to total revenues in the Customer Model because individual customers cannot be identified.
[24] eir uses a time horizon of five years to generate a 'central estimate'. To check how sensitive the estimates are to the time period used, eir considered a range of three to five years and found that the results were not sensitive to the choice of time period.

The calculation of the revenue mark-up relies on a number of other assumptions:

- the cost of serving a household remains constant over time;
- the annual ARPU is determined by the age of the HoH and the associated telecoms expenditure;
- the distribution of telecoms expenditure by age group is the same over time;
- the number of people in each age category changes over time according to population projections from the Central Statistical Office.

3.3 Oxera's assessment

eir's high-level principles for estimating the life-cycle benefits are consistent with the principles followed in the WIK 2009/10 Intangible Benefits Report, however, the application of the principles has been modified to take account of Oxera's previous recommendations. We also note that the methodology for calculating the life-cycle benefit and the intangible benefits model eir used for 2015/16 are the same as those used in its final 2014/15 USO funding application.

Relative to the 2009/10 application, eir has changed the time horizon representing the lifetime of customers from 25 years to five years, in line with Oxera's previous recommendations. This time period is also consistent with [✂],[25] and with the approach taken in other jurisdictions where the life-cycle benefits of the USO have been estimated (e.g. France and the UK).

eir also clarified that the assumption that the distribution of telecoms expenditure and demographic changes in uneconomic areas are the same as those for Ireland as a whole is based on its 'view that both economic and uneconomic areas should be considered for the purposes of estimating life-cycle benefits, and thus using the distribution of expenditure and demographic changes for the whole of Ireland is an appropriate proxy'.[26] Oxera is satisfied with the explanation and considers that this approach is appropriate.

In 2015/16 application, we identified a mechanical error in one of the formulas used to calculate the revenue mark-up. [✂]

[✂] As a result, we consider that in the 2015/16 application there were no lifecycle benefits.

[25] [✂].

[26] This response was provided in the Frontier Intangible Benefits Report for 2010/11 (p. 81). This response remains relevant for the 2015/16 application as the methodology for calculating the life-cycle benefit, and the intangible benefits model eir uses for 2015/16, are the same as those used in its final USO funding applications from 2010/11 to 2015/16.

3.4 Summary

Overall, Oxera considers that the approach adopted by eir to estimate the life-cycle benefits, and the application of this approach, is in accordance with D04/11, and Oxera's previous recommendations have been taken into account. However, we consider that the life-cycle benefit model inputs imply that there were no lifecycle benefits in 2015/16. Therefore, the life-cycle benefit for the 2015/16 application is €0.

4 Ubiquity benefits

Ubiquity benefits refer to the profit that the USP derives, owing to its USP status, from retaining a proportion of consumers who move from uneconomic to economic areas. Specifically, some customers who migrate are likely to remain as customers of the USP rather than switching to an alternative provider, because they are aware that the USP can provide them with services in all areas and are uninformed about the presence of other providers.

In addition, ubiquity benefits can arise from the ability of the USP to market to business customers that it is able to service their requirements nationally.

Ubiquity benefits may also arise from the economic benefit a USP derives as a result of positive network externalities.

4.1 D04/11

In D04/11, ComReg identified two potential approaches to evaluate ubiquity benefits:

- compare the proportion of customers that move to an economic area and retain the USP relative to the market share of the USP; or
- estimate the number of households who would have chosen an alternative operator, had they been aware of the alternatives.[27]

4.2 eir's approach for the 2015/16 application

eir estimates the ubiquity benefit for the financial year 2015/16 as €11,716.

eir's estimate of the ubiquity benefit is solely based on the benefits arising from migration flows, i.e. an estimate of the increase in profit margins that eir generates from retaining a greater share of customers moving from uneconomic to economic areas, as a result of its USP status, than it would otherwise have retained.

To calculate the ubiquity benefit linked to migration flows, eir first estimates the number of customers who move from uneconomic to economic areas, and who are unaware of alternative providers, but remain with eir. It then multiplies this by the net benefit per line in economic areas (which is calculated as average revenue per line minus average avoidable cost per line). The formula for calculating the ubiquity benefit is set out in Box 4.1 below.

[27] ComReg (2011), op. cit., para. 4.44.

Box 4.1 Estimation of the ubiquity benefit

$$\text{Ubiquity benefit} = q_m \cdot \beta \cdot \alpha \cdot (p_{econ} - c_{econ})$$

Where:

- q_m is the number of fixed residential customers who move from uneconomic to economic areas;
- β is eir's market share among migrants from uneconomic to economic areas – eir's market share in economic areas;
- α is the % of eir residential subscribers unaware of alternative providers;
- p_{econ} is the average revenue per line in economic areas;
- c_{econ} is the average avoidable cost per line in economic areas

Source: Frontier Intangible Benefits Report, pp. 30–31.

The ubiquity effect is accounted for by the parameter beta (β). It is assumed that in the absence of the USO, eir's market share among customers moving from uneconomic to economic areas would equal its market share in economic areas in general. The additional market share as a result of the USO is therefore the difference between the observed market share among the customers who move and the market share in economic areas.

In order to calculate β, eir assumes that its market share of fixed-line subscriptions in uneconomic areas is a reasonable proxy for its market share among subscribers who migrate from uneconomic to economic areas. eir estimates its market share in economic areas using the ratio of (PSTN) retail services to its wholesale services to itself and to third parties (which is used to proxy the total market size). On this basis, it is estimated that eir has a market share of [✂] among customers moving from uneconomic to economic areas and a market share of [✂] in economic areas.

The number of eir customers moving from uneconomic to economic areas is calculated as the percentage of individuals who change address in Ireland (7.33%), based on census data for 2011, multiplied by the number of fixed retail subscriber (PSTN) lines in uneconomic areas in the 2015/16 financial year ([✂]).[28] This is multiplied by β to provide the additional customers that eir retains in economic areas as a result of the USO, and by eir's profit margin in economic areas $(p_{econ} - c_{econ})$ to provide the additional profit generated from these customers.

eir has included an additional term that was not included in the WIK 2009/10 Intangible Benefits Report, parameter alpha (α), to reflect that only some of its customers will be unaware of alternative providers when they move. eir considers that ubiquity benefits are:

- generated only for households that move into an area where eir is not the only fixed-line service provider;

[28] We understand that 2016 Census data was published in April 2017. However, as the 2015/16 application was submitted in March 2017 census data for 2011 is used in the analysis. Central Statistics Office (2017), 'Census 2016 Summary Results – Part 1: Press Statement', 6 April.

- realised only when households are uninformed about the existence of alternative providers in economic areas, or when their decision to stay with eir is affected by their previous relationship with the USP.

eir estimates the proportion of respondents who are not aware of alternative providers using a survey. It asks respondents: 'Have you ever moved from a rural/countryside area to live in a more urban area?' Those who responded 'yes' were then asked 'Were you aware of any other landline phone service provider when you moved to a new household?'[29] eir suggests that this approach is reasonable as rural areas are those most likely to be uneconomic, while urban areas are likely to be economic. In 2015/16 application, the alpha is based only on the responses provided by non-DSP subscribers. This is in comparison to the previous applications, where both DSP and non-DSP subscribers were considered.

4.3 Oxera's assessment

eir's high-level principles for estimating ubiquity benefits are consistent with the principles followed in the WIK 2009/10 Intangible Benefits Report, but have been modified to take account of Oxera's previous recommendations, as described below. We also note that the methodology for calculating the ubiquity benefit and the intangible benefits model eir used for 2015/16 are the same as those used in its final 2014/15 USO funding application.

eir has included an additional parameter α in the calculation that was not included in the WIK 2009/10 Intangible Benefits Report. As mentioned before, α represents the percentage of eir residential customers who are unaware of alternative providers. This parameter has been added to ensure that only customers who move from uneconomic to economic areas *and* who are unaware of alternative providers are included in the calculation. We consider that the addition of the parameter is reasonable. The absence of the parameter α could lead to an overestimation of the ubiquity benefit, as it assumes that ubiquity is the only reason why customers who move from uneconomic to economic areas choose to stay with eir.

In the 2015/16 application, the alpha is based only on the responses provided by non-DSP subscribers. We have asked eir to provide a justification for the change in approach. eir explained that this approach was chosen to ensure consistency between the sample used to estimate this parameter and the sample used to calculate the willingness to pay parameter for the enhanced brand recognition benefits. However, eir stated that it does not see any reason why awareness of other operators would be dependent on the DSP subsidy and, therefore, suggested reverting to the approach used in previous applications. As a result, we have re-estimated the ubiquity benefits based on the alpha derived from responses provided by both DSP and non-DSP subscribers (i.e. 82.6%, consistent with the previous applications), rather than the alpha based on non-DSP subscribers only (i.e. 83.4%, as used by eir in its 2015/16 submission). The change in the parameter has a marginal impact on the estimated ubiquity benefits, decreasing the estimate by €116 from €11,716, as presented by eir, to €11,600, as re-estimated by Oxera.

We also note that the way in which β is calculated for this application has been changed since the WIK 2009/10 Intangible Benefits Report, although the meaning of the term remains the same, i.e.:

[29] Survey questions Q19 and Q23.

- if β>0, then the share of customers moving from uneconomic to economic areas who choose to stay with eir is greater than eir's market share in the economic areas, and the ubiquity effect is positive;
- if β=0 then there is no ubiquity benefit as the market shares after migration are evenly distributed between eir and its competitors according to the relative market shares before migration;
- if β<0, then the ubiquity effect is negative.

In assessing the 2009/10 application, Oxera enquired about the appropriateness of assuming that the percentage of eir customers moving from uneconomic to economic areas is the same as the percentage of people changing address in Ireland in general.

eir has retained this assumption in the Frontier Intangible Benefits Report and has provided a further explanation as to why it has done so, stating that its approach is conservative, as the percentage of people who change residence in Ireland is likely to overstate the proportion of people moving to economic areas. This is because a proportion of people moving from an uneconomic area may move to other uneconomic areas or to other parts of the same uneconomic area. Therefore, eir states that the estimate will represent an upper bound of the likely number of eir residential subscribers moving from uneconomic to economic areas.[30]

eir also notes that a robust estimate cannot be derived from the survey because it would not be possible to accurately identify whether a given respondent lives in, and moved from, an economic or uneconomic area, and one would need to assume that rural/urban areas are a good proxy for uneconomic/economic areas.[31]

We agree that the assumption used to estimate the proportion of people moving from uneconomic to economic areas is likely to represent an upper bound of the likely number of eir residential customers moving from uneconomic to economic areas and, therefore, the adjusted ubiquity benefit (€11,600 in 2015/16 application) would represent an upper bound for this benefit. We consider that eir's approach is suitable for the 2015/16 application as it would not be proportionate for eir to conduct a new survey.

In addition, similar to the enhanced brand recognition benefit, we note that the number of eir customers is based on the number of eir's lines as opposed to the number of accounts. eir clarified, and we agree, that for the purposes of estimating ubiquity benefits the number of lines was used consistently throughout the calculations.[32]

ComReg states that ubiquity benefits may also arise from the economic benefit a USP derives from the overall sector as a result of positive network externalities.[33]

[30] Frontier Intangible Benefits Report, p. 32.
[31] This response was provided in the Frontier Intangible Benefits Report for 2010/11 (pp. 81–82). This response remains relevant for 2015/16 application as the methodology for calculating the ubiquity benefit, and the intangible benefits model eir uses for 2015/16, are the same as those used in its final USO funding applications from 2010/11 to 2015/16.
[32] eir noted that basing the number of eir subscribers on the number of eir's lines is a reasonable approach and eir has also highlighted that the difference in the number of lines and the number of accounts has a very marginal impact on the estimated intangible benefits. We have been unable to test the impact of the assumption on the estimate of ubiquity as the intangibles model is based on data for individual lines.
[33] ComReg (2014), 'Assessment of Eircom's Universal Service Fund Application for 2009-2010– Response to Consultation and Determination', Decision D01/14, 9 January, para. 6.18.

eir has not estimated the benefits associated with positive network externalities. Oxera considers that this is reasonable as it is difficult to estimate positive network externalities robustly and also to ensure that there is no double counting between these potential benefits and other types of intangible benefits.

ComReg states that ubiquity benefits may also be derived from the ability to market the USP organisation to business customers as a result of being able to serve their requirements nationally.[34] eir has confirmed that business subscribers have not been included. It highlights that the number of business customers changing location in a year is small due to the high fixed costs involved, and that the majority of businesses in Ireland are already located in economic areas.[35]

eir has provided us with data on the proportion of business customers who are located in uneconomic areas. This data confirms that the vast majority of business lines, and, by extension, business customers, are located in economic areas. Therefore, Oxera considers that the exclusion of business customers from the ubiquity calculation is unlikely to have a material impact on the size of the benefit for 2015/16.

4.4 Summary

Overall, we consider that the approach used to calculate the ubiquity benefit, and the application of the approach, are reasonable and in accordance with ComReg's methodology. We consider that the adjusted value for the ubiquity benefit of €11,600 is reasonable for the purposes of the 2015/16 application.

[34] Ibid., para. 6.18.
[35] This response was provided in the Frontier Intangible Benefits Report for 2010/11 (p. 82). This response remains relevant for 2015/16 application as the methodology for calculating the ubiquity benefit, and the intangible benefits model eir uses for 2015/16, are the same as those used in its final USO funding applications from 2010/11 to 2014/15.

5 Marketing benefits

Marketing benefits associated with the USO in the context of the 2015/16 application include the benefits that the USP may derive from having access to customer data that is acquired because it is the USP, and from being able to advertise itself on uneconomic public payphones at no cost.

5.1 D04/11

D04/11 states that the marketing benefits incorporate the different types of benefits relating to customer usage data and benefits from advertising, in particular on public payphones.

The potential types of marketing benefits identified by ComReg are:[36]

- commercial advantage owing to access to customer data and the potential benefit of using this information for more targeted promotions, or not, as a result, having to undertake market research;
- potential savings as a result of advertising in economic areas through the use of public payphones and WiFi hotspots.

In relation to the potential benefits from customer data, ComReg considers that there may be significant advantages for the USP in having access to information on customers that it acquires as a result of the USO (e.g. their personal profile and expenditure patterns), which could in turn increase the profitability of both economic and uneconomic customers to the USP.

ComReg is of the view that it is important to consider whether these benefits are due to the fact that the USP is a large, dominant player, or a direct result of its USP status. In addition, caution needs to be taken in estimating this benefit, as there is a potential for double counting with the enhanced brand recognition benefit.

ComReg advised that an approach similar to that used by Ofcom would be appropriate for the estimation of marketing benefit arising from eir's advertising on public payphones. This approach, which is detailed in the following section, involves determining the overall advertising income on uneconomic USO payphones as a proxy for the benefit eir gains from advertising its own brand on such payphones. To do this, it is first necessary to establish the number of uneconomic payphones that have an advertising value.

5.2 eir's approach for the 2015/16 application

eir estimates the marketing benefit it derives from its position as USP to be €106,715.

eir's estimate solely focuses on the benefits generated from advertising on uneconomic public payphones. eir argues that benefits from being able to use customer data from uneconomic customers and from displaying its logo on WiFi hotspot login pages, is either likely to be negligible or cannot be quantified robustly.

eir's approach to calculating the marketing benefit is consistent with the approach taken in the WIK 2009/10 Intangible Benefits Report. In this application, eir estimates the advertising revenues that are generated from third

[36] ComReg (2011), op. cit., paras 4.23–4.25, and ComReg (2014), 'Assessment of Eircom's Universal Service Fund Application for 2009-2010– Response to Consultation and Determination', Decision D01/14, 9 January, para. 6.22.

parties' advertising on uneconomic payphones, and uses this as a proxy for the cost savings that eir makes from not having to advertise elsewhere in the same area.

eir calculates the advertising benefits from uneconomic public payphones using the following steps.

- The advertising revenue for each payphone was identified.
- The number of USO payphones was then identified from the Payphone Model provided by eir's payphone department. There are 1,086 USO payphones.
- Each of these was then identified as economic or uneconomic using the output of eir's Payphone Model. There are [✂] uneconomic USO payphones.

The marketing benefit is obtained from summing the advertising revenue associated with each uneconomic USO payphone.

5.3 Oxera's assessment

eir's high-level principles for estimating the marketing benefits are consistent with the principles followed in the WIK 2009/10 Intangible Benefits Report, which Oxera considered was reasonable. Following the queries raised by Oxera in assessing the WIK 2009/10 Intangible Benefits Report, eir provided a number of clarifications that are relevant for the 2015/16 application. We also note that the approach for estimating the marketing benefits is the same as in the 2014/15 USO funding application.

eir noted that ComReg does not provide any guidance on how to quantify potential benefits from customer data.[37] Therefore, eir's analysis is focused on advertising benefits generated from displaying eir's logo on its uneconomic payphones.[38] We consider that this approach is reasonable as it would be difficult to separate the benefits associated with having access to data as a result of being the USP and those as a result of just being a large operator. Also, it would be difficult to accurately quantify any potential benefit that eir may get by having access to information on customers that it acquires as a result of being the USP.

In assessing the WIK 2009/10 Intangible Benefits Report, we sought further clarification as to whether savings in advertising costs from using WiFi hotspots were included in the analysis. The Frontier Responses confirmed that they were not. We recommended that this benefit should be quantified and incorporated into the analysis in future. eir has clarified that savings in advertising costs from using WiFi hotspots are not included in the marketing benefit calculation, for the following reasons.

- eir submits that the intangible benefits derived from displaying eir's logo on its WiFi hotspot login pages cannot be robustly quantified and any advertising benefit that eir receives from having its logo on the WiFi hotspot homepage would be negligible.

[37] eir also notes that data protection law in Ireland forbids the selling of consumer data, meaning eir is unable to generate any revenues from selling such data.
[38] Frontier Intangible Benefits Report, pp. 39.

- To illustrate this, eir presents a hypothetical scenario where its WiFi hotspot login pages attract 1m unique views.
- eir estimates the total marketing benefits of these views at €540 (based on the average cost per 1,000 impressions of advertising on Google, Facebook and LinkedIn of €0.54).

It is not clear to Oxera how the 1m unique views assumption would correspond to the actual WiFi hotspot usage. Averaging this across the number of uneconomic USO payphones, this would equate to approximately five unique views per day per payphone. However, as eir does not have a record of the number of visitors logging into its WiFi hotspots, we cannot confirm whether this number of views per day is likely to be reasonable.

In assessing the WIK 2009/10 Intangible Benefits Report, Oxera expressed some concerns over the appropriateness of using payphone advertising revenues as a proxy for cost savings. Cost savings are estimated from advertising on uneconomic payphones based on the revenue that eir received from selling advertising space to third parties on its uneconomic payphones. Oxera and ComReg understood that this proxy was used owing to the lack of better data; however, estimates of eir's cost savings should, in principle, be based on how much it would have cost eir to advertise itself elsewhere in the same areas as those uneconomic payphones are located, rather than advertising free of charge on uneconomic payphones.

Relative to the 2009/10 application, eir has noted that it believes that measuring the advertising benefit using eir's payphone advertising revenues from uneconomic USO payphones is appropriate. This is because the estimated advertising benefit should reflect the value of advertising space identical to that on the uneconomic payphones, and in the areas where payphones are located. The revenue that eir generates from advertising on these payphones reflects the price that third parties are willing to pay for the 'advertising space' on the payphones and therefore is a reasonable approximation of the price (and thus the cost to eir) of purchasing similar forms of advertising in the same (uneconomic) area.[39]

We consider that this approach to calculating the advertising benefit from uneconomic payphones is reasonable.

The estimate of the marketing benefit is determined by the number of uneconomic USO payphones. In its review of the net cost of the USO, TERA made an adjustment to the advertising revenue associated with the payphones, and excluded a number of payphones from its estimate of the direct net cost.

Therefore, to be consistent with the estimate of the direct net costs, Oxera has made a downward adjustments to eir's estimate of marketing benefits in its final 2015/16 USO funding application, reflecting the following two changes:

- change of status of uneconomic payphones which become economic once advertising revenue is taken into account, in the direct net cost calculation following an adjustment by TERA to the Payphone Model.
- in addition, TERA has identified a number of payphones for which the net cost could have been avoided by eir in 2014/15 and 2015/16, taking account of ComReg Decision D08/14 and in accordance with D04/11. TERA has

[39] Frontier Intangible Benefits Report, pp. 39–40.

made a downward adjustment to the number of payphones reflecting this more appropriate treatment of USO costs in the Payphone Model.

As a result, the marketing benefit estimate of €106,715 was adjusted by Oxera resulting in a reduced marketing benefit of €1,692.

5.4 Summary

Overall, we consider that the approach used by eir to estimate the marketing benefit for the 2015/16 application is reasonable, and in accordance with D04/11. The application of this approach is also empirically sound and we consider the adjusted value of €1,692 for the marketing benefit for the 2015/16 application is reasonable.

6 Conclusion

Oxera's review of eir's estimation of the intangible benefits of the USO focused on the following aspects:

- understanding and assessing eir's rationale for adopting the particular methodologies for estimating the value of the four identified benefits;
- assessing changes in the intangible benefits methodology used in eir's 2015/16 USO funding application by reference to the methodology used in eir's final 2009/10 and 2014/15 USO funding applications;
- considering the extent to which Oxera's recommendations from its assessment of the WIK 2009/10 Intangible Benefits Report have been incorporated;
- assessing eir's empirical analysis;
- evaluating the consistency of eir's approaches with D04/11;
- comparing eir's approach and estimates with international approaches.

Overall, we consider that the approaches adopted by eir, and the estimates of the intangible benefits, are reasonable for inclusion in the calculation of the net cost to eir of providing the USO for the financial year 2015/16. The approaches are also consistent with D04/11. We accept as being reasonable the values set out in the table below for the purposes of the 2015/16 application.

Table 6.1 Estimates of the intangible benefits for 2015/16

Intangible benefit	eir application (€)	Oxera assessment (€)
Enhanced brand recognition	739,171	739,171
Life cycle	15,885	0
Ubiquity	11,716	11,600
Marketing	106,715	1,692
Total	**873,487**	**752,463**

Note: Individual estimates for intangible benefits are rounded.

Source: Oxera analysis and Frontier Intangible Benefits Report.

A1 International approaches

In this annex Oxera considers how the approaches used by eir for each of the four types of intangible benefit, and the resulting estimates, compare with the practices in other countries. These comparisons provide context for eir's approach of estimating the value of the intangible benefits and serve as a high-level sense check of eir's estimates.

A1.1 Enhanced brand recognition

Numerous approaches have been used to estimate the enhanced brand benefit across different jurisdictions. Many of the approaches described below—for example the surveys undertaken in France, Italy and Spain—are consistent with ComReg's suggested methods for estimating the value of enhanced brand recognition and the approach used by eir (discussed in section 2.1).

In France, Orange subscribers were surveyed about their knowledge of the company's USO, its corporate reputation, and whether they were willing to pay a higher charge to remain as its customers. A statistical method was then used to allocate the excess profit enjoyed by Orange to different potential drivers, such as USO-related corporate reputation, non-USO-related corporate reputation, and customer inertia. The results of the analysis suggested that customers had poor knowledge of the USO services provided by Orange, and any excess profit enjoyed by Orange is primarily caused by customer inertia. As a result, ARCEP, the communications regulator, concluded that the USO-related brand recognition benefits were zero.[40]

In Spain, CNMC, the competition and markets body responsible for the communications sector, appraised the value of the brand of Telefónica Group through the revenue generated from 'loyal' customers. CNMC estimated the proportion of 'loyal' customers that decided to use Telefónica due to its USO status based on a survey. This proportion of 'loyal' customers was then multiplied by the number of lines that are exclusively served by Telefónica Group by virtue of being the USO provider and the average total margin per line to estimate the USO-related brand value.[41]

In Italy, the benefit of brand loyalty for Telecom Italia was estimated on the basis of an independent valuation of the total brand value of Telecom Italia published by the European Brand Institute. The total value of the brand attributed to the USO provision was determined by using the share of the USO business in the total business of the company and the proportion of uneconomic lines.[42]

Similar to the methodology used in Italy, ANACOM, the Portuguese communications regulator, estimated the benefits of corporate reputation and brand enhancement using an independent valuation of the total brand value of Portugal Telecom published by Brand Finance—Brandirectory. The value of the brand attributed to the USO provision was determined using the share of the USO business in the total business of the company and the proportion of uneconomic lines.[43]

[40] ARCEP (2018), 'Annexe à la Décision n° 2018-1318', 25 October, p. 22.
[41] CNMC (2019), 'Resolución por la que se aprueba el coste neto del servicio universal de comunicaciones electrónicas presentado por Telefónica de España, S.A.U. Por El Ejercicio 2016', January, pp. 12–13.
[42] Axon (2015), 'Revisione del calcolo del Costo Netto del Servizio Universale per l'anno 2009', 5 January, pp. 55–58.
[43] Grant Thornton and Axon (2016), op. cit., pp. 129–131.

In the UK, the communications regulator, Oftel (and its successor, Ofcom), adopted a simplified approach whereby the value of brand enhancement was assumed to be 20% of BT's retail expenditure on marketing and advertising.[44]

We note that the methodologies used for estimating the value of enhanced brand recognition in a number of other countries (e.g. France and Spain) are similar to the approach adopted by eir.

Table A1.1 sets out the estimates for enhanced brand recognition across the different jurisdictions and illustrates the wide range of values estimated. The benefits are expressed in monetary terms, and as a proportion of total intangible benefits. We also calculate the benefit per inhabitant to aid comparability across jurisdictions. This indicates that eir's estimate is higher than the benefits estimated elsewhere as a percentage of total intangible benefits, but in line with the other jurisdictions when expressed as the benefit per inhabitant.

Table A1.1 International estimates of the value of enhanced brand recognition

USP	Regulator	Country	Year	Value (m)	As a % of total intangible benefits	Benefit per inhabitant
Orange	ARCEP	France	2017	€nil	0%	€0.00
Portugal Telecom	ANACOM	Portugal	2014	€0.10	30%	€0.01
BT	Oftel/Ofcom	UK	2003/04	£50–£52	81–85%	£0.84–£0.87
Telecom Italia	AGCOM	Italy	2009	€4.42	37%	€0.07
Telefónica	CNMC	Spain	2016	€7.06	94%	€0.15
eir	**ComReg**	**Ireland**	**2015/16**	**€0.74**	**98%**	**€0.16**

Note: Benefit per inhabitant is based on population data for the year of the application for each country.

Source: **France:** ARCEP (2019), 'Décision n° 2019-0634', April.

Portugal: ANACOM (2016),'Resultados da auditoria aos custos líquidos do serviço universal da MEO relativos ao exercício de 2014 (período anterior à designação do prestador de serviço universal por concurso)', August; Grant Thornton and Axon (2016), 'Auditoria às estimativas dos custos líquidos da prestação do serviço universal apresentadas pela MEO – Serviços de Comunicações e Multimédia, S.A. (período de 2014 anterior à atual prestação do serviço universal)', 19 July.

UK: Ofcom (2006), 'Review of the universal service obligation', statement, March.

Spain: CNMC (2019), 'Resolución por la que se aprueba el coste neto del servicio universal de comunicaciones electrónicas presentado por Telefónica de España, S.A.U. Por El Ejercicio 2016'.

Italy: AGCOM (2018), 'Delibera N. 88/18/CIR: Servizio universale in materia di servizi di comunicazione elettronica: applicabilità del meccanismo di ripartizione e valutazione del costo netto per gli anni 2008 E 2009', March.

Ireland: eir's estimates of intangible benefits.

Population data from Eurostat.

[44] Oftel (1999), 'Universal Telecommunications Services—A consultative document issued by the Director General of Telecommunications', July; Ofcom (2005), 'Review of the Universal Service Obligations', 30 June.

A1.2 Ubiquity

Some regulators have concluded that ubiquity benefits are insignificant or a consequence of factors other than the USO. For example, in calculations of the net cost of the USO, regulators in France (ARCEP) and Italy (AGCOM) did not include ubiquity benefits in their assessments.[45] In the UK, while Oftel/Ofcom did quantify this benefit, it determined that the benefit was small based on an assessment that only 1% of the population live in uneconomic areas.[46]

In Spain, CNMC multiplied the number of customers who move from uneconomic to economic areas and stay with Telefónica by the average margin for each line in order to derive an estimate of the ubiquity benefit.[47]

In Portugal, ubiquity benefits were estimated by deriving the number of unprofitable customers who move from uneconomic to economic areas multiplied by the proportion of those customers who choose to subscribe to the USP's services. ANACOM then multiplied the number of ubiquity benefit customers by the average margin per line (defined as the net present value of margins earned from customers in economic areas over a period of five years) to derive the overall benefit.[48]

We note that the methodologies for estimating the value of ubiquity benefits used in some of the comparator countries (e.g. Spain and Portugal) are similar to the approach adopted by eir.

Table A1.2 below sets out the estimates for ubiquity benefits across the different jurisdictions. eir's adjusted estimate is in line with the benefits estimated elsewhere, which are all estimated to be zero or very small.

Table A1.2 International estimates of ubiquity benefits

USP	Regulator	Country	Year	Value (m)	As a % of total intangible benefits	Benefit per inhabitant
Orange	ARCEP	France	2017	€nil	0%	€0.00
Portugal Telecom	ANACOM	Portugal	2014	€0.00	0%	€0.00
BT	Oftel/Ofcom	UK	2003/04	insignificant	0%	£0.00–£0.00
Telecom Italia	AGCOM	Italy	2009	€nil	0%	€0.00
Telefónica	CNMC	Spain	2016	€0.02	0%	€0.00
eir	**ComReg**	**Ireland**	**2015/16**	**€0.01**	**2%**	**€0.00**

Note: Benefit per inhabitant is based on population data for the year of the application for each country.

Source: Oxera analysis based on various regulatory precedents (see Table A1.1 for more details). Population data from Eurostat.

A1.3 Life-cycle benefits

Similar to ComReg's methodology in D04/11, in the other jurisdictions reviewed, regulators consider whether uneconomic customers are likely to become

[45] ARCEP (2018), op. cit., p. 20; Europe Economics (2006), op. cit.
[46] Ofcom (2005), 'Review of the universal service obligation', Consultation document, January; Ofcom (2006), 'Review of the universal service obligation', statement, March; Oftel (1997), 'Universal Telecommunications Services', consultative document; ComReg (2010), 'Costing of universal service obligations: principles and methodologies', Consultation 10/94, 30 November.
[47] CNMC (2019), op. cit., pp. 13–14.
[48] Grant Thornton and Axon (2016), op. cit., pp. 132–134.

profitable over their lifetimes, and exclude them from the net cost calculation of the USO accordingly.

In France, ARCEP identified two types of benefits associated with life-cycle effects—individual effect and macroeconomic effect. The individual effect measures the benefit from customers who stop receiving social tariffs but decide to stay with the USP. The macroeconomic effect looks at the costs and revenues of customers over a study period to determine whether they become profitable over this period.[49] In 2019, ARCEP determined that only the individual effect is relevant for determination of the life-cycle benefits, which was estimated at €25,236.[50]

In 2018, AGCOM estimated a life-cycle benefit of €30,000 for Telecom Italia. A detailed methodology for that estimate was not provided.[51]

In Spain, CNMC quantified the benefit as the additional margin that could be earned on uneconomic lines that could potentially become profitable. The benefit depends on two variables:

- the number of lines that move from uneconomic to economic areas due to broadband take-up on pre-existing telephone lines;
- the profitability differential between uneconomic and economic lines.

The regulator only considered the lines in unprofitable areas.[52]

In Portugal, ANACOM did not estimate a life-cycle benefit—no justification was provided in the final report.[53]

In the UK, Oftel/Ofcom considered the life-cycle benefits as the increased likelihood of retaining profitable customers if the USP served those customers when they were unprofitable. It estimated the benefit in four stages:[54]

- determine the proportion of loss-making customers and their net costs;
- determine the proportion of those customers likely to become profitable over a period of five years;
- estimate the net present value of such customers (including the implications of the change in the structure of telecoms prices);
- estimate the proportion of such customers that the USP would keep without the USO.

We note that the methodologies for estimating the value of life-cycle benefits used in the comparator countries are similar to the approach adopted by eir.

Table A1.3 sets out the estimates for life-cycle benefits across the different jurisdictions. eir's adjusted estimate of the life-cycle benefits in 2015/16 is €0. This is in line with the benefits estimated elsewhere, which are all estimated to be zero or very small.

[49] ARCEP (2018), op. cit., p. 21.
[50] ARCEP (2019), op. cit., p. 5.
[51] AGCOM (2018), op. cit., pp. 89–90. ; Axon (2015), op. cit. pp.60–62.
[52] CNMC (2019), op. cit., p. 14.
[53] Grant Thornton and Axon (2016), op. cit.
[54] BEREC (2010), 'BEREC Report on Universal Service – reflections for the future', June.

Table A1.3 International estimates of the life-cycle benefits

USP	Regulator	Country	Year	Value (m)	As a % of total intangible benefits	Benefit per inhabitant
Orange	ARCEP	France	2017	€0.03	100%	€0.00
Portugal Telecom	ANACOM	Portugal	2014	€nil	0%	€0.00
BT	Oftel/Ofcom	UK	2003/04	£0–£1	0–2%	£0.00–£0.02
Telecom Italia	AGCOM	Italy	2009	€0.03	0%	€0.00
Telefónica	CNMC	Spain	2016	€0.06	1%	€0.00
eir	**ComReg**	**Ireland**	**2015/16**	**€nil**	**0%**	**€0.00**

Note: Benefit per inhabitant is based on population data for the year of the application for each country.

Source: Oxera analysis based on various regulatory precedents (see Table A1.1 for more details). Population data from Eurostat.

A1.4 Marketing

In France, the benefits of access to customer information were considered as part of estimating the marketing benefits. This was based on the benefit that Orange derives from selling its other products to these customers in uneconomic areas (e.g. product cross-selling). ARCEP concluded that the benefit associated with customer databases is zero due to the falling numbers of lines and subscribers.[55]

In Italy, AGCOM determined marketing benefits for Telecom Italia based on savings in advertising costs and logo display in uneconomic areas due to the presence of USO payphones. The monthly advertising benefits for public payphones were estimated according to the amount charged by Telecom Italia for outside companies to purchase advertising space on the same public payphones, as well as market research on advertising space. AGCOM also considered the benefits of being able to advertise on customers' bills. The benefit is calculated as the cost Telecom Italia would have to incur to send advertising leaflets to customers living in potentially unprofitable areas.[56]

In the UK, Oftel/Ofcom considered that the benefits of payphone advertising for the USP arose from two potential elements:

- corporate branding/logos on payphones (if not captured in any broader brand benefit estimate);
- the value of the income stream from advertisements on payphones.

Ofcom ultimately calculated the marketing benefits by estimating the proportion of public payphones in uneconomic areas and the economic benefit generated per month—similar to the approach adopted in Italy. Ofcom acknowledged the benefit of gaining information on how customers use phone services, although it did not quantify these benefits.[57]

In Spain, CNMC also estimated the commercial benefits from marketing based on displaying Telefónica's logo on payphones. The marketing benefit is

[55] ARCEP (2018), op. cit., pp. 22–23.
[56] Axon (2015), op. cit. pp.58–60.
[57] BEREC (2010), op. cit.

calculated as the product of the average income from a payphone per square metre per year and the area of the Telefónica logo. The total revenue generated from payphones is adjusted to reflect the revenue contribution of Telefónica to the wider Telefónica Group in Spain.[58]

In Portugal, ANACOM quantified the benefits related to advertising on payphones and customer bills to determine the marketing benefit.[59] The relevant advertising space on uneconomic payphones was defined as the product of the available advertising space on payphones (including the USP's logo) and the proportion of uneconomic payphones. The available advertising space on uneconomic payphones was then multiplied by the value of the advertising space to estimate the marketing benefits associated with uneconomic payphones.

In order to identify the marketing benefits associated with customers' bills, ANACOM estimated the total annual cost of sending bills to uneconomic customers. The total cost was multiplied by the proportion of bills that also included any additional promotional material, such as brochures on additional services provided by the USP. This estimate was used as a proxy for the marketing benefits.[60]

We note that the methodologies for estimating the value of marketing benefits in a number of the comparator countries (e.g. Italy, UK, Spain and Portugal) are similar to the approach adopted by eir.

Table A1.4 below sets out the estimates for marketing benefits across the different jurisdictions and illustrates the wide range of values (expressed in monetary terms, as a proportion of total intangible benefits and as benefit per inhabitant) estimated for this benefit. eir's adjusted estimate is lower than the benefits estimated in most other jurisdictions.

Table A1.4 International estimates of marketing benefits

USP	Regulator	Country	Year	Value (m)	As a % of total intangible benefits	Benefit per inhabitant
Orange	ARCEP	France	2017	€nil	0%	€0.00
Portugal Telecom	ANACOM	Portugal	2014	€0.22	66%	€0.02
BT	Oftel/Ofcom	UK	2003/04	£9–£11	15–18%	£0.15–£0.18
Telecom Italia	AGCOM	Italy	2009	€7.35	62%	€0.12
Telefónica	CNMC	Spain	2016	€0.33	4%	€0.01
eir	**ComReg**	**Ireland**	**2015/16**	**€0.00**	**0%**	**€0.00**

Note: Benefit per inhabitant is based on population data for the year of the application for each country.

Source: Oxera analysis based on various regulatory precedents (see Table A1.1 for more details). Population data from Eurostat.

A1.5 Total intangible benefits

Table A1.5 provides the estimates for the total intangible benefits across jurisdictions. It also sets out total intangible benefits as a proportion of GDP and

[58] CNMC (2016), op. cit., pp. 15–16.
[59] Grant Thornton and Axon (2016), op. cit., pp. 134–138.
[60] Ibid.

per inhabitant. This indicates that eir's estimates are in line with international approaches when considered as a proportion of GDP and when expressed as benefit per inhabitant.

Table A1.5 International estimates of total intangible benefits

USP	Regulator	Country	Year	Value (€m)	Intangible benefits as % of GDP	Benefit per inhabitant
Orange	ARCEP	France	2017	€0.03	0.000001%	€0.00
Portugal Telecom[1]	ANACOM	Portugal	2014	€0.33	0.000002%	€0.03
Telecom Italia	AGCOM	Italy	2009	€11.80	0.000008%	€0.20
Telefónica	CNMC	Spain	2016	€7.48	0.000007%	€0.16
eir	**ComReg**	**Ireland**	**2015/16**	**€0.75**	**0.000003%**	**€0.16**

Note: Benefit per inhabitant is based on population data for the year of the application for each country. [1] The estimate includes €12,830 benefit associated with the tax treatments of revenues generated from pensioners. This benefit is specific to the regulatory regime in Portugal and is therefore not described in detail in this section.

Source: Oxera analysis based on various regulatory precedents (see Table A1.1 for more details). Population data from Eurostat.

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