

ANNEX

METHODOLOGY FOR CALCULATING NET COSTS

OF THE ELECTRONIC COMMUNICATIONS UNIVERSAL SERVICE

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1. Framework

This document describes the methodology defined by ICP - Autoridade Nacional das Comunicações (ICP - ANACOM) for calculating CLSU - *custos líquidos do serviço universal* (net costs of the universal service), provided by the Universal Service Provider (USP)¹, to be applied until the universal service provider(s), which shall be designated following a tendering procedure, start(s) the service provision, in which case the CLSU shall be identified in the scope of the tendering procedure itself.

The methodology herein has benefited from a consultancy work carried out by Wik-Consult GmbH, provided during the public consultation and prior hearing stage, together with the DD.

2. Methodology for calculating CLSU

2.1. General principles

The designation of an operator as USP places upon it a number of obligations, namely as regards the acceptance of all customers, regardless of their geographical location or profitability. The calculation of CLSU aims to assess the impact of these obligations on the USP, by comparing its actual situation, in which the Universal Service (US) obligations must be complied with, with a hypothetical situation in which such obligations do not exist.

The identification both of costs that arise from the referred obligations, and of associated benefits, results from this assessment, and CLSU are found by difference.

On the other hand, the calculation of CLSU is based on the calculation of direct net costs, with an impact which may be directly measured in the USP accounts, and indirect benefits, as regards those benefits, sometimes intangible ones, from which the USP benefits due to that very status, namely those related to the business reputation and brand image, with effects such as life cycle, network ubiquity and public payphone advertising.

¹ It should be referred that PT Comunicações, S. A. (PTC) is referred to throughout this document, as it is the designated USP, to which the methodology herein described shall be applied.

The determination of the US direct net cost is based on costs which the USP would avoid and on revenues it would lose if, as a result of not having to meet US obligations, it would not have to provide the service in unprofitable geographical areas, and in profitable areas, it would not have to provide the service to customers who are unprofitable or to provide the service in conditions other than standard commercial ones (ex. specific case of retired people and pensioners). Data on costs required for this exercise is obtained, for the most part, from PTC's accounting records.

USP costs and assets must be valued at historic costs. These costs are presented in the company's financial statements, and are generally valued at their purchase price. The acknowledgement of costs based on historic information takes away the need to adjust these costs on the basis of theoretical assumptions, thus contributing to an increased transparency. Moreover, these costs are easily auditable as they are known and available, or they may be easily provided. In fact, the information is found in the cost accounting system (CAS) for regulatory purposes and for use in the clearance of the company's general accounts, reflecting the assets used for the provision of services, the installed capacity and the network use which are inherent, thus enabling the USP to recover the costs effectively incurred in the provision of the universal service.

CLSU also comprise a remuneration instalment concerning the cost of capital. This cost of capital is calculated on the basis of the net value of non-current assets, with an accounting relevant depreciation of assets. Assets are thus valued on the basis of the price paid on the date of purchase and subsequent amortisation. The value of the cost-of-capital rate to be applied until 2008 (inclusive) is the one considered in PTC's respective CAS or, where appropriate, the value adjusted after the auditing process. As from 2009 and until 2011, the value of the cost-of-capital rate defined by ICP - ANACOM in the determination of 10.02.2010 shall be applicable. In the subsequent years, whatever ICP - ANACOM decides on this issue shall be applied.

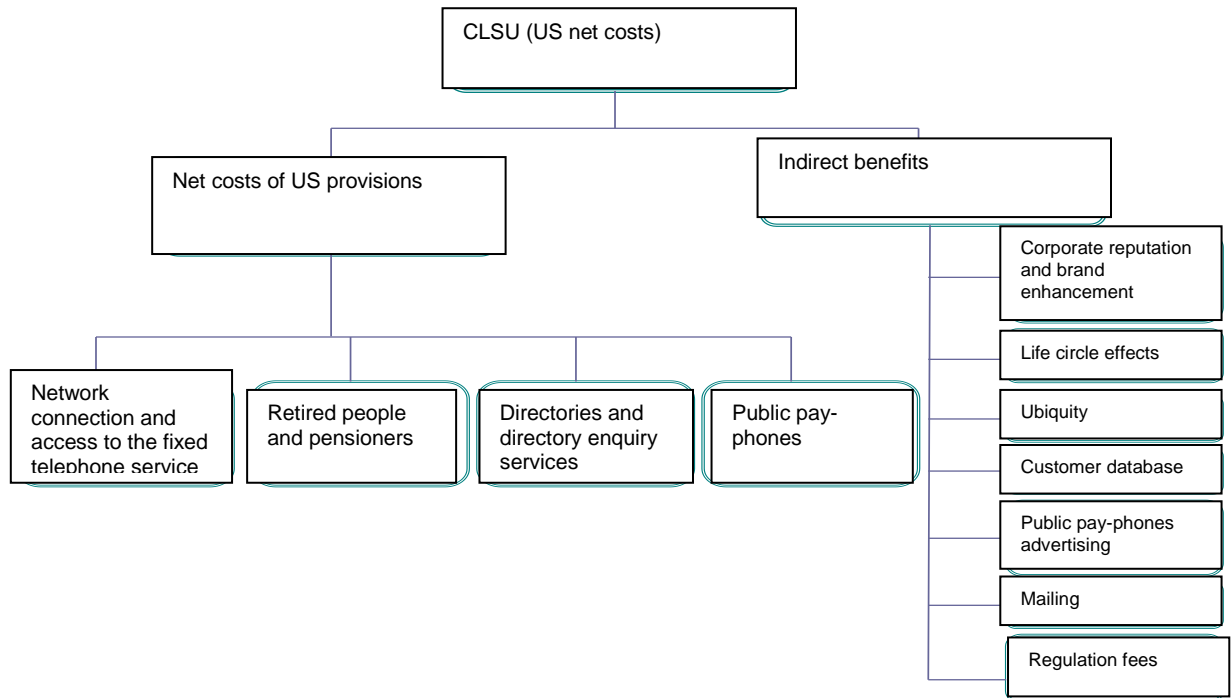
In terms of geographical division, the USP network topology is taken into consideration, the area covered by each of PTC's Main Distribution Frames (MDF) being the reference unit to assess the cost areas. This choice is based on the consideration of the most basic hierarchical level of PTC's network topology at which this operator is able to take planning and investment decisions. This approach is also consistent with the view that CLSU are generated mainly via access costs.

This methodology was followed by other countries that calculated CLSU, such as, for example, Belgium, France and Spain.

According to point e) of article 96 of ECL, *“the net cost of universal service obligations is to be calculated as the sum of the net costs arising from the specific components of universal service obligations”*. CLSU are thus considered to be the result of the sum of deficit components, that is, in case a component presents a positive margin, that value should not be used to compensate possible negative margins assessed in other components. This approach concerns the thinking behind CLSU calculation, according to which service costs which a company not subject to US obligations would not provide should be taken into account. A component with positive margins would be, in principle, provided by an operator ruled exclusively by commercial criteria.

This approach has been also followed by other Regulators, namely, in Belgium, France and Spain.

Figure 1 presents, in schematic terms, the key-aspects covered in the methodology for calculating CLSU:

Figure 1 – Components covered in the methodology for calculating CLSU

It should be noted that, for the purpose of calculating CLSU, the positive margin of all services provided out of the US scope and supported on US accesses must be considered.

2.2. Net Costs of US Provisions

2.2.1. Connection to the public telephone network at a fixed location and access to publicly available telephone services

The methodology for calculating CLSU associated to unprofitable customers, that is, customers who are connected to the USP and that generate insufficient revenues to cover the full costs they cause, will now be described.

The methodology distinguishes two types of unprofitable customers: a) those that prevail in certain areas, making them generally unprofitable and b) those that live among profitable customers, so that

such areas remain profitable in general. The first set is analysed in section 2.2.1.1. and the second in section 2.2.1.2.

Note that costs associated to public payphones in unprofitable areas have been entered in the accounts of the fixed telephone service access component in order to avoid double counting such costs. Costs associated to unprofitable public payphones in profitable areas have been entered in the specific accounts of the public payphone component.

Section 2.2.2 analyses the methodology for calculating costs of the program of support for retired people and pensioners.

2.2.1.1. Determination of unprofitable areas

A. Introduction

The calculation of CLSU associated to the obligation of connection to the public telephone network at a fixed location and access to publicly available telephone services starts by determining the avoidable costs and lost revenues of each of the considered geographical areas (defined at MDF level), in case the service provision was discontinued. The list of MDFs for which the difference between avoidable costs and lost revenues is positive (areas where the value of avoidable costs exceeds that of lost revenues) is deemed to be the first list of geographical areas, that is, of candidate MDFs to represent unprofitable areas.

Further to this first iteration, and in order to determine all unprofitable areas accurately, it is necessary to include in the model the effects of received calls, by considering calls made from profitable areas to unprofitable areas, as such calls would not be made if the service in unprofitable areas was not provided. For this purpose, it is necessary: a) to determine lost revenues and avoidable costs associated to calls made from profitable areas to unprofitable areas; b) to reassess areas which are profitable so far, taking into account the effect of received calls, determined in a); and c) to determine a new list of candidate areas to be considered unprofitable. The reclassification of lost revenues and avoidable costs due to communications from profitable to unprofitable areas will not alter the sum of revenues and costs when all areas are added up.

This process is necessarily iterative, in view of the fact that, given the alteration of the list of candidate areas to be considered unprofitable, more effects of received calls will have to be taken into consideration. It is thus necessary to perform a number of iterations so as to stabilize the number of unprofitable MDFs, being hereby established that no more than five iterations shall be carried out, and that the iterative process shall end where the number of areas classified as unprofitable in iteration N does not show a variation above 3% relatively to iteration $N - 1$.

In this type of approach, in addition to the effect of received calls, another effect could also be considered, associated to substitution calls. In a scenario in which the USP discontinued the US provision in certain areas and for certain customers deemed to be unprofitable, it is reasonable to suppose that these customers would find alternative means to make at least part of these communications. Where these substitution calls were made using the USP network (for example via public payphones or from alternative locations) these revenues would not be lost on account of the service discontinuation.

However, in a market where the access to and use of the mobile telephone service is wide and general, one would expect that, in case the USP decided to discontinue the fixed telephone service, it would receive a small benefit from the effect of substitution calls, which for the most part would benefit mobile service operators.

ICP - ANACOM thus takes the view that the impact in the improvement of CLSU estimates of the effect of substitution calls is not materially significant, and does not justify the cost of formulating reasonably accurate estimates for this purpose, and for that reason it shall not be considered in this methodology.

B. Plausibility criteria

Once the number of geographical areas classified as being unprofitable areas has stabilised, it is necessary to consider the application of two additional criteria to strengthen the model and increase its correspondence to reality: the criterion of existence of an effective competition and b) the “enclave” criterion.

The application of these criteria to each unprofitable area must be assessed on a case-by-case basis by the USP, who must substantiate in detail the reasons for which it considers that such criteria fails to apply. In case ICP - ANACOM does not accept such reasons, the areas in consideration will be compared to profitable areas, for the specific purpose of calculating possible unprofitable customers in profitable areas.

The two criteria are explained below:

a) Criterion of existence of an effective competition: According to the approach defined in determination of ICP - ANACOM, of 14.01.2009, on the definition and analysis of markets for wholesale (physical) network infrastructure access at a fixed location and wholesale broadband access (markets 4 and 5 of Commission Recommendation 2007/879/EC of 17 December 2007), which determined, among other aspects, the suppression of obligations imposed on Grupo PT in the wholesale broadband access market in “C areas”, as such areas were deemed to present an effective competition, this Authority is of the opinion that, in order to refine areas to be considered as unprofitable, it would be appropriate to apply a criterion similar to the one defined within the referred market analysis.

It should be recalled that the mentioned determination of 14.01.2009 defined in a substantiated manner the so-called “C areas” (competitive areas), which correspond to areas covered by exchanges where there is at least one co-installed operator and at least one cable distribution network operator and where the percentage of households cabled by the main operators in the municipality exceeds 60%.

As regards the refinement of unprofitable areas it is deemed that the application of the criterion defined in the determination of 14.01.2009 would not be appropriate, as it would be difficult to collect information on cable distribution networks, for each year for which this methodology is to be applied. It is thus considered that, after the unprofitable areas have been determined, the ones that correspond to areas covered by exchanges with at least two co-installed operators should be specifically analysed.

In fact, it is considered that the co-location of two operators in a given exchange would raise a reasonable doubt as to whether the USP would not wish to provide services in that same area,

even if it was not under the obligation to provide the US. The decisions of operators to be co-installed in certain exchanges are naturally based on economic criteria, aiming for the target of obtaining positive margins in the services provided. If at least two operators are co-installed in a given exchange, this would suggest that these areas show an actual level of effective competition. Therefore, for the purposes of CLSU calculation, these areas should not be considered as unprofitable before a detailed analysis on the reasons which could justify the lack of profitability of the area is carried out. For the purpose of the application of this criterion, the situation in terms of co-installed operators on 31 December each year should be taken into consideration.

- b) “Enclave” criterion:** after applying the criterion of existence of an effective competition, it is deemed appropriate to apply to “enclave” criterion², that is, in case an unprofitable area is fully surrounded by areas deemed to be profitable, the USP must submit criteria which would justify, when deciding on the investment, the decision not to connect the area in consideration, in case there were no US obligations.

In fact, it is deemed that if an unprofitable area surrounded by profitable areas is found, it would be difficult for the USP to acknowledge *a priori* the profitability of that area, and to opt for not connecting it on the moment of making an investment decision. Once the area is connected, it would not be realistic for the USP to disconnect it, as a life-cycle analysis could show that in the future that area could become profitable.

C. Avoidable costs

Avoidable costs comprise avoidable costs of accesses and avoidable costs of other services provided on the accesses of each MDF (services considered are identified by way of illustration in Appendix 1).

– Avoidable costs of accesses

² This approach was considered in the study *Methodology for calculating the net cost of PTC’s universal service obligations of the definition of an “excessive burden”* by WIK-Consult GnbH for ICP-ANACOM and underlying issues referred in ARCEP assessments on CLSU of France Telecom.

In PTC's regulatory accounting system, there are costs associated to accesses, that is, costs resulting from the provision of the telephone line set up service and its maintenance.

The calculation of avoidable costs per access must be carried out per each area, that is, per MDF, as their characteristics vary significantly, according to criteria concerning geography, population and technological options adopted for the access construction (namely overhead or underground paths). In the specific case of public payphones, the associated full avoidable costs should be considered.

Avoidable costs per access are determined, for each MDF, in the framework of PTC's regulatory accounting system, and it is necessary to examine all costs thoroughly to determine whether they should be classified as avoidable or not. For the purpose of CLSU calculation, only costs which are effectively related to access and which would be avoidable (cease) on the moment a certain area was discontinued, are considered. It is thus necessary to obtain the following information:

- List of assets assigned to MDF (infrastructure, equipment, etc.), indicating the purchase values, the respective years of purchase, useful life periods, accumulated depreciation values and net asset values, as well as applicable cost of capital;
- List of MDF operation costs, broken down by their various components.

PTC's regulatory accounting currently in force breaks down total costs in "direct costs" (those that present a direct and unambiguous relation with products/services which generated them) "joint costs" (which may be attributed to a product or service in a non-random manner - for example, by attributing them to a certain activity or establishing an indirect relation to another category of costs which is directly attributable) and "common costs" (those which may be justified by the operator's overall activity, that is, costs which would continue to be incurred if a certain service was abandoned and also if that was the only service provided by the company).

As common costs are independent of the level and scope of USP activity and thus do not respond to marginal variation in services or served areas, it is deemed, as a rule, that such costs should not be considered for the purpose of CLSU calculation. Exceptions to this rule shall only be accepted where it is demonstrated that some functions create common costs that would be influenced by the discontinuation of unprofitable areas.

If the USP demonstrates in a justified fashion that it lacks detailed information which would enable the determination of avoidable costs of accesses according to the methodology herein, ICP - ANACOM will accept alternative approaches for distributing costs among MDFs, namely by using functions of costs breakdown, insofar as this is without prejudice to the final objective of the exercise, which is to ensure the due reliability of costs considered in each MDF and the consideration of their specific characteristics.

– Avoidable costs of all other services

In addition to access costs, for each MDF, there is a set of costs associated to the provision of all other services supported on access lines, namely telephone communications.

Taking into account that avoidable costs associated to communication services provided on accesses, unlike access costs, are reasonably independent of the characteristics of each MDF, it is considered acceptable that they should be determined on the basis of average values obtained by dividing the total costs associated to the service provision under consideration by the total number of telephone lines.

The value of avoidable costs of all other services is determined, for each area, by multiplying the amounts of all services provided on access lines of that area by the respective unit costs (national average) of provision of such services (costs per minute, costs per leased line, etc.).

D. Lost revenues

Lost revenues correspond to those which the USP would cease to obtain if the US was discontinued. Just as with avoidable costs, account is taken of revenues associated to accesses (mainly set up and subscription of network line) and revenues of all other services provided on accesses (namely, revenues from communications and services provided through wholesale offers; services to be considered are identified by way of illustration in Appendix 1).

– Lost access revenues

Lost access revenues must be determined for each area, the respective values being obtained by multiplying the annual value of the monthly subscription charge by the number of analogue accesses per area, plus set up revenues from new accesses set up on the year under consideration.

– Lost revenue of all other services

To calculate the lost revenues of all other services, it is necessary to determine, for each area, the amounts of all services provided on access lines and revenues which would be lost if these services ceased to be provided. Revenues are obtained by multiplying the amounts by the unit price, which is obtained through a weighted average, where there are several tariffs or non-linear tariffs with more than two components.

The calculation of this item uses information with an appropriate level of breakdown which allows a differentiation between retail services and wholesale services, Annex I presenting by way of illustration a set of standard tables to be considered for the purpose.

The calculation of lost revenues, resulting from the effect of received calls referred to in point A is obtained on the basis of the following information:

- Communications from all origination areas, that is, all MDFs (including the MDF itself, as a part of communications originated is also made to subscribers of the same area), indicating the amount (number of minutes), the price per unit and the resulting revenue.
- International communications made to subscribers of each MDF.
- Call communications from other operators.

This information must be gathered in tables such as Table 3 of Annex 1.

2.2.1.2. Determination of unprofitable customers in profitable areas

After unprofitable areas have been determined, as described in point 2.2.1.1, unprofitable customers living in profitable areas must be identified. These customers may be divided into: i) customers whose revenue is insufficient to cover the respective costs, and ii) customers that present high individual

access costs that exceed the generated revenue, even if such revenue is equal to or higher than the national average.

- Customers whose revenue is insufficient to cover the respective costs

It is deemed that for the purposes of CLSU calculation, this group of customers should not be considered.

This results from the fact that this group of customers is difficult to identify and that the associated net cost will not have a material impact at overall CLSU level, as the only costs to be considered are local connection and customer maintenance costs, and the respective revenues, even if low, should cover such costs, at least partially. Moreover, even in cases where there is a remaining net cost, it is reasonable to assume that, given its size, PTC would bear the corresponding expense as a normal business costs, even if it was not under the obligation to provide the US.

Note that social tariffs for retired people and pensioners are regarded as a special case in point 2.2.2.

- Customers that present high individual access costs that exceed the generated revenue, even if such revenue is equal to or higher than the national average

The calculation of CLSU must include net costs caused by unprofitable customers in profitable areas, arising from unusually high access costs.

Ideally, all unprofitable customers living in profitable areas who cause unusually high access costs should be identified individually, and the reason for the high cost must be duly justified by the USP (this may include, for example, customers with an unusual local loop length).

In case it is not possible to present this individual identification, a representative sample of MDFs that constitute the profitable areas must be used, being identified the unprofitable customers with unusually high access costs and their proportion relatively to the total customers in that sample. This proportion will be applied to estimate unprofitable customers due to a high access cost in all profitable areas of the national territory.

For the purpose of identifying these customers, it must be demonstrated that the network elements which generate the unusually high costs are a result of network components dedicated solely to the

customer (or group of customers) under consideration. The costs of network elements that are shared with profitable customers shall not be considered avoidable costs, and consequently shall not be accepted for CLSU calculation purposes.

The calculation of CLSU of providing services to unprofitable customers in profitable areas is based on an approach similar to the one described in section 2.2.1.1. However, it is necessary to consider some specificities which may alter, to a certain extent, the methodology adopted therein. In particular, in case it is difficult to identify the lost revenues of services not related to access, the national average of all customers may be considered in this case as an estimate.

To determine the calls made by profitable customers to unprofitable customers who live in profitable areas, it is necessary first to estimate the total of calls made to unprofitable customers living in profitable areas, through the consideration of a fixed rate of calls made by the latter. To avoid double counting, revenues of calls made by unprofitable customers, living both in profitable or in unprofitable areas, should not be considered. These revenues should be estimated on the basis of the proportion of revenues of calls made by all unprofitable customers, relatively to the total revenues of calls made by all national customers. The value of these received revenues must be re-classified as part of lost revenues of unprofitable customers and not of revenues of profitable customers, as already laid down as regards the determination of CLSU in unprofitable areas.

2.2.2. Retired people and pensioners

Pursuant to Decree-Law no. 20-C/86 of 13 February, as amended by Decree-Law no. 18/2003, of 3 of February, PTC was under the obligation to provide retired persons and pensioners whose monthly household income was equal to or lower than the national minimum wage, a 50% discount on the telephone subscription charge. According to the referred Decree-Law, PTC would be repaid by the State on an annual basis for the loss of income resulting from the referred discount³.

³ Additionally, article 9 of the Telecommunications Universal Service Convention, of 30.12.2002, defined, in the scope of social obligations, that PTC would be bound to provide customers under those circumstances, in addition to the referred 50% discount on the telephone subscription charge, FTS provision conditions not lower than 10% discount on the monthly charge and a credit in national telephone communications, of a joint amount not lower than €3.53 (excluding VAT). With Determination of 14.12.2004 which defines obligations to be imposed on companies with significant market power in narrowband retail markets, and at the same time establishes rules in the scope of universal service pricing, the price-setting

Having Law no. 53-A/2006, of 29 December, taken effect, approving the State Budget for 2007, Decree-Law no. 20-C/86, in which the State guaranteed that PTC would be compensated for granting a 50% discount on the telephone subscription charge to retired persons and pensioners, was repealed.

By determination of ICP - ANACOM of 17.05.2007, this Authority determined that PTC should provide, in the scope of the universal service, to retired persons and pensioners who are subscribers of a single analogue line and whose household income does not exceed the national minimum wage, a discount by 50% on the subscription on the value of the network line resale, and also that the mentioned 50% discount should be reflected on SLRO accesses that support services provided to customers under the previously mentioned conditions. This determination further laid down that the 50% discount on the subscription charge would be considered in the scope of the evaluation and calculation of CLSU, as provided for in article 95 and 96 of Law no. 5/2004.

Further to this determination, the USP began to bear an additional cost per customer, regardless of the latter's level of revenue, a situation that in standard commercial operations it would not be forced to maintain. The additional net cost resulting from this provision thus corresponds to the value of the associated discount.

The annual value is obtained by applying the following formula:

$$CdRP = \sum_{n=1}^{12} [NRPcd_{\text{month } n} (1 + \epsilon \Delta \%P/100) \times 0,5 \times MSTF_{\text{month } n}]$$

where,

CdRP - costs associated to the provision of the discount to retired people and pensioners.

rules provided for in the Universal Service Convention, via article 124 of Law number 5/2004, ceased to be in force, having been removed the obligation upon PTC to provide the 10% discount on the subscription charge and the credit for telephone communications.

$NRP_{cd\text{ month } n}$ - number of retired people and pensioners who enjoy the discount on month n , including retired people and pensioners who enjoy this discount via SLRO.

ε – Price elasticity of demand for the access subscription charge

$\Delta\%P$ – Percentage price change (the current percentage price change is 100%).

$MSTF_{\text{month } n}$ - Value of the FTS monthly charge in month n .

This calculation takes into account the effect of price elasticity of demand, that is, it considers the number of retired people and pensioners that would cancel FTS provided by PTC in the US scope in case the discount ceased to be granted, thus freeing the provider from this burden.

Note that there are grounds for considering the effect of price elasticity of demand, as it is reasonable to believe that a specific number of retired people and pensioners, in case the FTS subscription charge discount ceased to be granted, would opt to cancel the service provided by PTC. In this context, it should be recalled that PTC itself acknowledged this effect, having referred as regards the possibility of suppressing the mentioned discount that “the most likely consequence would be the mass cancellation of network lines by these customers”.⁴

To assess this elasticity effect it is deemed appropriate to take into consideration the available information on elasticity, namely:

- *“Review of price elasticities of demand for fixed line and mobile telecommunications services”*⁵ – elasticity of FTS monthly subscription charge: -0.02 to -0.1.
- Study by Wheatly J.: *“Price elasticities for telecommunications services with reference to developing countries”* – elasticity of FTS monthly subscription charge: -0.1 to -0.6.
- Study by Mauleón (1991): *“La demanda de teléfonos en España”*⁶ – elasticity of FTS monthly subscription charge: -0.22.

⁴ PTC letter of 13.02.2007 with reference ANACOM E-09292/07.

⁵ Vodafone Submission on 2001-02 TSO Draft Determination Conference 22 August 2003 Paper on Price Elasticity for Weighted Revenues Approach, available at: <http://www.comcom.govt.nz/2001-2002tsodetermination/>

⁶ Study “La demanda de teléfonos em Espanã”, considered in the assessment of CLSU in Spain for 2000, available at “La demanda de teléfonos em España”

- Study by Cipallone/Gambardella (1993)⁷: “A disequilibrium model of demand and supply in Italy” – elasticity of FTS access and monthly subscription charge: -0.55.

As can be seen from the above, the studies on this specific matter present very different values of price elasticity of demand, and as it is not deemed appropriate to use one to the detriment of the others, an average value will be used, which has been obtained as follows:

$$\text{Price elasticity of demand} = [-0.55 + (-0.02-0.1)/2 + (-0.1 -0.6)/2-0.22]/4 = -0.295$$

Without prejudice, taking into account that the elasticity values considered here may not depict reality in an accurate manner, namely given the specific characteristics of the segment of retired people and pensioners, ICP - ANACOM will carry out a study so as to estimate the price elasticity of demand. The above-mentioned elasticity value shall be replaced by the value that results from that study.

Of course, the indirect benefits arising from this provision will be considered in the general assessment thereof, as presented in section 2.3, however there are no elements allowing for an individual assessment.

2.2.3. Provision of a comprehensive directory and of a directory enquiry service

The following points of paragraph 1 of article 89 of the ECL should be highlighted within the provisions of the national legal framework on directories and directory enquiry service:

“1 — The following universal service obligations shall be comprised in the scope of directory and enquiry services:

a) To draw up, publish and make available to end-users a comprehensive directory, which shall be printed and/or electronic and which comprises all subscribers of publicly available telephone services, without prejudice to provisions on protection of personal data and privacy;

⁷ Study referred to in the study by Wheatly J.: “Price elasticities for telecommunications services with reference to developing countries”.

- b) To update and make available every year the directory referred to in the preceding point;
- c) To provide end-users with an enquiry service, through a short number, involving the disclosure of data in the directory referred to in point a)”.

As the provision of a comprehensive directory and of a directory enquiry service form together a single US component, as results from the Universal Service Directory and from the ECL, the methodology defined herein considers that the calculation of US cost for this component is the result of the sum of net costs calculated for directories and for the directory enquiry service. If one of these services presents a positive value, it shall be used to reduce the negative value of the other. In case the component presents at the end a positive value, that value shall not be used to reduce the negative value(s) of other components.

The methodology for calculating costs concerning the provision of a directory and of a directory enquiry service should theoretically follow a process similar to the one defined for the fixed telephone service - determination of lost revenues and of avoidable costs. However, given that the USP indicated that the provision of this US is profitable overall (producing profits from the sale of advertising space, namely in yellow pages it publishes), it is deemed that there are no grounds for detailing the methodology to be applied or to make additional calculations for this US component. According to data available in PTC's CAS, it may be verified that this profitability situation was maintained until 2009 (the most recent year for which there are data available), and a change in this situation does not seem likely, given historic records and the maintenance of the situation in 2010.

2.2.4. Adequate provision of public payphones

The calculation of CLSU associated to this component takes account only of unprofitable public payphones in profitable areas, as costs associated to public payphones in unprofitable areas have already been accounted for in the component of access to the fixed telephone service.

The methodology to be used is also based on the calculation of avoidable costs and lost revenues, unprofitable public payphones being deemed to be those whose avoidable access costs exceed lost revenues.

Lost revenues shall be calculated for each defined geographical area - MDF - and consist exclusively of revenues associated to calls made from public payphones, as calls made thereto are not acknowledged.

As regards avoidable costs, costs which would be avoided if unprofitable public payphones were discontinued must be calculated. It should be stressed that network costs will correspond, for the most part, to the cost of connection to the street cabinet closest to the public payphone (or group of public payphones in case there are several in the same location), and that all the remaining infrastructures remains necessary to serve profitable customers.

2.3. Indirect benefits

As provided for in point c) of paragraph 1 of article 96 of ECL, the calculation of the US net cost should take into account the benefits, including intangible ones, obtained by the USP.

This section presents the methodology to follow in order to calculate the value of indirect benefits, which include the following categories⁸:

- Corporate reputation and brand enhancement: benefits associated to the fact that customers get a more positive perception of the company, as a result of the role it plays as USP, namely in term of image and reputation, which allows lower investment levels for achieving the same results.
- Life-cycle effects: benefit that relates to the idea that a customer whom it is currently unprofitable for an operator to serve might become profitable in the future, remaining loyal to the USP and creating positive margins which this operator would not achieve otherwise.
- Ubiquity: benefits associated to the fact that the USP provides the service throughout the national territory, which allows it to maintain customers' preference when they change their

⁸ All referred to in the document "BEREC Report on Universal Service: reflections for the future" as having been mentioned by the majority of regulators that responded to the questionnaire.

area of residence, as well as to provide security to customers in the sense that even if they have to move, the USP will always have an available offer, regardless of the location.

- Operation of a customer database: benefits concerning the ownership, due to the USP status, of a database of a comprehensive universe of customers, with detailed information, namely at the level of customer profile, which may be used at a commercial level (marketing and sales).
- Advertising on public payphones: benefits resulting from advertising the company's logo and from the use (its own or by third parties) of advertising space in public payphones located in unprofitable areas.
- Mailing: benefits concerning the provision of advertising space in FTS invoices, as well as the use of the invoicing process for sending autonomous ads, at no additional delivery costs.
- Regulation fees: Benefit which occurs since 1 January 2009, which corresponds to the deduction obtained by the USP, pursuant to article 1 of Administrative Rule no. 1473-B/2008, of 17 December, in the calculation of the annual fee due for the provision of electronic communications networks and services (paragraph 1b) of article 105 of ECL).

2.3.1. Corporate reputation and brand enhancement

Corporate reputation reflects the regard of customers and general population for the company at stake and the brand image reflects the readiness with which a given brand is remembered by consumers, when they need to take a decision on products and services they wish to purchase. These effects are positively correlated and are quite valued by companies.

It is widely accepted that the US provision contributes to increase the reputation of the operator on which such obligation falls, as the general community perceives such obligation as a provision of a community service, thus causing a positive impact on the value of the USP brand image. Under these conditions, an operator in standard market conditions would have to make an additional advertising

investment to reach the reputation and levels of brand acknowledgement which the USP already benefits on account of such status.

This effect takes on significant outlines, having been quantified in several countries in values in a range between EUR 6 to 18 million⁹.

To assess the indirect benefits resulting from corporate reputation and brand enhancement in the Portuguese case, a methodology based on the value of the Portugal Telecom brand will be used, as this is the brand acknowledged in the scope of the US provision. The following steps must be taken¹⁰:

1st step: Enhancement of the “Portugal Telecom” brand image

In the first place, the total value of the Portugal Telecom brand must be assessed, via independent studies. To analyse the brand enhancement in previous years, it is deemed appropriate to collect information from studies already performed for the years for which the respective CLSU are intended to be calculated. As the European Brand Institute makes available a specific publication, at European level, on brand enhancement, and has a historic record/experience on this matter, having this study been considered to calculate this indirect study in Spain, it is thus deemed that the value of the “Portugal Telecom” brand registered in that publication is the best approach to verify its enhancement.

2nd step: identification of the Grupo’s revenues and of revenues obtained by PTC from the provision of services included within the US.

By using the weight of revenues of services included in the US scope against the Grupo PT’s revenues, we obtain the share of brand value for those services, on a cumulative basis. The annualisation of that

⁹ By way of illustration, the following countries may be referred: Spain (2008) EUR 5.8 million; France (2008): EUR 18.3 million; Italy (2003): EUR 15.3 million; United Kingdom (2003-04) GBP 50 to 52 million.

¹⁰ This methodology was used in the Spanish case by CMT (see, for example, *Resolución sobre la aprobación del coste neto de prestación del servicio universal presentado por Telefónica de España, S.A.U. para el ejercicio 2008* (AEM 2010/1738), available at http://www.cmt.es/cmt_ptl_ext/SelectOption.do on 17.01.2011).

value, considered an intangible asset, is obtained by applying the WACC (Weighted Average Cost of Capital), which corresponds to the value of brand image benefits resulting from the US provision.

3rd step: Attribution to PTC accesses that create CLSU

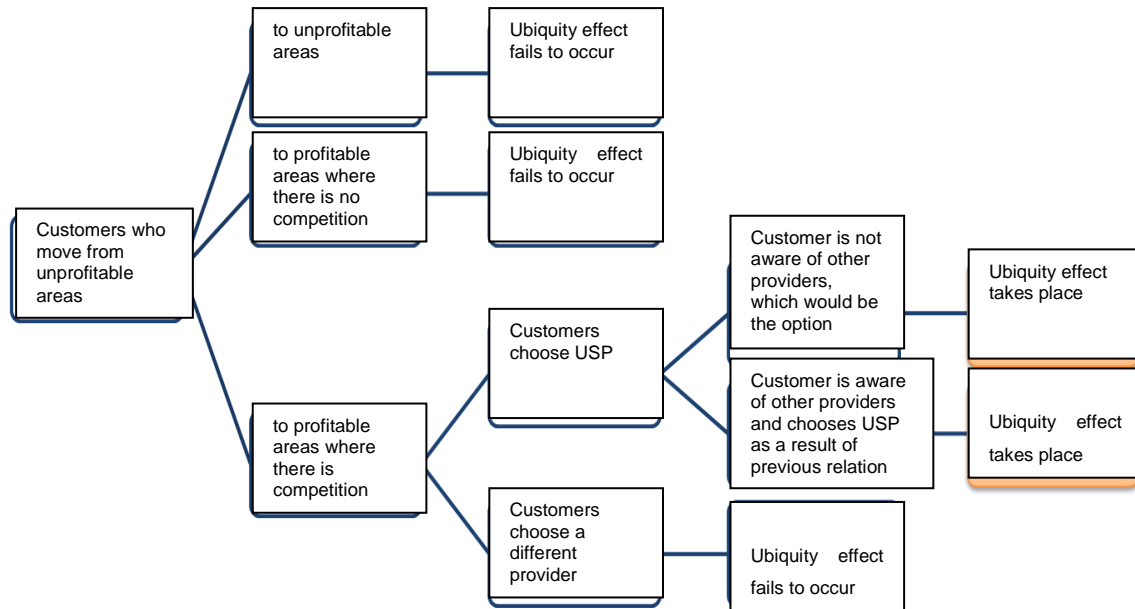
The final value concerning indirect benefits to be included in CLSU calculations corresponds to the application to the value identified in the preceding step of the proportion of accesses that create CLSU (as calculated in sections 2.2.1 and 2.2.2) in the total of accesses. The calculation of the number of access that create net costs must avoid double counting, namely as regards the number of accesses of retired people and pensioners.

2.3.2. Ubiquity

Ubiquity may be defined, as referred earlier, through the capacity of the operator to provide the service throughout the national territory.

Figure 2 shows in schematic terms, the source of ubiquity benefits:

Figure 2 – Ubiquity benefits



Source: ICP-ANACOM adaptation of “Intangible benefits of the telecommunications service obligations”, 22.09.2002, Charles River Associates.

In addition to the effects identified in the preceding figure, there are also subscribers who move from profitable to unprofitable areas, who will mainly choose the USP services, given the lower (or sometimes non-existent) provision of services by alternative providers, which contributes to the deterioration of profitability in those areas¹¹. As this effect will be reflected in the determination of CLSU in future years, it does not have to be considered at this stage.

To quantify the benefits of ubiquity, the following formula may be applied:

$$BU = PC_{PSU} \times Eac_{anrpar} \times VAL_{mcar}$$

where:

¹¹ Assuming that unprofitable areas have higher service provision costs than those customers' areas of origin, and that the margins they originate in their new areas of residence will be negative, as generated revenues will not be sufficient to cover such costs.

BU - benefits of ubiquity

PC_{PSU} - Percentage of customers that choose the USP when moving from unprofitable to profitable areas. In the absence of accurate information, PTC's market share in new FTS access set ups may be considered.

Eac_{anrpar} - Annual estimate of the number of customers who move from unprofitable to profitable areas. This value is calculated on the basis of the percentage of the number of PTC customers that cancel the FTS indicating "change of residence" as a reason, adjusted to the proportional distribution of the number of customers that fail to indicate a motive. In the substantiated absence of concrete information on changes of residence from unprofitable to profitable areas, the total changes of residence weighted by the percentage of customers in unprofitable areas may be considered.

VAL_{mcar} - Current net value of the margin of customers in profitable areas. It is calculated taking into account the WACC for a 5-year period, based on the average profitability per line in profitable areas.

2.3.3. Life-cycle effects

The life-cycle effect is based on the assumption that USP customers who are not profitable initially may turn out to become profitable in the future. As is well known, revenues generated in a telephone access vary over time, depending on the composition, income and consumption habits of families. An operator acting under market conditions may choose to serve a subscriber who is unprofitable in the short term, if he expects the latter's cost and revenues to undergo an evolution in the future, allowing the subscriber to become profitable in the medium or long term.

This will be deemed as a potential benefit for the USP insofar as such customers remain loyal to the operator in charge of the US once they have become profitable.

ICP - ANACOM considers that the benefit derived to the USP from providing services today to an unprofitable customer, expecting him to become profitable in the future, could be calculated by

determining the current net value of future margins generated by that customer over a five-year period¹², according to the following formula:

$$ECV_{cnr} = N_{cnr} \times C_{ctr} \times VAL_{mcr}$$

where:

ECV_{cnr} - Life- cycle effect of unprofitable customers

N_{cnr} - Total number of unprofitable customers

C_{ctr} - Proportion of customers that become profitable. It is obtained by identifying the percentage of FTS customers served by the USP that, in the last 5 years, showed revenue variations equal to or higher than the level required to no longer present a negative margin individually, considering the average negative margin of unprofitable customers.

VAL_{mcr} – current net value of future margins generated by an average profitable customer over a five-year period, calculated taking WACC into account.

Nevertheless, taking into account the practical problems argued by the USP concerning the determination of such values and given that, in the light of the experience in other countries, this benefit shows a low impact, ICP - ANACOM agrees that this benefit should not be considered in the determination of CLSU.

¹² It is deemed appropriate to limit the calculation to a five-year period, in view of the following: a) values that are more remote in time have a low impact on the calculation, due to required updates; b) impacts that are more remote in time are less related to the transformation of unprofitable customers into profitable ones. Ofcom, in the study “*Universal telecommunications services - A Consultative Document on Universal Service in the UK from 1997*” (available at http://www.ofcom.org.uk/static/archive/oftel/publications/1995_98/consumer/univ_1.htm#chap9 on 19.01.2011), Arcep (vide “*Décision publiant les règles employées pour l’application des méthodes mentionnées aux articles R. 20-33 à R. 20-39 du code des postes et des communications électroniques pour le calcul du coût définitif du service universel pour l’année 2008*” available at <http://www.arcep.fr/> on 17.01.2011) and WIK, in its October report for the European Commission (available at <http://ec.europa.eu/archives/ISPO/infosoc/telecompolicy/en/Study-en.htm> on 17.01.2011), considered all a 5-year timeframe. AGCOM used a 4-year timeframe, to assess CLSU for 1999 and 2000. IBPT considered a 3-year period when assessing CLSU for 2003 (vide *Méthode pour le calcul du coût net du service universel des télécommunications coût net prévisionnel pour l’année 2003*, available at www.ibpt.be on 17.01.2011).

2.3.4. Operation of a customer database

A comprehensive and detailed database of customer search profile is a valuable resource that enhances the sales of the Grupo PT. For the purpose of USP indirect benefits, the part to be valued corresponds to the unprofitable customers database, which shall be lost if they are no longer served by the USP, an information which *a priori* has a low value for marketing and sales purposes. This value is thus deemed to be negligible.

2.3.5. Advertising on public payphones

The public payphones benefit corresponds to the advertising value that the USP derives from being able to use public payphone spaces for advertising purposes (for itself or others) or to exhibit its brand in boots. This means that the regular visual contact with the USP logo placed on public payphones is an advertising benefit which must be considered when calculating CLSU.

It is considered that for the purposes of calculating the value associated to this indirect benefit, only unprofitable public payphones should be considered, as they would no longer exist if the USP was not under the obligation to provide the US.

This effect may be assessed through the following formula:

$$BP_{pp} = Edp_{pp} \times P_{ppnr} \times Vep$$

where:

BP_{pp} – Public payphone advertising benefit

Edp_{pp} - Space available for placing ads on public payphones, including space for the USP logo

P_{ppnr} - Percentage of unprofitable public payphones

Vep - Value of advertising space

2.3.6. Mailing

The fact that PTC, as USP, sends FTS invoices on a monthly basis, entails an indirect benefit, on account of the possibility of attaching to invoices different sorts of ads at a very low additional cost.

The mailing benefit may be calculated by the following formula:

$$BM = N_{cnr} \times C_{aef} \times P_{bpe}$$

where:

BM – Mailing benefit

N_{cnr} - number of unprofitable customers

C_{aef} - Annual average invoicing cost

P_{bpe} - Percentage of invoices that included advertising messages or that attached brochures or other ads, in the total of sent invoices.

2.3.7. Regulation fees - annual fee due for the provision of electronic communications networks and services (paragraph 1b) of article 105 of ECL)

It follows from paragraph 1b) of article 105 of the ECL that fees may be imposed for the provision of electronic communications networks and services, on an annual basis, constituting revenue for ICP - ANACOM.

The amount of fees due for the provision of publicly available electronic communications networks and services was approved pursuant to article 1 a) of Administrative Rule no. 1473-B/2008, of 17 December.

Having taken effect on 1 January 2009, the referred Administrative Rule establishes in paragraph 4 of Annex II thereto that:

“4 – Revenues resulting from:

- a) The provision of universal service (defined under article 87 of Law no. 5/2004) to final users, or to groups of specific final users, in the situation provided for in paragraph 2 b) of article 96 of Law no. 5/2004, as well as from the provision of public pay phones under point a) of the same provision;*
- b) The provision of universal service to retired people and pensioners that enjoy specific conditions laid down in ICP-ANACOM's determination of May 2007 on specific conditions for retired people and pensioners in the scope of the universal service;*
- c) The provision of services for which any negative operation margins must be directly compensated by the State, pursuant to the bases of concession of the telecommunications public service,*
- shall not be considered for the purpose of calculation of relevant revenues."*

Paragraph 5 of the same Annex refers that: *"Revenues resulting from the provision of the universal service referred to in point a) of the preceding paragraph shall be established on the basis of calculations undertaken by ICP-ANACOM pursuant to articles 95 and 96 of Law no. 5/2004, for the purpose of calculating net costs of universal service obligations. Nevertheless, for the purpose of payment of fees due in each year, ICP-ANACOM shall provisionally accept the values of relevant revenues indicated by universal service providers, until the referred net costs have been calculated by ICP-ANACOM, any adjustment of values being then carried out."*

Two different situations should thus be considered. In the general case of unprofitable customers, the payment of fees would be the same, as there would be no relevant revenues, both in the case of provision of US (which under the Administrative Rule would not be deemed to be relevant), or in the absence of US obligations (as such unprofitable customers would not exist), and thus the Administrative would have no effect. In the case of retired persons and pensioners, the situation is different as these customers are served in both situations, without prejudice to the consideration of the effect of price elasticity of demand, and in the absence of US obligations, revenues would increase (given the absence of the discount), and fees to be paid would also increase.

In the described conditions, it is deemed that not considering, for the purpose of the calculation of fees due for the provision of electronic communications networks and services, revenues resulting from the universal service provision, in the part concerning revenues associated to retired people and pensioners, constitutes a benefit to be considered in the calculation of net costs.

The value of this benefit thus results from the difference obtained by calculating the regulation fees due by the USP, whether revenues referred to in paragraph 4b) of Annex II to the Administrative Rule into consideration are taken or not into consideration.

ANNEX 1

Table 1: Revenue of retail services originated in the area

| Description of the Service | Amount | Price* | Revenue |
|------------------------------|--------|--------|---------|
| Access | | | |
| Local communications | | | |
| Regional communications | | | |
| National communications | | | |
| International communications | | | |
| ... | | | |
| ... | | | |
| Total | | | |

*An average price will be accepted, where there are two tariffs or non-linear tariffs with more than two components.

Table 2: Revenue of wholesale provision of services originated in the area

| Description of the Service | Amount | Price* | Revenue |
|---|--------|--------|---------|
| Unbundled local loop | | | |
| Local interconnection | | | |
| Single-transit interconnection | | | |
| Double-transit interconnection | | | |
| Termination of communications via other fixed operators | | | |
| ... | | | |
| ... | | | |
| Total | | | |

* An average price will be accepted, where there are two tariffs or non-linear tariffs with more than two components.

Table 3: Communication revenues

| Call minutes, price and revenue | | Termination area | | | | | | | | | | | | | | | | | |
|---------------------------------|-----|------------------|---|---|---|-----|-----|-----|-----|-----|---|-----|-----|-----|-----|-----|-----|-----|---|
| | | 1 | 2 | 3 | 4 | ... | ... | ... | ... | ... | j | ... | ... | ... | ... | ... | ... | ... | N |
| Origin area PTC | 1 | | | | | | | | | | | | | | | | | | |
| | 2 | | | | | | | | | | | | | | | | | | |
| | 3 | | | | | | | | | | | | | | | | | | |
| | 4 | | | | | | | | | | | | | | | | | | |
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| | ... | | | | | | | | | | | | | | | | | | |
| | N | | | | | | | | | | | | | | | | | | |
| Origin in other operators | A | | | | | | | | | | | | | | | | | | |
| | ... | | | | | | | | | | | | | | | | | | |

| Call minutes, price and revenue | | Termination area | | | | | | | | | | | | | | | | | | |
|---------------------------------|-----|------------------|---|---|---|-----|-----|-----|-----|-----|---|-----|-----|-----|-----|-----|-----|-----|-----|---|
| | | 1 | 2 | 3 | 4 | ... | ... | ... | ... | ... | j | ... | ... | ... | ... | ... | ... | ... | ... | N |
| | i | | | | | | | | | | | | | | | | | | | |
| | ... | | | | | | | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | | | | | |
| Country of Origin | A | | | | | | | | | | | | | | | | | | | |
| | ... | | | | | | | | | | | | | | | | | | | |
| | i | | | | | | | | | | | | | | | | | | | |
| | ... | | | | | | | | | | | | | | | | | | | |
| | M | | | | | | | | | | | | | | | | | | | |

Appendix 1

List of Services

I. Retail Services

FTS – Analogue access

Set up

Subscription

Additional Facilities and Services

Communications

Local

Regional

National

International

Other (such as audiotext services)

Traffic to Other Operators - fixed operators

Traffic to Other Operators - mobile operators

Traffic to Data/Internet Access Operator (dial-up traffic)

Local

Regional

National

Smart Grid Communications

Voice Mail

User Hotline - national (National Green Number)

User Hotline – international (International Green Number)

Shared Cost Numbers (Blue Number)

Premium-Rate Numbers (707, 706x ranges)

Other services

ADSL

IPTV

II. Wholesale Services

Telephone traffic Origination (Operator selection and pre-selection)

Local

Single-traffic

Double-transit

Internet Access (origination)

Local Internet

Single-traffic Internet

Double-transit Internet

Interconnection – Termination/ Inbound Traffic

Local

Single-traffic

Double-transit

International

National Traffic

Mixed Traffic – Inbound International Traffic to Mobile Networks

Operator Traffic

Smart Grid/Green Number Operators

National Smart Grid/Green Number Operator

International Smart Grid/Green Number Operator

Mobile; Enquiry Services

National Enquiry Services Operator

International Enquiry Services Operator

Invoicing, Collection and Non-Collection Risk Service

Operation and Maintenance Services / Management to Operators

Pre-selection (Activation)

Portability (Activation)

Revenues associated to other Wholesale offers:

“PT ADSL Network” – ADSL Reference Offer

RUO – Reference Unbundling Offer

SLRO –Subscriber Line Resale Offer

RCAO – Reference Conduit Access Offer

LLRO – Leased Lines Reference Offer