ANDERSEN

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# Study on the implementation of cost accounting methodologies and accounting separation by telecommunication operators with significant market power

## Prepared for the European Commission DG Information Society

3rd July 2002

Public Report

*The opinions expressed in this Study are those of the authors and do not necessarily reflect the views of the European Commission.*

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# 1 Introduction

This report on the implementation of cost accounting and accounting separation by telecommunication operators with significant market power was prepared by Andersen on behalf of the European Commission DG Information Society.

The objective of this Study is to assess the different practices and initiatives implemented in Member States to ensure compliance with the Directives and Recommendations on cost accounting and accounting separation issued by the European Commission.

The findings and recommendations of the study should assist the Commission in their ongoing monitoring of implementation and compliance in Member States with regard to the requirements for cost accounting and accounting separation. In light of the above, the study also assesses the effectiveness of the Commission's Recommendations on accounting separation and cost accounting, and suggests follow-up actions for the Commission.

This study was conducted between September 2001 and February 2002 and considers the situation in the Member States on September 1$^{st}$ 2001, although some insights are given as to intentions and expected developments in the near future.

This study was performed in collaboration with telecommunication operators with significant market power (SMP) and the national regulatory authorities (NRA), which gave their inputs by responding to Andersen's questionnaires. Interviews with national regulatory authorities were then conducted in order to further investigate the key points. Each NRA and SMP had the opportunity to comment on the conclusions reached for their country.

This report is the public version of the final report delivered by Andersen to the European Commission. All information considered as confidential by the different Member States were cleared away. For this purpose, each Member State (NRA and SMP-operator(s)) received a draft copy of the possible public report in order to express itself about the kind of data included in the public report.

## 1.1 Liberalisation of telecommunications in the EU

Beginning 1st January 1998, with transition periods for certain Member States, the provision of telecommunication services and infrastructure in the Community has been liberalised.

In order to promote Community-wide telecommunications services and liberalise the internal market in telecommunications in the European Union, interconnection of public networks and between different national and Community operators must be ensured. This principle of Open Network Provision is currently implemented by the European Union. To this end, the European Parliament and the Council have adopted various Directives and Recommendations.

The specific legislation on interconnection has been recognised by the Council of the European Union as a key component of the regulatory framework. Interconnection refers to the linking of telecommunications networks used by the same or a different organisation to allow the users of one organisation to communicate with users of the same or another organisation, or to access services provided by another organisation.

This interconnection obligation makes it impossible for incumbents to refuse interconnection requests from other authorised operators. As such, the interconnection charges must not prevent the new entrant competing efficiently with the dominant operator; furthermore it must also avoid creating a systematic strategic disadvantage for the incumbent operator.

### 1.2 Development of competition and principles of pricing

Competition has a clear impact on pricing. However, very often, interconnection charges are one of the conditions for establishing the effectiveness of competition.

Fixed line new entrants in the telecommunications sector face a fundamental choice referred to as the Build-Buy decision. New entrants can either "build" their own telecommunications infrastructure or interconnect with other operators and "buy" wholesale services on a "minute of traffic" basis. Most carriers, with the exception of pure service providers, do both.

Clearly there are a number of factors that influence the decision to either build infrastructure or interconnect and buy wholesale carrier services. Among these is the cost of building new infrastructure. This in turn will be a function of today's wage rates and equipment costs. A second factor is, of course, the level of interconnection charges offered by other operators required to either terminate or transit a call. It is the relative values of these two factors that will impact the decision to build or buy. So, the level of interconnection charges directly influences the decision to build infrastructure or interconnect. The decision to enter the market in the first place is strongly determined by the relative value of retail tariffs (revenues) and interconnection charges (costs).

The importance of the pricing structure is mentioned in Directive 90/387/EEC of 28th June 1990 on the establishment of the internal market for telecommunication services. This Directive defined harmonised principles and conditions with regard to the access and use of public telecommunications networks and, where applicable, public telecommunication services. More precisely, this Directive defined pricing principles, implying that tariffs must be based on objective criteria and must be cost-orientated.

These principles are applicable in the interconnection context. Indeed, the settlement of tariffs for network access is a determining factor of the structure and intensity of competition in the transformation towards a liberalised market. In this sense, Directive 97/33/EC of the European Parliament and the Council of 30th June 1997 ("Interconnection Directive") mentions, in its 10th introductory condition: *"the level of [interconnection] charges should promote productivity and encourage efficient and sustainable market entry".*

The Interconnection Directive specifies that "…interconnection charges should not be…above a limit set by the stand-alone cost of providing the interconnection in question" and "charges for interconnection shall follow the principles of transparency and cost orientation" (article 7§2).

Concerning the pricing of leased lines, community authorities have expressed the same requests. Indeed, the 17th whereas of Directive 92/44/EEC of 5 June 1992 on the application of open network provision to leased lines mentions that tariffs for leased lines *"must be based on objective criteria and must follow the principle of cost-orientation".*

Cost-orientated charging comprises one of the ways to assure that telecommunication operators do not practice discriminatory policies because it obliges charges to be set in an objective manner.

The Recommendation of 8th April 1998 on accounting separation provides guidance for preparing separated accounts. Accounting separation, along with detailed explanation of the separated accounts, are a means to ensure transparency in the allocation of costs and revenues to the main products and services offered by the operator. Accounting separation is also a means to ensure the transparency of transfer charges used by the same operator between the provision of services internally and those provided externally.

## 1.3 Additional regulatory concepts

### *1.3.1 Significant Market Players*

According to Article 4 §3 from the Interconnection Directive:

"an organisation shall be presumed to have a significant market power (SMP) when it has a share of more than 25% of a particular telecommunication market in the geographical area in a Member State within which it is authorised to operate. Nevertheless, the National Regulatory Authority might determine an organisation with more than 25% not to be eligible or less than 25% to be eligible. In either case, the determination shall take into account the organisation's ability to influence market conditions, its turnover relative to the size of the market, its control of the means of access to end-users, its access to financial resources and its experience in providing products and services in the market. Significant Market Players are subject to the specific obligations"

This is applicable with regard to interconnection and access, as specified in Articles 4(2), 6, 7 of the Interconnection Directive. This concerns in particular, the provisioning of fixed public telephone networks and services, leased line services and/or public mobile telephone networks and services, as mentioned in Annex I of the Directive.

### *1.3.2 Burden of proof of cost orientation*

The Interconnection Directive mentions that Member States shall ensure that the burden of proof that charges are derived from actual costs lies with the organisation providing interconnection to its facilities.

### *1.3.3 Cost accounting systems for interconnection*

The Interconnection Directive also requires a description of the cost accounting system of the operators with significant market power. This description should show the main categories under which costs are grouped and the rules used for the allocation of costs to interconnection. The purpose of publishing this information is to provide transparency in the calculation of interconnection charges, so that other market players are in a position to ascertain that the charges have been fairly and properly calculated. National Regulatory Authorities, or other competent bodies, have to ensure compliance of the cost accounting systems and the availability of a sufficient level of detailed documentation. A statement concerning compliance must be published annually.

The Study has been carried out with respect to the provisions concerning cost accounting and accounting separation included in the current (1998) regulatory framework. Therefore, the study does not take into account the comparable provisions concerning cost accounting and accounting separation included in the new regulatory framework on electronic communications Networks and services adopted on 7 March 2002 (notably in Directive

2002/19/EC on access and interconnection and in Directive 2002/22/EC on universal service and users' rights).

# 2 Methodology

## 2.1 Approach

The first objective of this study is to describe the current[1] landscape in the Member States regarding cost accounting and accounting separation: on one hand what is recommended/imposed by the national regulatory authorities in order to ensure cost orientation and transparency of tariffs and on another hand how are these initiatives followed by the SMP operators.
In order to gather information a first step was to send surveys to the NRAs, wireline SMP-operators on the interconnection market and wireless SMP-operators[2]. The questionnaires were structured around the main themes raised by the regulatory texts issued by the European Union.

The survey addressed to NRAs (see questionnaire in Appendix I: Questionnaires templates) was organised to collect information on:

- recommendations/obligations issued by the NRA in order to implement cost accounting and accounting separation models;
- model(s) possibly developed by the NRA itself;
- separated accounts prepared to check the internal transfers between services;
- independent audits/controls that have been initiated by NRAs to check compliance by SMPs, and the documents that have been issued (reports, opinions, …) in the context of these audits;
- link between the costs derived from the model(s) and the tariffs;
- difficulties that they meet in achieving their objectives; and
- comments on the relevance and the areas for improvement of the Directives and Recommendations issued by the European Union.

The survey sent to the fixed SMP-operators (see questionnaire in Appendix I: Questionnaires templates) covered the following dimensions:

- cost accounting models set up by the SMP for determination of the costs of the regulated products, and particularly the assumptions used and the methodologies applied (scope of the inputs/outputs, cost base, cost standard, accounting rules, allocation keys, etc.);
- link between the costs derived from the model(s) and the tariffs;
- implementation of accounting separation and its level of granularity;
- control/independent audits performed on these cost systems; and
- publicity of the information and its availability to interested parties.

The survey for wireless SMP-operators (see questionnaire in Appendix I: Questionnaires templates) includes questions about:

- regulatory framework designed for mobile SMP-operators with respect to cost accounting and accounting separation;
- cost accounting techniques (cost base, cost standard, …) used by mobile SMPs to develop cost models;
- implementation of accounting separation and its level of granularity;
- control procedure performed by the operator itself or by the NRA;
- publicity of the information and its availability to interested parties.

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[1] On 1st September 2001.

[2] Wireless operators with SMP on the interconnection market but also on the mobile communications market.

After analysis of the returned questionnaires, Andersen visited each NRA in order to further investigate any points to be clarified and validate the understanding of the answers provided.

Subsequently, the draft of the statement made for each country was sent to the respective NRA and/or SMP for approval. Nearly all the NRAs and a major portion of the SMP-operators gave their feedback.

Andersen then identified to what extent the measures taken by NRAs and the SMP-operators reflect the Commission's regulatory texts on cost accounting and accounting separation and the obligations required by Directives 97/33/EC, 98/10/EC and 92/44/EEC as amended by Directive 97/51/EC. We then finalised our independent analysis of the situation in each country.

The second objective is threefold since on the basis of the findings of assessment phase, Andersen

- assesses the effectiveness of the commission's recommendations on accounting separation and cost accounting;
- suggests follow-up actions for the Commission, governments and NRAs;
- if applicable, suggests elements for consideration in the context of a new Commission recommendation.

### 2.2 Answers to the survey

The table below lists the players to which the questionnaires were sent and whether answered were collected.

| | NRAs | | | Fixed SMP-operators on the fixed telephone network and leased lines markets | | Wireless SMP-operators for mobile services* | |
|---|---|---|---|---|---|---|---|
| | *Name* | *Written answer* | *Visit* | *Name* | *Written answer* | *Name* | *Written answer* |
| Belgium | IBPT/BIPT | Yes | Yes | Belgacom | Yes | Proximus** | Yes |
| Denmark | TST | Yes | Yes | TDC | Yes | TDM | No |
| | | | | | | Sonofon | Yes |
| Germany | RegTP | Yes | Yes | Deutsche Telekom | No | *None* | |
| Greece | EETT | Yes | Yes | OTE | Yes | Panafon | Yes |
| | | | | | | Stet Hellas | No |
| Spain | CMT | No | Yes | Telefónica de España | Yes | Telefonica** | No |
| | | | | | | Airtel-Vodafone** | Yes |
| France | ART | Yes | Yes | France Télécom | Yes | FT-Orange** | No |
| | | | | | | Cegetel-SFR** | Yes |
| Ireland | ODTR | Yes | Yes | Eircom | No | Eircell** | Yes |
| | | | | | | Digifone-Vodafone** | No |
| Italy | AGCom | Yes | Conference call | Telecom Italia | Yes | TIM** | Yes |
| | | | | | | Omnitel-Vodafone** | Yes |
| Luxembourg | IPT | No | No | EPT | No | EPT | No |
| The Netherlands | OPTA | Yes | Yes | KPN Telecom | No | KPN Mobile | No |
| | | | | | | Libertel-Vodafone | Yes |
| Portugal | ANACOM | Yes | Yes | Portugal Telecom | Yes | TMN | No |
| | | | | | | Telecel-Vodafone | No |
| Austria | RTR | Yes | Yes | Telekom Austria | Yes | *None* | |
| Finland | FICORA | Yes | Yes | Sonera | Yes | Sonera mobile** | Yes |
| | | | | Finnet Int'l | No | Radiolinja Oy** | No |
| | | | | Auria-Turun | No | Alands | No |
| | | | | Elisa Com. | No | Elisa | No |
| | | | | Soon Com. | No | | |
| Sweden | PTS | Yes | Yes | Telia | Yes | Telia** | Yes |
| United Kingdom | OFTEL | Yes | Yes | British Telecom | Yes | Vodafone | Yes |
| | | | | Kingston Telecommunications | No | BT-Cellnet | Yes |

* Situation on 1st September 2001
SMP-operators on national market for interconnection are marked with a **

Table 1 : Answers to the survey

For Finland, the questionnaire was sent to five large Finish operators (out of the 49 Finish fixed SMP-operators).

Only few mobile SMP-operators gave feedback to the questionnaire. However, Andersen asked additional questions on the legislation applied to the mobile market regarding cost accounting and accounting separation to the NRAs during the visits.

## 2.3 Directives and Recommendations to themes

In order to assess the practices of the NRAs and SMPs in the domain of cost accounting & accounting separation towards the relevant European legislation, we developed surveys in accordance with the following Regulation, Directives and Recommendations:

- *Regulation No 2887/2000* of the European Parliament and of the Council of 18 December 2000 on unbundled access to the local loop.

- *Directive 92/44/EEC* of 5 June 1992 on the application of open network provision to leased lines
- *Directive 97/51/EC* of 6 October 1997 amending Council Directives 92/44/EEC for the purpose of adaptation to a competitive environment in telecommunications

- *Directive 97/33/EC* of 30 June 1997 on interconnection in Telecommunications with regard to ensuring universal service and interoperability through application of the principles of Open Network Provision (ONP)
- *Directive 98/10/EC* of 26 February 1998 on the application of open network provision to voice telephony and on universal service for telecommunications in a competitive environment

- *Recommendation 98/322/EC* of 8 January 1998 on interconnection in a liberalised telecommunications market (Part 1 - Interconnection pricing)
- *Recommendation 98/195/EC* of 8 April 1998 on interconnection in a liberalised telecommunications market (Part 2 - Accounting separation and cost accounting)
- *Recommendation 00/263/EC* of 20 March 2000 amending Recommendation 98/511/EC on interconnection in a liberalised telecommunications market (Part 1 - Interconnection pricing)
- *Recommendation 02/175/EC of 22 February 2002* amending Recommendation 98/195/EC, as last amended by Recommendation 2000/263/EC, on Interconnection in a liberalised telecommunications market (Part 1 - Interconnection Pricing).

These regulatory texts target interconnection products, leased lines, voice telephony (fixed and mobile) and unbundled local loop.

We summarised the content of those regulatory texts in several themes. Each theme's primary goal is to address one of the issues of implementing cost accounting and accounting separation.

### *2.3.1 The Current Cost Accounting model / The Long Run Average Incremental Costs model*

In Recommendation 98/195/EC, its is recommended that charges for interconnection be calculated on the basis of forward-looking long-run average incremental costs, as it has been assumed to be the best way to evaluate the costs of an efficient operator.
Furthermore, it is explained that "*the use of forward-looking, long-run average incremental costs implies a cost accounting system using activity-based allocations of current costs, rather than historic costs*." The Recommendation further states that should such systems not yet be in use, it is the NRA's duty to set-up deadlines for their implementation.

### *2.3.2 The bottom-up approach*

In order to minimise the imperfection of the top-down models, the EU Recommendation 98/322/EC recommends working out a bottom-up model to assist in the validation of the top-down model, reconciliation of both approaches being assumed to best reflect the situation of an efficient operator.

### *2.3.3 The allocation of the costs*

The Directives 92/44/EEC and 98/10/EC specify in their articles 10 and 18, how costs must be categorised (direct versus common costs), as well as how to allocate common costs.
The Recommendation 98/322/EC provides more details on the way to evaluate and to allocate the costs, capital employed and revenue. For instance:

– costs and capital employed should be allocated in accordance with the principle of cost causation; and
– at least 90% of the costs should be directly or indirectly attributable,

#### 2.3.4 Accounting separation

The Directive 97/33/EC stipulates that SMP-operators must have separate accounts for their interconnection activities and their other telecommunications activities. As mentioned in Recommendation 98/322/EC, the objective is “*to provide an analysis of information derived from the accounting records to reflect as closely as possible the performance of parts of the business as if they had operated as separated businesses*”, and to avoid cross-subsidisation between the business parts. This Recommendation also provides further details on the way to decompose the costs into business lines.

#### 2.3.5 Cost orientation of tariffs

Tariffs for the leased lines, fixed public telephone network/services and charges for interconnection must follow the basic principles of cost orientation, as mentioned in the Directive 92/44/EEC article 10, 97/33/EC article 7 and 98/10/EC article 17.
Regarding interconnection, Recommendation 98/195/EC specifies that “*Interconnection charges which are based on such costs [forward-looking long run average incremental costs] may include justified mark-ups to cover a portion of the forward-looking joint and common costs of an efficient operator, as would arise under competitive conditions*”.
Best current practices, in terms of interconnection charges, were provided in the same Recommendation. However, in its Recommendation of 22 February 2002 amending Recommendation 98/195/EC, the Commission noted that from 1 January 2002 onwards it was no longer necessary to refer to the 'best current practice' approach and update the corresponding price recommendation. This is also due to the increasing availability of suitable cost accounting systems for operators with significant market power.

#### 2.3.6 The control processes

Directives 97/33/EC (article 5) and 98/10/EC (article 18), state that NRAs must assure the control of the cost accounting systems (at least for the interconnection and voice telephony products). This control can be performed by the NRA itself or by an independent expert. A statement of compliance must be published annually.

#### 2.3.7 The publicity of the model

In order to respect the principle of transparency, documents must be made available that describe, with an adequate level of details, the cost accounting systems for interconnection products, leased lines and voice telephony products. The principle of transparency is mentioned in the Directives 92/44/EEC (article 10), 97/33/EC (article 7) and 98/10/EC (article 18).

## 2.4 Themes to assessment

As described above, the questionnaires are structured into themes issued from Recommendations and Directives and these themes are investigated by means of specific questions. An assessment system was developed in order to benchmark status of effective implementation of the Directives and the Recommendations.

We documented the practice implemented in each Member State in accordance with the themes defined in the previous section.

As this analysis is based on confidential information, it cannot be disclosed.

## 2.5 Cost accounting concepts

Directives and Recommendations require implementing cost accounting and accounting separation for tariffs to be cost orientated. However, “Cost” is a multi-dimensional concept. The objective of this sub-section is to provide some brief definitions of the concepts used in this report. At the end of those descriptions, we provided a matrix summarising the relationship between the different cost dimensions.

### *2.5.1 Top-down model versus bottom-up model*

*The European Commission recommends the use of both top-down and bottom-up models for reconciliation and validation purposes*

Two approaches can be used when building cost models: top-down and bootom-up.

- The top-down approach starts with the company’s accounts and adapts the basis of calculation to meet the cost standard.
- The bottom-up approach develops a cost model beginning with the expected demand in terms of subscribers and traffic. It then assesses the network design and related costs on basis of the network-engineering model.

Top-down models take known data and bottom-up models start with a blank page. Under identical assumptions, top-down and bottom-up models should lead to the same results. However, in practice assumptions are never identical, making reconciliation between both models incredibly difficult. Bottom-up models were initially developed as a tool to tackle the lack of information provided by the SMPs. They are used either as primary model by the NRA to set tariffs, or as tool to challenge the model of the operator with significant market power where appropriate. However, although bottom-up models can be built with lesser information from the operator, the quality of such models is largely determined by the assumptions made and the limitation of external data available.

Another reason for developing bottom-up models is the willingness to model the situation of an efficient operator, regardless of the actual performance of the significant market player. Although inefficiencies can be neutralised in the top-down approach, bottom-up models offer an easier way to exclude actual inefficiencies.

Top-down and Bottom-up models can either consider a scorched node vision or a scorched earth vision, respectively taking into account the existing network topology or an ideal network topology. Nowhere in the EU legislation does the European Commission refer to ideal network topology or operations although, in its Recommendation 98/195/EC article 3, the term “efficient operators employing modern technology” is mentioned. Thus, there is no obligation for a model to implement the scorched earth topology, though the use of efficiency factors appears to be recommended.

### 2.5.2 Historical or Current Cost Accounting

*CCA is recommended because it is more accurate than HCA as well as more objective and easier to implement than Forward-looking cost accounting*

Because telecommunications networks are characterised by economies of scale and scope, regulators and governments often want to avoid unnecessary duplication of network infrastructure that will increase the cost base of the industry as a whole[3]. It can be also considered that the role of regulators is to take the necessary steps to replicate a competitive market. For this reason, regulators argue that interconnection charges should be based on current costs to reflect Build-Buy decision faced by new entrants.

In the past, most cost models were based on Historical Cost Accounting (HCA). Such models use historical information provided by statutory accounting systems. HCA suffers some major flaws:

- Evolution of the acquisition costs of assets is not taken into account. Purchase prices can significantly increase or decrease over time and affect the value of assets. As a new entrant, willing to build a network, would be paying the current price and not the historical price, existing assets should be reassessed at their current value.
- Historical accounts cannot incorporate the impact of continuously evolving technologies. Hence HCA cannot ensure that costs are those of an *operator employing modern technologies*.
- HCA, while focusing on the past, reflects all inefficiencies (i.e. regarding the company processes or organisation) that result from past decisions of the operator.

Because of the distortions inherent when modelling the Build-Buy decision, Current Cost Accounting (CCA) has been introduced in top-down cost models. CCA is more likely to provide costs that underpin a price in a competitive market. CCA takes into account the costs that would have been incurred in the past to build a network using current technology. This implies that all resources be reassessed at their current cost and that for the assets that are not available anymore on the market, the “Modern Equivalent Asset” (MEA) methodology is used. Theoretically, CCA leads also to the use of efficiency factors to reflect the impact of new technology on operations. Therefore, using a CCA cost base will tackle all four issues mentioned above.

There are two alternative approaches[4] to CCA, which differ in their treatment of capital -which is required to be maintained before profit is recognised. This issue is of greatest importance for the measure of profits available for distribution in the Profit and Loss account, but it also affects the division between capital and retained profits in the balance sheet

- Operating Capital Maintenance (OCM) is concerned with maintaining the physical output capability of the assets of the company. Capital maintenance under this approach requires the company to have as much operating capability – or productive capacity – at the end of the period as at the beginning. Under OCM, profit is therefore only measured after provision has been made for replacing the output capability of a company’s physical assets. Generally, this would require the application of specific inflation indices to the values of the company’s assets.

- Financial Capital Maintenance (FCM) is concerned with maintaining the real financial capital of the company and with its ability to continue financing its functions. Capital is assumed to be maintained if shareholders’ funds at the end of the period are maintained in real terms at the same level as at the beginning of the period. Under FCM, profit is therefore only measured after provision has been made to maintain the purchasing power of opening financial capital.

[3] It is the presence of large fixed (and often sunk) costs as well as shared plant that gives rise to economies of scale and scope.

[4] Recommendation 98/195/EC, Appendix 2

The use of the OCM concept may systematically incorporate insufficient or excess returns into the level of allowed revenue (depending, respectively, on whether asset-specific inflation was expected to be lower than or higher than general inflation). This is not a desirable feature of any regulatory regime, as it would not provide appropriate investment incentives. Under FCM, however, the returns to the providers of capital would equal the required return[5] (as measured by the cost of capital) irrespective of whether replacement costs were rising or falling relative to general prices. Hence, if current cost accounting information is used as the basis to determine interconnection charges, FCM is the preferred capital maintenance concept.

Efficiency factors are corrective factors applied to the costs and volumes to modify the actual performance towards that of an efficient operator. Those factors adjust costs and volumes to take into account the optimal required capacity, use of modern technology and expected process efficiency gains. Although the EU Recommendation does refer to an *efficient operator*, no definition or indication on how to assess efficiency is given.

### *2.5.3 Actual costs versus Forward-looking costs*

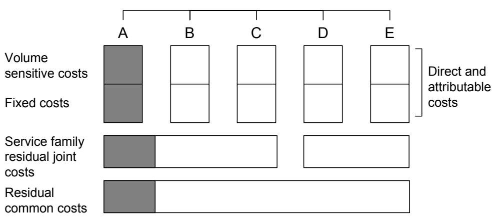
Tariffs can either be derived from actual costs (HCA or CCA) or determined using forward-looking costs. The aim of Forward-looking models is usually to neutralise the impact of the gap between the year of the last accounts used and the year to which the tariffs will be applied, by modelling actual costs for the near future years. Such an approach is using either historical or current costs and extrapolates those costs to reflect the costs that are expected to be incurred given the forecasted volumes. However, models using Forward-looking costs have one major drawback: they are based on forecasts, and therefore highly dependent on the underlying assumptions.

The European Commission states in its Recommendation of January 8th 1998, "*the use of Forward-looking (LRAIC) implies a cost accounting system using activity-based allocations of* <u>*current costs*</u> *rather than historic costs*".

### *2.5.4 Cost Standards*

Depending on the objective and the point of view of the company building the cost accounting model, different methods for assessing the cost of individual services/products will be used. Those cost standards differentiate themselves by the scope and type of costs that are taken into account. The implementation of one particular cost standard will have a significant impact on the costs of a service/product and, in the context of cost orientated tariffs, on the price.

The most commonly used cost standards are briefly presented below[6]:




– Fully Distributed Costs (FDC), sometimes referred to as "Fully Allocated Costs", allocates all of an organisation's costs to services/products. Therefore, the costs of a given service/product are composed of direct volume-sensitive costs, direct fixed costs and a share of the joint and residual common costs. Usually the proportion of joint and residual common costs is causally related, although no non-arbitrary set of allocation rules exists.

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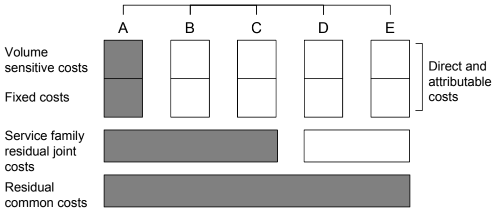
[5] Subject to the level of investment in assets being efficient.

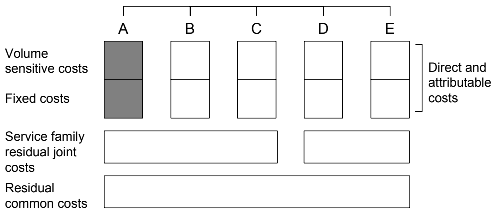
[6] For a detailed description of cost standards, see: 'A Study on cost allocation and the general accounting principles to be used in the establishment of interconnect charges in the context of the telephone liberalisation in the European Community', prepared by Andersen for the European Commission, 1994.

It is precisely the difficulty of allocating unattributable costs that stands as the major drawback of this cost standard: the room left for subjective decision generates the possibility for “favourable” allocations.

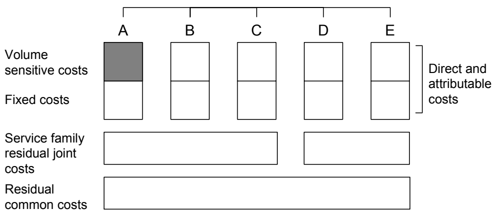



– Stand-alone Costs (SAC) is a cost standard that measures the cost of providing a service/product in isolation from the other services of the company. SAC includes all costs directly attributable and all shared cost categories related to production of the service/product, thus including volume-sensitive, fixed, common and sunk costs. Under this allocation method, the shared costs are totally supported by the service/product that is to be provided in isolation.

The SAC cost standard does not lead to economic efficiency if used for pricing and resource allocation decisions. Clients of this service/product bear the burden of the total costs of resource that are used in the production of the other service/products, thus creating cost discrimination among services/products and therefore among customers.



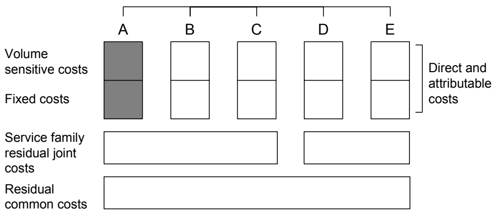

– Embedded Direct Costs (EDC) considers only the directly attributable and indirectly attributable volume sensitive and fixed costs.

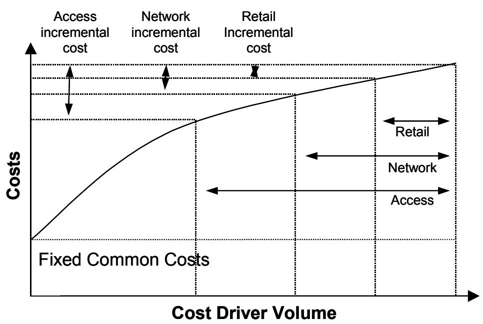



– Marginal Costs measure the costs of increasing the production output by one additional unit or the costs saved by reducing the production output by one unit, holding the production levels of all other services/products constant. This definition implies that Marginal Costs include only the direct volume-sensitive costs of the given service/product, excluding all cost categories that do not either demonstrate a causal relationship with the unitary change in output, or do not vary with the output.

Marginal Costs are hard to implement because costing of unitary changes in production output is rarely possible (capital and labour are difficult to divide). Furthermore, joint and common costs will not be covered and will have to be accounted for when establishing the Mark-up.

Under certain assumptions it can be shown that economic welfare is maximised when prices for goods and services are set at the Marginal Cost of the resources used to produce those goods, and consequently an economically efficient outcome results.




– Long-Run Average Incremental Costs (LRAIC) associates a long-term horizon to incremental costs. Incremental Costs measure the cost variance when increasing or decreasing the production output by a substantial and discrete increment. In the particular case where the increment considered is a single unit, incremental costs equal marginal costs. Because the increment is substantial, not only the volume-sensitive and directly attributable costs are taken into account. Some capital and fixed costs are also incorporated in the cost of the service/product. In the long-term all costs are treated as variable as the production capacity is not a constraint anymore. Therefore, long-run incremental costs include capital and the volume-sensitive costs related to substantial change in production.

Cost-volume relationship curves illustrate how costs vary according to the change in volume of the related cost driver. Hence the costs are related to an increment to be assessed and the level of fixed common costs identified.
Eventually, LRAIC is the average costs for a unit for the considered increment.

The nature of incremental cost assumes that some level of output is already being produced[7] and that incremental costs correspond to either

[7] Which may in theory be zero.

the costs of increasing the volume by the increment or the savings related to a reduction in volume equal to the increment. As a result the sum of the incremental costs of all products will not equal the total costs incurred by the company, as incremental cost represents only the additional cost that need to be covered if profitability is to be ensured, not taking into account the fixed common costs.

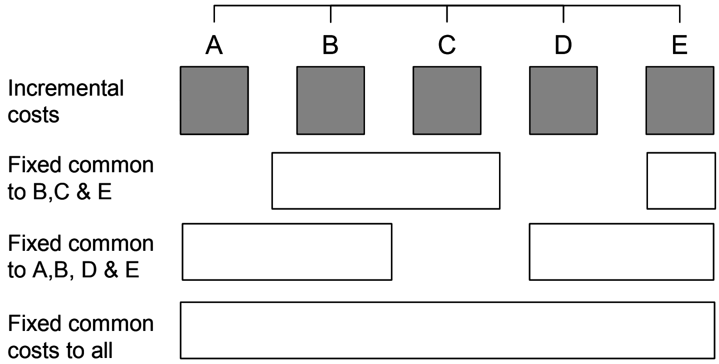



Figure 1 : Incremental costs

Hence, similarly to Marginal Costs, LRAIC does not allow for the recovery of joint and common costs per se, and requires some form of Mark-up to ensure financial viability.

In theory LRAIC should be forward-looking, as actual costs do not truly reflect the costs that are related to the long-run increment.

The European Commission, in its Recommendation 98/195/EC article 3 for interconnection costs, has recommended the use of LRAIC.

The use of a particular cost standard for pricing or management decisions can be justified if its application results in improved economic efficiency and allocation of resources.

Although setting prices at Marginal Cost achieves economic efficiency, this cost standard faces the difficulty of analysing unitary changes in output. Using Incremental costs will overcome this practical measurement issue while keeping the “marginal” nature. However, incremental costs still do not ensure long-term financial viability because no account is taken of residual joint and common costs.

Whereas prices set below Incremental costs would raise competition concerns (possible predatory pricing), it can be easily understood that Stand-Alone Costs are a ceiling that prices should not reach. The optimal price, that generates economic efficiency and allows the operator long term viability stands somewhere in the middle and is likely to have LRAIC as basis. In the telecommunications sector the gap between LRAIC and Stand-Alone Costs is particularly important. Indeed, most network elements are shared between several product categories, and hence the fixed common costs represent large parts of the network (i.e. access network, core network, international network, etc.). Usually three approaches are used to narrow the gap: distributed LRAIC or Mark-ups and Consumption-based allocation.

Distributed LRAIC calculates the LRAIC cost of each component within a fixed common cost category, and distributes the difference between the cost category LRAIC cost and the sum of the components LRAIC costs on the components using an equal proportionate mark-up (EPMU). In the same way, applying the opposite reasoning can reduce the Stand-Alone costs.

The other approach consists in allocating the costs of fixed and common costs to products according to their consumption of the resources. This approach follows principles close to FDC, using activity-based costing and network costing techniques.

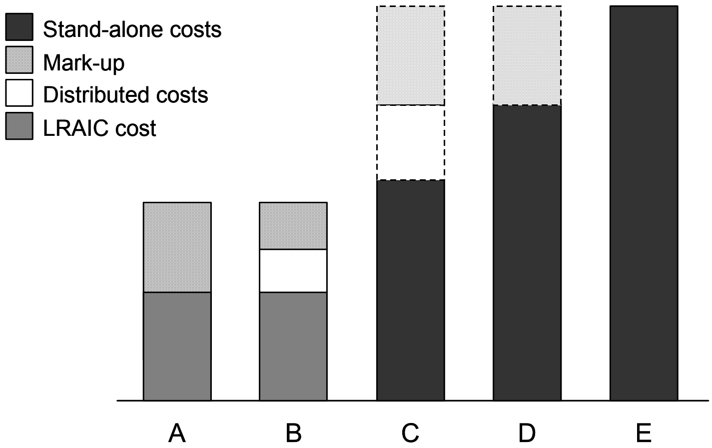



Figure 2 : cost standards to be used

To ensure that operators are not abusing their pricing flexibility, combinatorial tests need to be performed to demonstrate that individual prices equal or exceed incremental costs and that the prices of groups of services which share common costs taken together cover the incremental and common costs of the provision of those services.

In theory most cost bases can be combined with the different cost standards or model approaches. But in practice some combinations are either not possible (using historical costs to build a bottom-up model) or do not make economic sense (using a historical cost base for LRAIC). The table below summaries the cost definition mostly encountered in cost models.

| | Top-Down | | Bottom-Up | |
|---|---|---|---|---|
| | **HCA** | **CCA** | **HCA** | **CCA** |
| Fully Distributed Costs | ✔ | ✔ | ✕ | ✕ |
| Stand alone | ✔ | ✔ | ✕ | ✔ |
| Embedded direct costs | ✔ | ✔ | ✕ | ✔ |
| Marginal Costs | ✔ | ✔ | ✕ | ✔ |
| Long-run average incremental costs | ✕ | ✔ | ✕ | ✔ |

Table 2 : Summary of cost model dimensions

### *2.5.5 Cost orientation of tariffs*

The European Commission defines cost orientation of tariffs, in its recommendation 98/195/EC article 2, in such way that tariffs should reflect the way in which the cost are actually incurred. Justified Mark-ups to cover portion of the forward-looking joint and common costs of an efficient operator can be included in the tariffs.

From the Comparative Analysis, we will see that the cost orientation is interpreted differently from one NRA to another. Some of the definitions encountered include:
- Price = cost + mark-up
- Price = cost + (WACC x Net Book Value)
- Price = cost + mark-up + (WACC x Net Book Value)
- Price below Price Cap

In event of geographical competitive markets, the Directives[8] allow the NRA to consider that there is no need for cost orientation to ensure price control, as the final objective has already been reached. Some Member States already apply that principle to various extents[9].

## 2.6 Accounting separation

The main objective of accounting separation is to make non-discrimination and cost-orientation transparent by showing cross-subsidisation between products and identifying unfair cross-subsidisation. In requiring separated accounts for the main products and services, the Directives create more transparency on internal transfer pricing and repartition of common and joint costs.

According to the Interconnection Directive, operators with significant market power have to perform accounting separation between interconnection activities and the other telecommunication activities.

Furthermore, Recommendation 98/322/EC states that operating expenses, capital expenditures and revenues should be produced for at least the following activities:

- Core network: wholesale interconnection services internally and externally provided in order to allow customer to communicate with customers of the same or another operator, or to access services provided by another operator. It includes switching and conveyance of calls, as well as engineering services related to the development and maintenance of private networks and the deployment of competition (number portability and carrier selection).

- Local access network: maintenance and provisioning of the connections to the core network, including all customer-dedicated network components.

- Retail activities

- Other activities

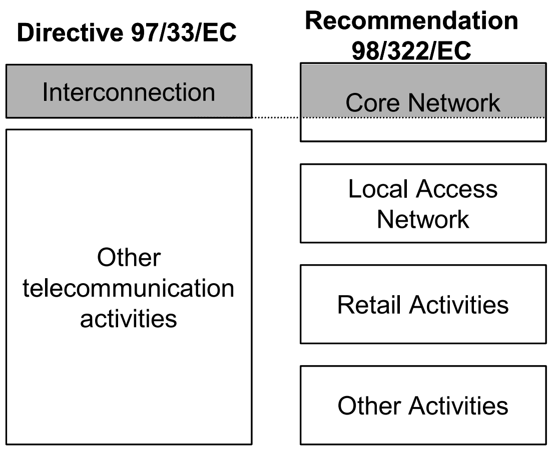



Figure 3 : Accounting separation's definition in the EU legislation

The level of disaggregation of the separated accounts does not appear explicitly in the European texts. However, it is recommended in the Recommendation 98/33/EC that *relevant accounting information from notified operators [should be made] available on request to interested parties at a sufficient level of detail … to enable the average costs of unbundled interconnection services to be identified.* This would suggest that accounts

[8] Directive 98/10/EC Article 17 (6) on tariffs principles and Directive 92/44/EC Article 10 (4)

[9] For instance Finland, Germany and the UK have deregulated some market segments

should be separated at least into the four above-mentioned businesses and additionally for the interconnection products individually.

Separated accounts must be prepared for separated business that provide a Profit and Loss Statement and Balance sheet information in a form that is consistent with the measure of capital employed used for price-setting purposes. It is stated in the Recommendation 98/322/EC annex 7.3 that accounting separation should use a CCA cost base.

Transfer pricing rules and amounts have to be clearly identified and mentioned. The level of transfer prices must be equal to the price used to sell the service/product externally.

### 2.7 Cost of capital

In Recommendation 98/322/EC the reasonable return on investment is defined as being the product of the cost of capital and the capital employed. The cost of capital represents the remuneration of the operator's creditors and shareholders. To determine the cost of capital, the capital employed to provide the service is multiplied by the related annual rate of interest/return. The cost of the debt corresponds to the interests paid whereas the cost of equity represents the expected rate of return of the financial markets. As operations are funded with the available capital independently of its structure, debt and equity should not be allocated to products. Consequently, there is a need to define a weighted average cost for the capital employed (WACC).

The WACC is calculated according to the following formula:

$$\text{WACC pre-tax real} = \left[\frac{D}{D+E} \times R_d\right] + \left[\frac{E}{D+E} \times R_e \times \frac{1}{1-t}\right] - i$$

D : market value of the debt
E : market value of equity
Rd : marginal cost of debt
Re : marginal cost of equity
t : marginal tax rate
i : inflation rate

When applying the Capital Asset Pricing Method (CAPM), the marginal cost of equity is defined as:

$$Re = Rrf + \beta\ (Rm - Rrf)$$

Rrf : risk-free rate
Rm : expected rate of return on the market (or sector)
(Rm – Rrf) : market (or sector) risk premium
$\beta$ : market (or sector) beta

The CAPM approach takes into account the risk related to the investments made by shareholders. Taking the risk premium of the telecom market as a whole ignores the fact that its sectors of activity (wireline, wireless, data communications, etc.) present different degrees of risk. It would appear logical to use a different WACC according to the activity considered, however practical evaluation of each sector's risk premium still remains a difficult task.

# 3 Comparative Analysis

This chapter benchmarks the Member States for each of the themes analysed.

In the confidential report delivered to the European Commission, the underlying detailed description of the current situation and the expected evolution for each Member State is provided.

This benchmark focuses first on the costing principles applied to the model eventually used for determining prices. The second criterion addressed is the way costs are allocated to products and whether a top-down or a bottom-up approach has been used to build the model. Preparation of separated accounts is then compared through all Member States. Once those modelling issues have been addressed, the process of ensuring cost orientated charges and tariffs is analysed: the price determination process, control process and publicity requirements. Finally, we look at the current framework applicable to mobile SMP-operators.

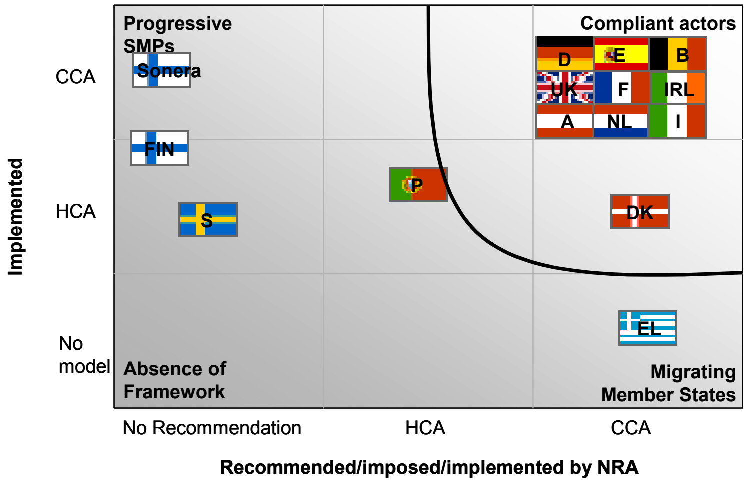
## 3.1 Cost base and Cost Standard

### *3.1.1 Cost base*

When assessing the degree of compliance with European Recommendations regarding the cost base used for cost accounting, different patterns can be identified. Indeed, both the SMPs and the NRAs play a role in the selection and implementation of a cost methodology to set charges for the interconnection products.

It is the role of the NRAs to set or supervise the framework for migration towards CCA and forward-looking cost bases. It is the role of the SMP-operators to guarantee to their shareholders that the selected approach helps them recover most of their historical cost base, as this corresponds to their actual past investments.

Table 3 shows the extent to which NRAs set a regulatory framework in compliance with EU legislation and the degree to which implementation is performed (independently or not from the national legislation). As presented in this table, NRAs and SMP-operators generally co-operate to comply with the EU Recommendation (i.e. use of a CCA cost base) while two Member States (Denmark and Greece) are in the process of migrating towards compliance. Finally, a group of three Member States NRAs (Portugal, Sweden and Finland) did not yet specify a framework for the implementation of a CCA cost base as recommended by the European Commission. Consequently, in these Member States, with the exception of Sonera in Finland, interconnect costs are still computed on an HCA basis but with a forward-looking assessment.




Note: Luxembourg did not respond

Table 3 : Cost based implemented for interconnection

The table below summarises the cost bases applied to the cost models used as reference to set the charges and tariffs. Whereas in most Member States CCA is used as cost base for interconnection costs and unbundled local loop, its use for the leased lines and voice telephony is more limited. Although recommended in the European legislation, separated accounts are not based on full current costs in all but a few Member States (Spain, Ireland, UK and partially in the Netherlands and in Greece).

Table 4 : Cost base used to determine costs and separated accounts

| | Interconnec-tion | Leased lines | Voice telephony | Unbundled local loop | Accounting separation |
|---|---|---|---|---|---|
| **B** | FL-CCA | HCA | HCA | Not applicable[1] | HCA |
| **DK** | HCA | HCA | HCA | HCA | HCA |
| **D** | FL-CCA | HCA[12] | Not applicable[2] | FL-CCA | Not applicable[3] |
| **EL** | (FL-CCA)[4] | HCA | HCA | (FL-CCA)[4] | HCA/CCA (mixed) |
| **E** | CCA | CCA | CCA | Not applicable[5] | CCA |
| **F** | FL-CCA | FL-HCA | FL-HCA | FL-CCA | HCA |
| **IRL** | FL-CCA | FL-HCA | FL-CCA | FL-HCA (Opex)/ FL-CCA (Capex)[6] | HCA & CCA[7] |
| **I** | FL-CCA | FL-HCA | FL-HCA | FL-HCA | FL-HCA |
| **L** | No answer to survey | | | | |
| **NL** | FL-CCA | FL-HCA | FL-HCA | FL-CCA | HCA /FL-CCA (mixed) |
| **A** | FL-CCA | HCA | HCA | FL-CCA | Not applicable[3] |
| **P** | FL-HCA | HCA | HCA | Not applicable[5] | HCA |
| **FIN** | Various[8] | Various | Not applicable[9] | Not applicable[10] | Various |
| **S** | FL-HCA | FL-HCA | FL-HCA | FL-CCA | (FL-HCA)[11] |
| **UK** | FL-CCA | FL-CCA | FL-CCA | FL-CCA | CCA |

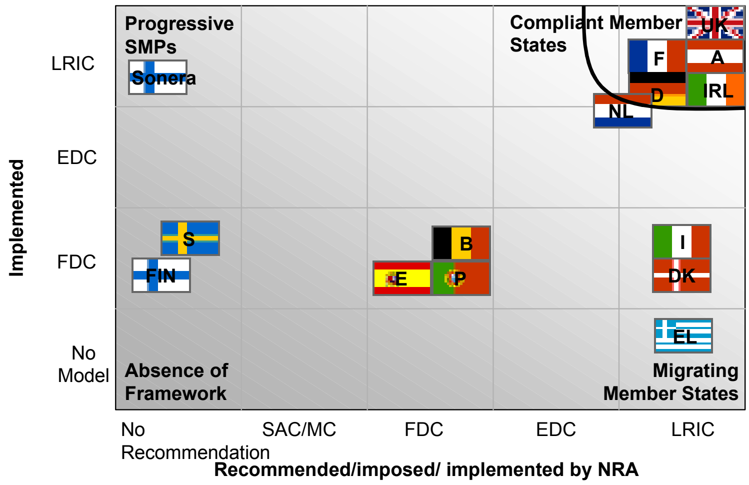
HCA: Historical Cost Accounting FL-HCA: Forward-Looking costing based on historical costs
CCA: Current Cost Accounting FL-CCA: Forward-Looking costing based on current costs

[1] No specific model was built to model the costs of ULL except a CCA one for the monthly subscription fee. However as the IBPT/BIPT put forward a retail minus approach, this SMP's model is not used. NRA did not develop any cost model for ULL.
[2] Costs of voice telephony are currently not modeled.
[3] Separated accounts are not prepared.
[4] The first audit is currently in progress and conclusions about the new LRAIC model are not yet available.
[5] No specific model for ULL is currently maintained.
[6] Though Eircom did develop a model for LLU, its current version has been rejected by the ODTR.
[7] Both releases are available.
[8] Each SMP-operator develops its own model.
[9] Voice telephony is not regulated (except for local telephony).
[10] ULL is not regulated.
[11] Separated accounts are prepared but not made public.
[12] RegTP however processes outputs from HCA-FDC statutory costs provided by DTAG to come to a final LL charge that is close from what would have been modeled with a LRAIC FL-CCA model.

### *3.1.2 Cost standard*

Regarding the cost standard implemented for modelling interconnection costs, we observe four groups:

– A first group of five Member States have implemented LRAIC based cost modelling and are therefore compliant with the EU Recommendation (Germany, France, Ireland, Austria and UK).
  Finland's Sonera developed models using more advanced cost standards than recommended by their national regulator.
  In The Netherlands, LRAIC cost standard is only used for the determination of terminating charges;
– The second group is composed of five Member States (Belgium, Denmark, Greece, Spain and Italy) currently developing LRAIC models under the lead of the NRA;
– Sweden intends to move towards LRAIC but the completion of the implementation is not expected for at least two years (2003);
– Finally two Member States (Portugal and Finland in general) did not express intention to migrate immediately to a LRAIC cost standard.




Note: Luxembourg did not respond

Table 5 : Cost standard implemented for interconnection

All models designed to compute the costs of leased lines currently still follow the FDC costs standard. The same is true for voice telephony with the exception of Ireland where a LRAIC model is implemented. With respect to local loop unbundling related services a migration from a FDC approach towards LRAIC is observed – currently more than a third of the Member States apply LRAIC methodology.

Table 6 : Cost standard used to determine costs and separated accounts

| | Interconnection | Leased lines | Voice telephony | Unbundled local loop | Accounting separation |
|---|---|---|---|---|---|
| **B** | FDC | FDC | FDC | Not applicable[1] | FDC |
| **DK** | FDC | FDC | FDC | FDC | FDC |
| **D** | LRAIC | FDC[17] | Not applicable[2] | LRAIC | Not applicable[3] |
| **EL** | (LRAIC)[4] | FDC | FDC | (LRAIC)[4] | FDC / LRAIC (mixed) |
| **E** | FDC | FDC | FDC | Not applicable[5] | FDC |
| **F** | LRAIC | FDC | FDC | LRAIC | FDC |
| **IRL** | LRAIC | FDC | LRAIC | LRAIC[6] | FDC & LRAIC[7] |
| **I** | FDC | FDC | FDC | FDC | FDC |
| **L** | No answer to survey | | | | |
| **NL** | Terminating: LRAIC Originating: EDC | FDC | FDC | EDC | LRAIC/EDC /FDC |
| **A** | LRAIC | FDC | FDC[8] | LRAIC | Not applicable[3] |
| **P** | FDC | FDC | FDC | Not applicable[5] | FDC |
| **FIN** | Various[9] | Various[10] | Not applicable[11] | Not applicable[12] | FDC |
| **S** | FDC[13] | FDC[13] | FDC[13] | FDC[13] | (FDC)[14] |
| **UK** | Distributed[15] LRAIC & FDC[7] | FDC[16] | FDC | LRAIC & FDC[7] | FDC |

FDC: Fully-Distributed Costs EDC: Embedded Direct Costs
LRAIC: Long-Run Average Incremental Costs

[1] No specific model was built to model the costs of ULL except a CCA one for the monthly subscription fee. However as the IBPT/BIPT put forward a retail minus approach, this SMP's model is not used. NRA did not develop any cost model for ULL.
[2] Costs of voice telephony are currently not modeled.
[3] Separated accounts are not prepared.
[4] The first audit is currently in progress and conclusions about the new LRAIC model are not yet available.
[5] No specific model for ULL is currently maintained.
[6] Though Eircom did develop a model for LLU, its current version has been rejected by the ODTR.
[7] Both releases are available.
[8] A further sanity check in regard to FL-LRAIC is performed as each voice telephony product's cost has to be above FL-LRAIC.
[9] Each SMP-operator develops its own model.
[10] Each SMP-operator develops its own model, only leased lines below 2Mbit/s are regulated.
[11] Voice telephony is not regulated (except for local telephony).
[12] ULL is not regulated.
[13] Sweden is currently undergoing a consultation process to determine the evolution of cost standards to be used, but has not defined yet which cost standard is to be implemented and the timescale.
[14] Separated accounts are prepared but not made public.
[15] Distribution refers to a technical adjustment in the LRAIC model that deals with the "Core" network common costs that result from the requirement to model sub-incremental costs at the level of costs components (the defined increment is "Core").

[16] Network elements are modelled according to the LRIC cost standard, whereas the retail activities are modelled using FDC. Since 1999, BT has developed LRAIC principles for retail activities although these have not been agreed with Oftel.
[17] See note 12 of table 4 on page 23.

### 3.2 Allocation of costs

In general Member States have opted for a top-down approach in the allocation of costs to products. However, Germany and Netherlands (for termination interconnection charges only) are setting their interconnection charges on basis of bottom-up models. Three Member States have implemented both approaches. The first column of table 7 shows which kind of model is eventually used to determine the interconnection charges.

According to Recommendation 98/322/EC, the level of costs not directly or indirectly allocated on basis of cost causation should not exceed 10%. However, the Recommendation does not specify what costs should be excluded or included in the total costs processed by the cost system. Therefore, depending of the scope of the cost base, the level of unattributable costs might vary significantly between models. For instance, a model, from which most overhead expense have been excluded, could allocate 99% of its costs based on causation, whereas another model including all the costs contained in the statutory accounts might have only 80% of attributable costs. The same logic applies to models that focus on certain products, such as interconnection, that would be better rated than a global model providing costs of all product and service categories.

The level of directly allocated costs is usually not disclosed, but when communicated vary from 12,5% to 97,65% of the costs.

Table 7 : Allocation of interconnection costs

| | Bottom-up/ top-down | % Direct costs | Unattributable cost % | Treatment Common costs |
|---|---|---|---|---|
| **B** | Top-down | nd | 4% | EPMU, number of FTE |
| **DK** | Top-down | nd | nd | nd |
| **D** | Bottom-up | nd | Not applicable[1] | EPMU |
| **EL** | Top-down | 12,5% | 18% | nd |
| **E** | Top-down | nd | 10% (maximum imposed) | nd |
| **F** | Both | nd | nd | EPMU |
| **IRL** | Both | nd | nd | EPMU |
| **I** | Top-down | 90% of network costs in 1998 | < 10% in 1998 | EPMU |
| **L** | No answer to survey | | | |
| **NL** | Terminating: bottom-up Other: top-down | nd | nd | nd |
| **A** | Both | 97,65% (top-down) | 1,25% (top-down) | nd |
| **P** | Top-down | 70% | 21% | nd |
| **FIN** | Various | Various | Various | Various |
| **S** | Top-down | nd | nd | nd |
| **UK** | Top-down | Nd | 1% | Various[2] |

EPMU: Equal proportional mark-up nd: not disclosed

[1] In a bottom-up model there are no unattributable costs; common costs are taken into account through a mark-up.
[2] Oftel implements several approaches when assessing the mark-up amount. EPMU and cost-causality methodologies as well as combinatorial tests are used.

In ten Member States the national regulatory authority sets the WACC to be used by the SMP-operators.
The Capital Assets Pricing Method is the preferred methodology.
In nine Member States the Beta and risk premium used as basis for the WACC computation are those of the sector[10].
The return on capital ranges from 8,75% to 17% depending on the Member State and the business considered. Indeed, under the CAPM approach, higher-risk mobile businesses have a higher cost of capital[11].

Table 8 : Weighted average cost of capital

| | Return on capital (Pre-tax) | Approach | Determined by | Sector versus market data |
|---|---|---|---|---|
| **B** | Originating:13,67%<br>Terminating:12,77% | CAPM WACC | NRA | Sector |
| **DK** | Not applicable[1] | Not applicable[1] | Not applicable[1] | Not applicable[1] |
| **D** | NRA :8,75%<br>SMP-operator:12,5 % | Balance-sheet based WACC | NRA | Not applicable[2] |
| **EL** | 13,12% | CAPM WACC | SMP-operator and approved by the NRA | National sector |
| **E** | 12,34% | CAPM WACC | NRA | Market |
| **F** | Interconnection:12%<br>Mobile:17%<br>ULL:10,4% | CAPM WACC | NRA | Sector |
| **IRL** | 12% | CAPM WACC | NRA | Sector |
| **I** | 13,5% | CAPM WACC | NRA | Sector |
| **L** | No answer to survey | | | |
| **NL** | Terminating:10,7%<br>Originating:12,3%<br>Price cap:10,8% | CAPM WACC | NRA | Sector |
| **A** | NRA:9,34%<br>SMP-operator:12% | CAPM WACC | NRA | Sector |
| **P** | SMP-operator:<br>13,31% | CAPM WACC | NRA | National sector |
| **FIN** | Various | Various | SMP-operator | Various |
| **S** | Fixed: 15%<br>Mobile: 15,02% | Fixed: Historic rate of return<br>Mobile: WACC | Fixed: Validated by NRA<br>Mobile: NRA | Not applicable[2] |
| **UK** | 13,5%[3] | CAPM WACC | NRA | National sector[4] |

The values presented in the table are the most recent.
WACC: weighted average cost of capital CAPM: Capital Asset Pricing Method
ULL: Unbundling of local loop related services

[10] Instead of the market (refer to paragraph 2.7 Cost of capital).
[11] The high investments made in recent years to deploy mobile networks and the higher competition compared to the fixed telephony market lead to an increased risk in the calculation of WACC for the mobile businesses. Furthermore, the rapid evolution of technologies imposes a shorter payback period, thus increase the risk of never achieving the expected returns.

[1] Cost of capital is included in a fixed mark-up of 12% and an interest rate set by Danish law
[2] Because of the methodology used to define the cost of the capital. However CAPM WACC is used for mobile termination charge; the beta value is derived from sector data.
[3] Under the new price regime
[4] Beta of BT Group (on London Stock Exchange) adjusted, market premium on London Stock Exchange.

### 3.3 Accounting separation

In Germany and Austria, no separated accounts are prepared. In Sweden, they are prepared but not made public.
Usually, in other Member States where accounting separation is performed, the accounting separation system and the cost models are merged into one. Partial separated accounts (revenues and costs and sometimes a measure of the capital employed) are either the result or the input for the costs of products.

Although the European Recommendations mention that separated accounts should be prepared using a current cost base, only three Member States comply. Five Member States still use only a full HCA cost base, whereas only one (Finland) sees some SMP-operators reassessing the capital expenditures at their current value using the Modern Equivalent Asset (MEA) approach. In the Netherlands and Greece a different cost basis is used to prepare separated accounts for each business. Finally, in Ireland three sets of accounts are prepared using in the first set historical costs, in the second set current costs with the FDC standard and in the third set current costs applied to the LRAIC standard.

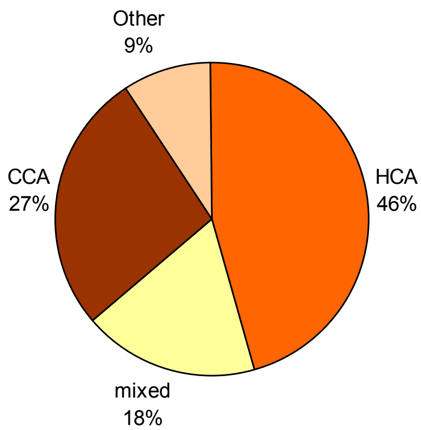



Figure 4 : Cost based used for preparing the separated accounts

When separated accounts are prepared they do not always include all elements described in the EU Directive and Recommendation. Transfer charges are identified and stated in only five Member States. The Netherlands is the only Member State that, whilst preparing separated accounts, does not provide a full Profit & Loss statement, as no revenues are included. Three Member States provide the Mean Capital Employed; it ensures sufficient visibility on the costs of each business. Indeed it is crucial to show information on the assets employed, because they generate the depreciations and determine the cost of capital.

Table 9 : Preparation of the separated accounts

| | Transfer charges | Costs | Revenues | Mean capital employed |
|---|---|---|---|---|
| **B** | No | Yes | Yes | No |
| **DK** | Yes | Yes | Yes | Yes |
| **D** | No | No | No | No |
| **EL** | No | Yes | Yes | nd |
| **E** | No | Yes | Yes | nd |
| **F** | Yes | Yes | Yes | nd |
| **IRL** | Yes | Yes | Yes | Yes |
| **I** | Yes | Yes | Yes | Yes |
| **L** | No answer to the survey | | | |
| **NL** | No | Yes | No | No |
| **A** | No | No | No | No |
| **P** | No | Yes | Yes | Yes |
| **FIN** | No | Yes | Yes | Yes |
| **S** | (No)[1] | (Yes)[1] | (Yes)[1] | (Yes)[1] |
| **UK** | Yes | Yes | Yes | Yes |

nd: not disclosed

[1] Separated accounts are prepared but not made public.

### 3.4 Tariff determination process

Since the European regulatory framework does not specify the concept of cost orientation, this term is interpreted quite differently in the fifteen Member States. Some Member States impose the strict definition of tariffs being equal to the unitary costs of the regulated product while a limited number of Member States regulate tariffs with the help of price caps.

Furthermore, national legislation and practice vary from one product category to another. The prices of interconnection products show a tendency to correspond to costs: price equals operating expenses plus depreciations and cost of capital[12] in eleven Member States. The prices of leased lines are also primarily subject to prices equalling costs. For voice telephony services the situation appears less homogenous, though a high proportion of Member States apply a non cost-based price cap, hence do not enforce cost orientation of tariffs; the same proportion requires that tariffs be set to the level of costs. Charges of local loop unbundling related services tend to correspond to costs; no Member State seems to favour the use of price caps.

[12] P = opex + dep + CC; Price equals operating expenses plus depreciation and cost of capital

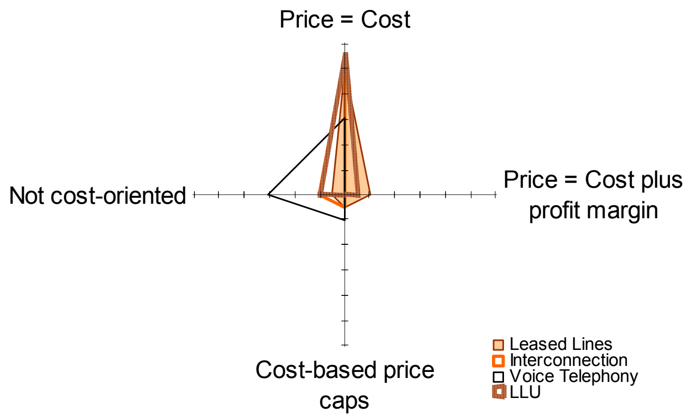



Figure 5 : Cost orientation of tariffs

Table 10 : Cost orientation of tariffs

| | Interconnection | Leased lines | Voice telephony | Unbundled local loop |
|---|---|---|---|---|
| **B** | P= opex+ dep+ CC | P= opex+ dep+ CC | Price cap[1] | Retail minus method |
| **DK** | P= (opex+ dep + interest charge) * 1,12 [2] or international benchmark | P= (opex+ dep + interest charge) * 1,12 [2] or international benchmark | Price cap | P= (opex+ dep + interest charge) * 1,12 [2] or international benchmark |
| **D** | International benchmark | P= opex+ dep+ CC | Price cap | P= opex+ dep+ CC |
| **EL** | (P= opex+ dep+ CC)[3] | P= opex+ dep+ CC | P= opex+ dep+ CC | nd. |
| **E** | P= opex+ dep+ CC | Price cap | Price cap or authorised prices | Industry workshops |
| **F** | P= opex+ dep+ CC | P= opex+ dep+ CC | P= opex+ dep+ CC | P= opex+ dep+ CC |
| **IRL** | P= opex+ dep+ CC | P= opex+ dep+ CC | Price cap | (P= opex+ dep+ CC)[4] |
| **I** | P= opex+ dep+ CC | P= opex+ dep+ CC[5] + margin | Price cap | P= opex+ dep+ CC |
| **L** | No answer to survey | | | |
| **NL** | P= opex+ dep+ CC | P= opex+ dep+ CC | Cost based price cap | P= opex+ dep+ CC |
| **A** | P= opex+ dep+ CC[6] | P= opex+ dep+ CC | P= opex+ dep+ CC | P= opex+ dep+ CC (at least, when NRA sets tariffs) |
| **P** | P= opex+ dep+ CC | P= opex+ dep+ CC | P= opex+ dep+ CC | P= opex+ dep+ CC |
| **FIN** | P= opex+ dep+ CC | P= opex+ dep+ CC[7] | P= opex+ dep+ CC[8] | P= opex+ dep+ CC |
| **S** | P= opex+ dep+ CC | P= opex+ dep+ CC | P= opex+ dep+ CC | P= opex+ dep+ CC |
| **UK** | Cost based price cap | Cost based Safeguard cap | Cost based Price cap | P= opex+ dep+ CC |

P: Price    Opex: operating costs    CC: Cost of capital    nd: not disclosed
Margin: margin on top of cost of capital

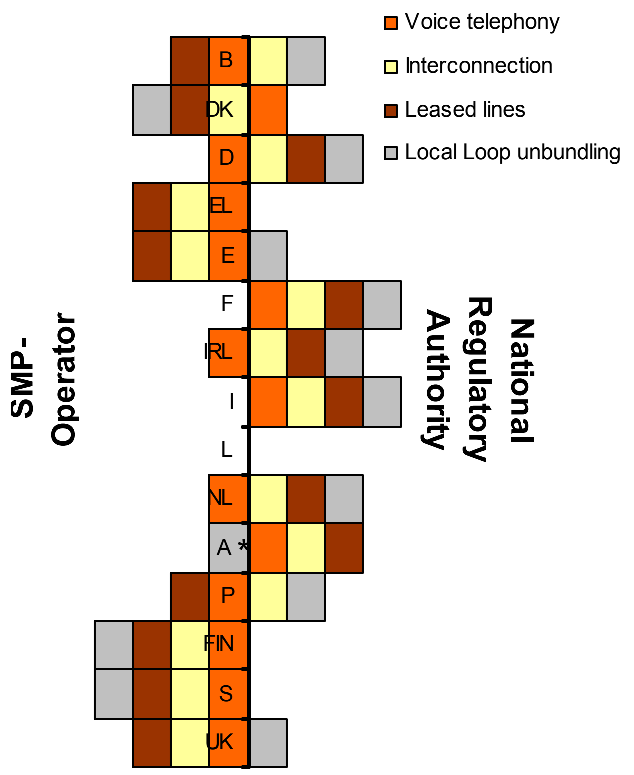
[1] However, when national traffic tariffs were adapted in 2000, cost information based on HCA were transmitted to IBPT/BIPT.

2 12% is a fixed rate set up in the Danish Law.
3 The first audit is currently in progress and conclusions about the new LRAIC model for interconnection are not yet available.
4 Eircom was considered by ODTR as not providing the relevant information, and proposing an offer that was incomplete and non compliant in several aspects. However, the normal process requires Eircom to provide cost oriented tariffs.
5 Cost of capital is only applied to capital employed for network components.
6 Interconnection charges set by the NRA are a weighted average between the outcome of the SMP's top-down model and the NRA's bottom-up model.
7 Only for the lines below 2Mbit/s since they are the only ones to be regulated.
8 Only for local voice since it is the only product of voice telephony, which is regulated.

Most SMP-operators are the owner of the tariff determination process for voice telephony and leased lines. It means that they are the initiators of the process and select the final level of prices. NRAs define guidelines, impose thresholds but grant the SMP-operators the flexibility to set tariffs within the product categories (interconnection, leased lines, voice telephony services and local loop services). However, for interconnection products and unbundled local loop, it is generally the opposite.

The figure 6 shows:

– if tariffs are determined by the NRA or at least controlled before their introduction on the market (right side) or,
– if the SMP set tariffs and is allowed to introduce them on the market without ex-ante control from the NRA (left side).




Note: Luxembourg did not respond, neither did Greece for LLU
* In case no agreement is reached by the industry, RTR sets the tariffs

Figure 6 : Authority to set the tariffs

It must be noted that NRA tend to intervene in the tariff determination process when they observe what they assess as irregularities in the procedure or that there is no agreement in the industry (e.g. Austria).

### 3.5 Control process

A key determinant of compliance with the costing principles published in European and national legislation is the existence of an efficient control process.

An increasing number of regulators mandate a third party to perform an independent audit of the separated accounts and cost models developed by the SMP-operators.

Although most Member States retain compliance statement on the accounts for 2000, some other cannot guarantee that the costs presented by the SMP-operators comply with the enforced legislation.

Only by first quarter 2002, Italy appointed the auditors to perform the independent review of the accounts for the period 1999 to 2001. Similarly, in France, the audit of interconnection costs is traditionally performed after more than a 12-month delay.

This issue is significant: the time-difference between the determination of the tariffs and the audit provides SMP-operators more freedom to set prices without ex-ante control. Cost reviews performed years later prevent early detection of abuses that could create unbalanced market conditions.

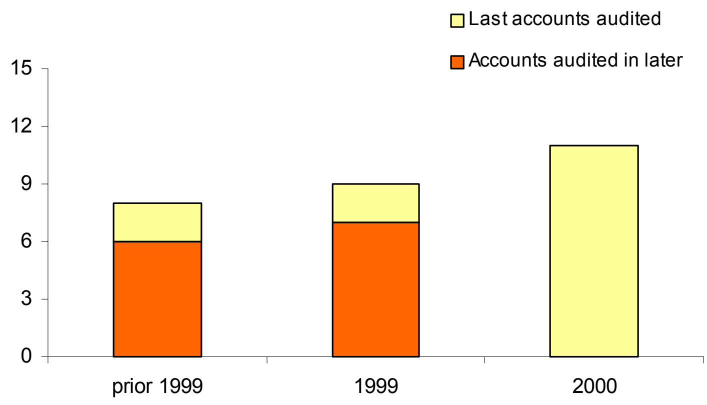



Figure 7 : Frequency of model review

Another issue linked to time can be illustrated by the case of France where the FL-CCA costs used by France to determine 2002 tariffs are based on 1999 accounts. This gap between the last audited accounts and the period for which tariffs are calculated mitigates the quality of the forecasts performed to generate the price propositions for 2002.

Table 11 : Audit process

| | Selection of auditors | Same auditors as for statutory audit | Model based on 1998 accounts | Model based on 1999 accounts | Model based on 2000 accounts |
|---|---|---|---|---|---|
| **B** | SMP-Operator[1] | No | Not Applicable (Yes[1]) | Not Applicable (No[1]) | Not Applicable (Yes[1]) |
| **DK** | SMP-Operator | Yes | Yes | Yes | Yes |
| **D** | NRA audits[2] | Not applicable | No[3] | No[3] | No[3] |
| **EL** | NRA | No | No | No | Yes |
| **E** | SMP-Operator and NRA if 2d audit | Yes | Yes | Yes | Yes |
| **F** | NRA | No | Yes | Yes | No |
| **IRL** | SMP-Operator | Yes | No | Yes | Yes |
| **I** | NRA | No | Yes | Pending | No |
| **L** | No answer to survey | | | | |
| **NL** | SMP-Operator | Yes | Yes | Yes | Yes |
| **A** | NRA audits[6] | Not applicable | No | Yes | No |
| **P** | NRA | No | Yes | Yes | Pending[4] |
| **FIN** | NRA audits | Not applicable | No (Yes[5]) | No (Yes[5]) | No (Yes[5]) |
| **S** | SMP-Operator | Yes | Yes | Yes | Yes |
| **UK** | SMP-Operator | Yes | Yes | Yes | Yes |

SMP-operator: operator selects and appoints the auditors
NRA: NRA selects and appoints the auditors
NRA audits: the NRA performs the audit

[1] No audit is mandated or even imposed by the Belgian NRA. However, the SMP mandates auditors; results of this audit were, for the first time in December 2001, communicated to the NRA.
[2] Audits only occur when new tariffs are proposed.
[3] Audits only occur when new tariffs are proposed and since the NRA can only access the SMP-operator's cost information during the 10 weeks of the tariffs submission procedure, optimal conditions for a full control are not possible.
[4] Results of the audit concerning the cost model and the separated accounts for the accounts 2000 are expected by the beginning of 2002.
[5] Sonera did proceed to a reconciliation audit
[6] Scope of this review only included methodology; volumes and figures are checked in individual dispute settlement procedures.

Audits are largely performed by external independent auditors. In half of the cases, the NRA performs additional control procedures. In these cases the reviews usually take the form of ongoing monitoring and validation of model improvements made by the SMP-operator. Three NRAs (RegTP, RTR and FICORA) perform all control procedures themselves in order to validate the cost accounting and accounting separation implemented by their respective SMP-operators.

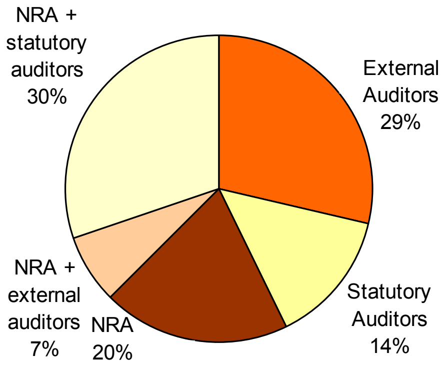



Figure 8 : Use of external auditors for model review

Reconciliation between the cost model and statutory accounts, separated accounts or the model of the NRA, is a key element of the audit. The reconciliation from the statutory accounts to the cost model is part of the review in all Member States but three. In Germany no audit takes place, as the SMP-operator has not obligation to model its costs. In the Netherlands and Finland such reconciliation is simply not performed.

Separated accounts are usually reconciled de facto with the cost model as they are often the output of one unique system.
Among the five Member States where both the NRA and the SMP-operator maintain a cost model[13], two (Netherlands and Portugal) do not perform the reconciliation. In practice such reconciliation happens between the top-down model of the SMP-operator and the bottom-up model of the NRA.

[13] Even though only one of those models is eventually used to determine interconnection charges.

Table 12 : Reconciliation between the cost model of the SMP-operator and other models or accounts.

| | Statutory accounts | Separated accounts | NRA model | Bottom-up/ top-down |
|---|---|---|---|---|
| **B** | Yes | No | No | No |
| **DK** | Yes | Yes | Not applicable[1] | Not applicable[1] |
| **D** | Not applicable[2] | Not applicable[3] | Not applicable[2] | Not applicable[2] |
| **EL** | Yes | Yes | Not applicable | Not applicable |
| **E** | Yes | Yes | Not applicable | Not applicable |
| **F** | Yes | Yes | Yes | Yes |
| **IRL** | Yes | Yes | Yes | Yes |
| **I** | Yes | Yes | Not applicable | Not applicable |
| **L** | No answer to survey | | | |
| **NL** | No | Yes | No | No |
| **A** | Yes | Not applicable[3] | Yes | Yes |
| **P** | Yes | Yes | No | No |
| **FIN** | Sonera: Yes<br>Others: No | No | No | No |
| **S** | Yes | (Yes)[5] | Not applicable | Not applicable |
| **UK** | Yes | Yes | Yes[4] | Yes[4] |

[1] But will be done in the future between the LRAIC models from the NRA and the SMP-operator.
[2] No regulatory cost model is developed by DTAG. As the cost documentation was only partially accepted and did not in all cases allow full verification of the incurred costs, a reconciliation with RegTP's own bottom-up was not possible, not the bottom-up / top down reconciliation.
[3] No separated accounts are prepared.
[4] When the bottom-up model is commissioned.
[5] Separated accounts are prepared but not made public.

The scope of the audits is usually comprehensive (i.e. methodology, accuracy and volumes), although several Member States perform only a very high level review for some parts of the model (Germany, Denmark and Finland). In Austria, Sweden and Finland audits exclude review of figures, volumes and methodology. Whenever separated accounts are prepared they are part of the scope of the audit.

Usually, the NRAs evaluate if the tariffs are actually cost orientated. France and UK are the only Member State where auditors are required to issue a formal statement confirming that interconnection charges are cost-based.

In all but one Member State (Germany), the most recent audit concluded positively[14]. However, one positive audit in two mentions the need to improve some parts of the model. In the German case, the NRA did not accept the cost information received from the SMP-operator during the ten weeks of the tariff submission procedure.

[14] For France, Italy and Austria the last audit was performed on accounts before 2000

Table 13 : Scope and result of the audit

| | Cost model | | | Accounting Separation | |
|---|---|---|---|---|---|
| | Methodology | Accuracy & completeness | Volumes | Separated accounts | Result of audit |
| **B** | (Yes[1]) | (Yes[1]) | (Yes[1]) | AS prepared by NRA | (OK[1]) |
| **DK** | Yes | Yes | Yes | Yes | OK |
| **D** | Not Applicable[2] | Not Applicable[2] | Not Applicable[2] | Not applicable[3] | Not applicable[2] |
| **EL** | Yes | Yes | Yes | Yes | Pending[4] |
| **E** | Yes | Yes | Yes | Yes | OK |
| **F** | Yes | Yes | Yes | Yes | OK (for 1999) |
| **IRL** | Yes | Yes | Yes | Yes | OK |
| **I** | Yes | Yes | Yes | Yes | OK (for 1998) |
| **L** | No answer to survey | | | | |
| **NL** | Yes | Yes | Yes | No | OK |
| **A** | Yes | No[5] | No[5] | No[3] | OK (for 1999) |
| **P** | Yes | Yes | Yes | Yes | OK |
| **FIN** | (Yes[6]) | (Yes[6]) | No | (Yes[6]) | OK |
| **S** | No | Yes | No | Not applicable[3] | OK |
| **UK** | Yes | Yes | Yes | Yes | OK |

[1] The audit mandated by the SMP is not imposed by the NRA; results of this audit were, for the first time in December 2001, communicated to the NRA.
[2] No regulatory cost model is developed by DTAG. DTAG only provides statutory cost accounting information, which are by essence audited.
[3] No separated accounts are prepared.
[4] Only some parts (voice telephony and retail leased lines) of the results of the first audit completed by the beginning of 2002 are currently available. No results concerning interconnection model are currently available. The results of the audit on voice telephony and retail leased lines models are positive.
[5] Only methodology is validated in the NRA's review, volumes and figures are checked in individual dispute settlement procedures.
[6] Audits of the sixty SMP-operators consist in a high level identification of the major inconsistencies.

### 3.6 Publicity

The survey indicates that the transparency principle is not well respected across Member States. Compliance statements are sometimes not published (Belgium, Spain and Finland) or with important delays (France, Italy and Austria). The detailed audit report[15] is not published in any member state and only Ireland and UK provide the actual costs or the separated accounts. Even the descriptions of the methodologies followed are not always issued (Denmark, Greece, Austria and Finland). In Denmark, a high level description

[15] Including detailed description of all issues and their materiality

of relevant costs that can be included and the allocation principles is however provided. Finally, worst of all, the process of tariff determination is unclear to most parties outside the SMP-operator and the NRA.

SMP-operators and NRAs justify this lack of visibility on the steps taken to generate cost-orientated prices mainly through confidentiality of commercial information. Obviously, no requirement to disclose highly sensitive information could be agreed upon by SMP-operators, however, without pertinent information on costs and methodologies it is impossible to guarantee cost-orientation and non-discrimination. A balanced solution, applied by some NRAs, is to set two levels of disclosure: methodologies, compliance statements (including a certification that tariffs are cost orientated) and NRAs positions are made public, whereas critical cost information is kept confidential by the NRA.

Table 14 : Publicity of cost information

| | Compliance statement | Audit final report | Methodology of model(s) | Separated accounts | Costs |
|---|---|---|---|---|---|
| **B** | No[1] | No | NRA's model | No | No |
| **DK** | Yes | No | No[10] | No[10] | No[10] |
| **D** | Yes | No | NRA's model | No | No |
| **EL** | (Yes[2]) | No | No | No | No |
| **E** | No[3] | No | SMP's model | No | (No[4]) |
| **F** | Yes(1999)[5] | No | NRA's model | No | No |
| **IRL** | Yes | No | NRA + SMP's models | Yes | Yes |
| **I** | Yes (1998)[6] | No | SMP's model | No | No |
| **L** | No answer to survey | | | | |
| **NL** | Yes | No | NRA + SMP's models | No | No |
| **A** | Yes(1999)[7] | No | SMP's model | No | No |
| **P** | Yes | No | SMP's model | No | No |
| **FIN** | No | No | No | No | No |
| **S** | Yes[8] | No | SMP's model | No | No |
| **UK** | Yes | No | NRA[9] + SMP's models | Yes | Yes |

[1] The model used to determine interconnection charges is maintained by the NRA, no audit is performed and no statement of compliance is published. No statement of compliance concerning the SMP's model for voice telephony or leased lines is made publicly available.
[2] The first audit is still in progress. Statements of compliance were already issued regarding voice telephony and leased lines but not yet concerning interconnection and unbundled local loop.
[3] CMT issues a Resolution containing the conclusions of the audit. Meanwhile this Resolution is not public and only some parts are made available for the alternative operators.
[4] However, the information for the interconnection products is made publicly available for the alternative operators.
[5] Statement of compliance about the 1999 accounts was issued in July 2001.
[6] Statement of compliance about the 1998 accounts was issued in October 2001.
[7] Statement of compliance about the 1999 accounts was issued in July 2001.
[8] The NRA includes in its annual report the conclusions of the audit performed by independent auditors.
[9] Whenever Oftel commissioned a model.
[10] Some information might be disclosed upon specific request

### 3.7 Mobile Operators with significant market powers

Most of the Member States have started preparing regulatory frameworks regarding the mobile operators with SMP on the interconnection market. In Germany, though no mobile operators have been notified as holding significant market power, the framework in place for the fixed SMP-operators is applicable to all potential mobile SMP-operators.

Most models are currently still at the stage of fully-distributed costing using historical costs. The two exceptions are the British NRA, which is the only having developed a LRAIC model using a CCA cost basis and Austria that asks mobile operators to use a high-level LRAIC cost structure.

Currently only Finland and Sweden did impose strict cost orientation of tariffs, while six other Member States established price cap systems or ceiling pricing.

Accounting separation is however, required only in Finland and Denmark.

Table 15 : Mobile SMP-operators

| | Existing framework | Cost base implemented | Cost standard implemented | Cost orientated prices | Accounting separation |
|---|---|---|---|---|---|
| **B** | Develop model | HCA | Top-down FDC | Price cap | Yes |
| **DK** | Provide BSAs | HCA | Top-down FDC | No | BSAs |
| **D** | Same as Fixed | Not applicable[1] | Not applicable[1] | Not applicable[1] | Not applicable[1] |
| **EL** | No | None | None | No | No |
| **E** | Same as fixed | HCA | Top-down FDC | No[2] | No |
| **F** | Costs reporting | SFR: HCA | SFR: Top-down FDC | Price cap | No |
| **IRL** | Cost-orientation[3] | HCA | Top-down FDC | No | No |
| **I** | Develop model[4] | HCA | Top-down FDC | Ceiling pricing | No |
| **L** | No answer to the survey | | | | |
| **NL** | None[5] | None[5] | None[5] | No[5] | No[5] |
| **A** | Same as fixed | HCA | Top-down LRAIC | Ceiling pricing | No |
| **P** | Develop a model | Not applicable[6] | Not applicable[6] | Ceiling pricing | No |
| **FIN** | Same as Fixed[7] | Various | Various | Yes[8] | Yes |
| **S** | Develop a model[4] | HCA | Top-down FDC | Yes[4] | No |
| **UK** | None | (CCA)[9] | (Bottom-up LRAIC)[9] | Cost based price caps[10] | No |

HCA historical cost accounting — CCA: Current cost accounting

FDC: Fully-Distributed Costs — LRAIC: Long-Run Incremental Costs

Ceiling pricing sets a maximal price at a given moment, whereas a price cap imposes a price decrease on several years

[1] No operator was designated as having a significant market power neither on the German interconnection market nor on the German mobile communications market.

[2] As models are not used yet, charges are not yet cost-oriented.
[3] Currently the legislation only states this principle without imposing detailed cost standards; the legislation is currently under development.
[4] Only terminating is regulated.
[5] Consultation is in progress.
[6] Currently, no mobile operator has been designated as having a significant market power on the interconnection market.
[7] But only for mobile to mobile.
[8] Price equals operational costs plus the cost of the capital
[9] The NRA has developed a model in order to control the tariffs but there is no obligation of cost-orientation for the tariffs.
[10] As Tariffs are currently subject to a soon to expire price control. Though Oftel proposed a continued cost based charge control, the mobile operators did not accept it.

### 3.8 Conclusion

Generally speaking, whereas a lot of Member States are currently not totally compliant with the EC Directives and Recommendations, most are presently working on improving the cost accounting models and cost-orientation of charges and tariffs.

Though the situation of each Member State is different, a general pattern can be observed. Generally the cost model of the SMP-operator is used as basis to set the charges and tariffs. It is audited either directly by the NRA or indirectly through independent experts.

However, the identity of the party taking the final decision to introduce a price onto the market is less clear. For voice telephony services a large majority of Member States entitle the SMP-operator to set the tariffs (according to the national legislation), a small majority do the same for leased lines and respectively six and four Member States allow their SMP-operator to set interconnection and LLU charges without ex-ante review.

Incomplete scope of audits and missing reconciliation cast uncertainty on the cost figures used to determine prices. Finally, transparency of information is far from being achieved across the EU.

# 4 Feedback from the industry

In the following chapter we present the key concerns issued by NRAs or the SMP-operators.

When explaining the difficulties of implementing the European Directives and Recommendations, the NRAs put the following six issues forward:

- Lack of clarity in the definition of concepts mentioned in the EU Directives and Recommendations;
- Not enough involvement of NRAs in the development of the EU Directives and Recommendations;
- Conflicts between Telecom legislation and national confidentiality laws
- NRAs are not empowered enough to enforce the implementation of the EU Directives and Recommendations;
- NRAs are confronted with a shortage in experienced resources to deal with econometric and technical issues that become more and more complex; and
- Scope and transparency of assumptions of European Commission tariff benchmarks

### *4.1.1 Clarity of Directives and Recommendations*

The most frequently mentioned issue is the lack of clarity of the Directives and Recommendations issued by the European Commission. Critical concepts can be interpreted differently, generating endless discussion and disputes between operators with significant market power, NRAs and other licensed operators. Member States apply concepts such as "cost orientation", "transparency" or "efficient operator" in very different manners. Technical concepts such as CCA, LRAIC, OCM/FCM, parameters of WACC and depreciation methods are also subject to multiple interpretations.

### *4.1.2 Involvement of NRA in the development of the EU Directives and Recommendations*

Some national regulators have the feeling that they are not sufficiently involved in the development of the EU Directives and Recommendations. Therefore, the European regulatory framework does not sufficiently take into account historical particularities of their national market when defining the guidelines to be implemented. It is particularly applicable to those markets that were industry structure is significantly different (such as Finland) from other Member States.

### *4.1.3 Conflicts between Telecom legislation and national confidentiality laws*

The European Telecom Directives and Recommendations sometimes conflict with current national legislation with respect to Commercial Confidentiality. Indeed, in some Member States, the national legislation is too restrictive on disclosure of business-related information to enable a full control of cost orientation and to ensure transparency towards the market. National regulators do not always have access to all information required to assess the proper implementation of accounting separation, cost accounting and hence cost orientation of tariffs.

*4.1.4 NRAs are not empowered enough to enforce the implementation of the EU Directives and Recommendations*

An important issue is the difficult relationships with the SMP-operators. NRAs are confronted with delays, missed deadlines and obfuscation by some SMP-operators. NRAs often do not have the legal power required to fulfil their mission and to cope with information asymmetry. Consequently, decisions and recommendations are not applied as they should be.

The difficult access to pertinent data from the SMP-operators is a corollary of a lack of power. Without appropriate information and view on the cost models transparency of costs and tariffs cannot be guaranteed.

*4.1.5 NRAs are confronted with a shortage in experienced resources to face issues that become more and more complex*

NRAs complain about a lack of resources and, especially, the difficulty of recruiting appropriately skilled professional expertise. NRAs' cost accounting and accounting separation teams have less FTE resources on average than the operators have at their disposal for regulatory modelling issues. Additionally, the sources of information are mainly controlled by the SMP-operators.

*4.1.6 Scope and publicity of assumptions of European Commission tariff benchmarks*

Benchmarks of tariffs published by the European Commission have some deficiencies that cause problems to NRAs. Those deficiencies can be aggregated into four categories:

- The scope of products included in the benchmarks is too limited (e.g. only 2 types of leased lines covered),
- For a given product, the benchmark sometimes does not provide all the components of the tariff (e.g. service set-up tariffs are not covered for some products),
- Some benchmarks does not provide exhaustive explanations on the assumptions taken for the tariff mentioned (e.g. level of SLA associated to the service),
- Structural cost differences exist between Member States (e.g. cost of labour, network topology linked to population density, etc) Those differences are not measured nor highlighted in the benchmarks.

Those four deficiencies lead in some Member States to endless discussions between regulators and operators. In many Member States, both SMP operators and alternative carriers try to take advantage of the deficiencies to justify their desired or implemented price positioning.

# 5 Conclusion

Only a very small number of Member States follows most of the European Commission Directives and Recommendations on cost accounting and accounting separation. However, many Member States are working on achieving greater compliance.

As European Commission Directives and Recommendations leave room for interpretation, their implementation vary significantly from one Member State to another.

SMP-operator cost models are generally used as the basis on which to set the charges and tariffs. In the majority of cases, the interconnection model uses a form of FL-CCA as cost base. The cost standard used is equally split between FDC and LRAIC. For leased lines and voice telephony, FDC HCA models are implemented in the vast majority of Member States.

Cost accounting methodologies (depreciation periods, excluded costs, capitalised costs) generally differ significantly from one Member State to another.

The party taking the final decision on introducing a price in the market also varies greatly from one Member State to another. Whereas for voice telephony services a large majority of Member States entitle the SMP-operator to set the tariffs (according to national legislation), a small majority do the same for leased lines and several Member States allow their SMP-operator to set interconnection and LLU charges.

Incomplete scope of audits and missing reconciliation cast uncertainty on the cost figures used to determine prices. Finally, transparency of information is far from being achieved across the EU.

The European Commission can enhance its regulatory framework by achieving more clarity on several concepts and recommending a harmonised set of cost accounting rules.

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# Appendix I: Questionnaires templates

Questionnaire template for NRA

**Section 1 - NRA's position on cost accounting models**
*The answers to these questions should enable us to understand your position on the main issues of cost accounting (in the context of cost orientation of Interconnection, Leased Lines and Voice telephony products).*
***IMPORTANT : If your position is different for one of these 3 categories of products, please specify.***

***1A- Recommendations on cost base***

1A.1 Which cost base do you recommend to use ?

- ☐ Historic
- ☐ Current
- ☐ Forward-looking
- ☐ Other (please specify)
- ☐ No opinion

| *Comments:* |
| --- |
| |

1A.2 Have you issued recommendation(s) to exclude costs that are not directly related to products ?

- ☐ Yes
- ☐ No

If yes, which of the following costs do you reject from the acceptable costs basis?

- ☐ Provisions for losses in value of fixed assets
- ☐ Work-in-progress assets depreciation
- ☐ Change in inventory
- ☐ Contingency and loss provisions
- ☐ Commercial costs
- ☐ New products development costs
- ☐ Personnel profit-sharing plan
- ☐ Pension funds cost related to retired employees
- ☐ Other pension funds costs
- ☐ Cost of capital
- ☐ Provisions for losses on current assets
- ☐ Interconnection costs
- ☐ Amortization of bond discounts & financial provisions
- ☐ Foreign exchange losses
- ☐ Losses on sales of short-term investments
- ☐ Interest expenses
- ☐ Other financial costs
- ☐ Holding costs related to M&A
- ☐ Other holding costs
- ☐ Income tax expenses
- ☐ Other taxes
- ☐ Legal costs
- ☐ Extraordinary losses

1A.3 Have you issued recommendations on depreciation methods to be used for the assets' amortization ?

☐ Yes
☐ No

| |
|---|
| *If yes, could you describe the methods you recommended (straight line, double declining, …), and if applicable, give your recommendation in terms of depreciation life time for the main categories of assets* |

1A.4- Did you issue recommendations on costs capitalization ?

☐ Yes
☐ No

| |
|---|
| *If no, go to question 1.6; If yes, please specify here your recommendations* |

1A.5 Do you recommend to capitalize these costs (write yes, no or partly). If "partly" please explain the segmentation.

| | |
|---|---|
| Computer software and program | |
| R&D | |
| New business development | |
| Own constructions | |
| Repairs and maintenance | |
| Successful M&A | |
| Failed M&A | |

1A.6 Did you issue recommendation(s) on the WACC ?

☐ Yes
☐ No

| |
|---|
| *If yes, please write here these recommendations . In particular, give the WACC you recommended for year 2001 tariffs and the method you used to determine it.* |

1A.7 Did you undertake a public consultation with market players to set-up the methodology and criteria for the evaluation of network assets at current value ?

☐ Yes
☐ No

| |
|---|
| *If yes, when was that, what were the main conclusions of this consultation and what was implemented by the SMP?* |

1A.8 Did you impose a deadline for the implementation of a "Current Cost Approach" model ?

☐ Yes (please specify when)
☐ No

| |
|---|
| *Comments :* |

***1B- Recommendation on allocation method***

1B-1 Which allocation method do you recommend ?

☐ Fully-distributed costs
☐ Long-run average incremental costs
☐ Marginal costs
☐ Stand alone costs
☐ Embedded direct costs
☐ Other (please specify)

| |
|---|
| *Comments :* |

1B.2 Did you issue recommendations on the development of a bottom-up model ?

☐ Yes
☐ No

| *Comments :* |
|---|
| |

1B.3 Did you isssue recommendations on the allocation keys ?

☐ Yes
☐ No

If yes, what allocation keys do you recommend for the following costs :
*(e.g. : local loop equipment allocated to the "subscriptions products" with the key "number of subscriptions").*

| | Allocations keys |
|---|---|
| **Network costs** | |
| Civil work - Ducts | |
| Local loop equipment | |
| Cables | |
| Switches (split access/traffic) | |
| Transmission systems | |
| Create and develop plant | |
| Network management and administration | |
| Network maintenance | |
| Others (if not specified in the list) | |
| **Commercial costs** | |
| Development of products | |
| Marketing and advertising | |
| Sales | |
| Billing | |
| Receivables | |
| Operation, information and customer care services management | |
| Bad debts | |
| Others (if not specified in the list) | |
| **Other costs** | |
| Buildings | |
| Training | |
| Vehicles | |
| Software development | |
| Software maintenance | |
| Computer services | |
| Stock and distribution management | |
| Procurement management | |
| Human resources | |
| Protection and security on installations | |
| Corporate management | |
| Others (if not specify in the list) | |

*Comments :*

1B.4 Do you accept the use of the allocation key "revenues" ?

- ☐ Yes
- ☐ No
- ☐ No opinion on this matter

*If yes, please specify for which costs you accept this key*

1B.5 Did you recommend a minimum % of total costs that should directly be allocated on products (without a first allocation on activities) ?

- ☐ Yes
- ☐ No

Which % ?

*Comments :*

1B.6 Did you undertake a public consultation with market players on the adoption of sound allocation methods and on the specific treatment to be given to unattribuable costs ?

- ☐ Yes (please specify when)
- ☐ No

*If yes, what were the main conclusions of this consultation and what did you decide in terms of treatment to be given to unattribuable costs?*

1B.7 Do you set a limit to the % of unattribuable costs?

- ☐ Yes
- ☐ No

Which % ?

*Comments :*

1B.8 Did you impose a deadline for the implementation of a "LRAIC" model?

☐ Yes (please specify when)
☐ No

| *Comments :* |
|---|
| |

### *1C- Recommendation on mobile SMPs*

1C.1 Did you take any specific measures (regarding costing model and accounting separation) for the mobile SMPs?

☐ Yes
☐ No

If yes, could you answer briefly the following questions :

| | |
|---|---|
| Date of application of these measures : | |
| Names of the operators subject to these measures : | |
| Cost base used (cf. 1A.1) | |
| Allocation method used (cf. 1B.1) | |
| Services to which these measures apply : | |

| *Comments* |
|---|
| |

**Section 2- NRA's controls on the SMP's cost accounting models**
*(i.e. control on the models used by the SMP to determine the costs of interconnection, leased lines, voice telephony products and to establish the regulatory separated accounts)*

2.1 Was this model audited by independent experts :

☐ Yes (please specify the name of the firm)
☐ No

| *Comments :* |
|---|
| |

2.2 These experts were appointed by :

☐ yourself
☐ the SMP
☐ the Treasury Minister
☐ other (please specify)

| *Comments :* |
|---|
| |

2.3 On what accounts was the model audited ?

- ☐ 1998 accounts
- ☐ 1999 accounts
- ☐ 2000 accounts
- ☐ Other (please specify)

| *Comments :* |
|---|

2.4 Scope of the control included :

a- review of the relevance of the methodology
- ☐ Yes
- ☐ No

b- accuracy and completeness of the accounts
- ☐ Yes
- ☐ No

c- review of the volumes
- ☐ Yes
- ☐ No

| *Comments :* |
|---|

2.5 Approximation of the number of man day spent by the auditors on this model :

- ☐ Less than 50
- ☐ 50 to 100
- ☐ 100 to 200
- ☐ More than 200

| *Comments :* |
|---|

2.6 What documents have been issued by the firm that performed the control :
*(please provide a copy of these documents)*

☐ Final reports
☐ Statement concerning compliance
☐ Other (please specify)

| *Comments :* |
|---|

2.7 What were the main conclusions of these controls :

☐ The model is 100% relevant
☐ The model is  relevant, except a few points
☐ The model is not relevant
☐ Other (please specify)

| *Comments :* |
|---|

2.8 Independently from the external expert control, do you - as NRA - also audit the model ?

☐ Yes (please specify the scope of these audits and their frequency)
☐ No

| *Comments:* |
|---|

*The following questions deal with the control performed on the model, by you or by the independent expert*

2.9 If efficiency factors are applied to the costs, do you check that they are representative of industry standards?

☐ Yes (please specify)
☐ No
☐ Not applicable

| *If yes, how do you check it?* |
|---|

2.10 Did you ensure that unattributable costs are clearly identified in a specific account?

- ☐ Yes
- ☐ No

2.11 If the SMP has a bottom-up model, did you check that it was reconciled with the top-down one?
*(If yes, could you provide us a copy of this reconciliation and explain the main differences?)*

- ☐ Yes
- ☐ No

**Section 3- NRA's own cost accounting model(s)**

3.1 Did you implement your own cost model?

- ☐ Yes
- ☐ No

If yes, please answer following questions. If no, go directly to section 4

| |
|---|
| *Please specify on which products (leased lines, interconnection, voice telephony). If you have several models, please specify and answer section 3 for each model (you can do a copy of the file if needed)* |

3.2 For the determination of interconnection, voice and leased line products, do you use

- ☐ your own model(s) only
- ☐ the SMPs' model(s) only
- ☐ both model(s)
- ☐ other (please specify)

| |
|---|
| *Comments* |

3.3 If you use both model, do you reconciliate them

- ☐ Yes
- ☐ No

| |
|---|
| *Please explain the eventual difficulty you meet to reconciliate your model with the SMP's model* |

3.4. Which cost base do you use in your model ?

- ☐ Historic
- ☐ Current
- ☐ Forward-looking
- ☐ Other (please specify)
- ☐ No opinion

| *Comments:* |
|---|
| |

3.5. In your model, do you exclude some costs that are not directly related to products ?

- ☐ Yes
- ☐ No

If yes, which of the following costs do you exclude ?

- ☐ Provisions for losses in value of fixed assets
- ☐ Work-in-progress assets depreciation
- ☐ Change in inventory
- ☐ Contingency and loss provisions
- ☐ Commercial costs
- ☐ New products development costs
- ☐ Personnel profit-sharing plan
- ☐ Pension funds cost related to retired employees
- ☐ Other pension funds costs
- ☐ Cost of capital
- ☐ Provisions for losses on current assets
- ☐ Interconnection costs
- ☐ Amortization of bond discounts & financial provisions
- ☐ Foreign exchange losses
- ☐ Losses on sales of short-term investments
- ☐ Interest expenses
- ☐ Other financial costs
- ☐ Holding costs related to M&A
- ☐ Other holding costs
- ☐ Income tax expenses
- ☐ Other taxes
- ☐ Legal costs
- ☐ Extraordinary losses

3.6. Do you use in your model other depreciation rules than the ones used by the SMP in his model ?

- ☐ Yes
- ☐ No

| *If yes, please describe the differences and their justification* |
|---|
| |

3.7. Do you use in your model other costs capitalization rules than the ones used by the SMP in his model ?

- ☐ Yes
- ☐ No

| *If yes, please describe the differences and their justification* |
|---|
| |

3.8 If you include a WACC in your model, please give following figures for last year available :

| | | |
|---|---|---|
| Year | | |
| Beta | | (%) |
| Risk Premium | | (%) |
| WACC | | (%) |
| Cost of debt | | (%) |

| |
|---|
| *Comments:* |

3.9 Does the WACC figure provided in 3.8 differ from the SMP model WACC for the same year ?

☐ Yes
☐ No

| |
|---|
| *If yes, please describe the differences and their justification* |

3.10 Please answer the following questions describing the granularity of your model

| | |
|---|---|
| Number of cost pools | |
| Number of activities | |
| Number of products | |
| Number of drivers | |
| % of the cost directly allocated from cost pools to products | |
| % of the cost indirectly allocated to products (trough activities) | |

| |
|---|
| *Comments:* |

3.11 Which allocation method does your model use ?

☐ Fully-distributed costs
☐ Long-run average incremental costs
☐ Marginal costs
☐ Stand alone costs
☐ Embedded direct costs
☐ Other (please specify)

| |
|---|
| *Comments :* |

3.12 Is your model top-down or bottom-up ?

- [ ] Top-down
- [ ] Bottom-up

3.13 Which is the % of unattribuable costs in your last year model ?

| |
|---|
| |

| |
|---|
| *Comments :* |

3.14 What are the main allocation keys used in your model(s)
*(e.g. : local loop equipment allocated with the key "number of subscriptions").*

| | Allocations keys |
|---|---|
| **Network costs** | |
| Civil work - Ducts | |
| Local loop equipment | |
| Cables | |
| Switches (split access/traffic) | |
| Transmission systems | |
| Create and develop plant | |
| Network management and administration | |
| Network maintenance | |
| Others (if not specified in the list) | |
| **Commercial costs** | |
| Development of products | |
| Marketing and advertising | |
| Sales | |
| Billing | |
| Receivables | |
| Operation, information and customer care services management | |
| Bad debts | |
| Others (if not specified in the list) | |
| **Other costs** | |
| Buildings | |
| Training | |
| Vehicles | |
| Software development | |
| Software maintenance | |
| Computer services | |
| Stock and distribution management | |
| Procurement management | |
| Human resources | |
| Protection and security on installations | |
| Corporate management | |
| Others (if not specify in the list) | |

| |
|---|
| *Comments :* |

**Section 4- Relationship with tariffs**
*Your answer will enable us to understand how the cost model (s) are used for tariffs determination.*
*It is therefore very important that you answer this section.*

4.1 In what way do you use the outputs of the cost models for the tariffs determination?

- ☐ Tariffs correspond to the unit costs determined by the model
- ☐ Other (please specify)

| *Comments :* |
|---|
| |

4.2 For interconnection tariffs, do you use "best practices" as provided in the recommendation of 8/1/1998 for interconnection tariffs?

- ☐ Yes (specify how you use them)
- ☐ No

| *Comments:* |
|---|
| |

4.3 For the 15 biggest (in terms of revenues) interconnection, leased lines and voice telephony products, please fulfil the following sheet :

| | Unit Cost per NRA's model* | Unit Cost per SMP model | Tariff per unit | Comments |
|---|---|---|---|---|
| | (in Euros) | | | |
| Product 1 | | | | |
| Product 2 | | | | |
| Product 3 | | | | |
| Product 4 | | | | |
| Product 5 | | | | |
| Product 6 | | | | |
| Product 7 | | | | |
| Product 8 | | | | |
| Product 9 | | | | |
| Product 10 | | | | |
| Product 11 | | | | |
| Product 12 | | | | |
| Product 13 | | | | |
| Product 14 | | | | |
| Product 15 | | | | |

* if applicable

| *Comments :* |
|---|

**Section 5- Specifics questions on accounting separation**

*Answers to the following questions should enable us to understand the main features of the way the separated accounts are prepared.*

5.1 Did you make recommendations on the way the operator should prepare the regulatory separated accounts

☐ Yes
☐ No (explain why)

| *Please give a description of these recommendations :* |
|---|

5.2 Do you check that regulatory separated accounts and statutory accounts are reconciled?

☐ Yes, quarterly
☐ Yes, yearly
☐ No (explain why)
☐ Partly (please specify)

| *Comments :* |
|---|
| |

5.3 Do you check that regulatory separated accounts and the other cost models described in the previous sections are reconciled?

☐ Yes, quarterly
☐ Yes, yearly
☐ No (explain why)
☐ Partly (please specify)

| *Please specify which of the models described in the previous sections can be reconciled with the regulatory accounts* |
|---|
| |

5.4 How do you ensure that charges for services provided externally are consistent with charges for similar services provided internally?

| *Comments:* |
|---|
| |

5.5 Were the separated regulatory accounts audited by independent experts :

☐ Yes (please specify the name of the firm)
☐ No

| *Comments:* |
|---|
| |

5.6 These experts were appointed by :

- ☐ yourself
- ☐ the NRA
- ☐ the Treasury Minister
- ☐ other (please specify)

| *Comments :* |
|---|
| |

5.7 On what accounts was the model audited :

- ☐ 1998 accounts
- ☐ 1999 accounts
- ☐ 2000 accounts
- ☐ Other (please specify)

| *Comments :* |
|---|
| |

5.8 Scope of the control included :

a- review of the relevance of the methodology
- ☐ Yes
- ☐ No

b- accuracy and completeness of the accounts
- ☐ Yes
- ☐ No

c- review of the volumes
- ☐ Yes
- ☐ No

| *Comments:* |
|---|
| |

5.9 What documents have been issued by the firm that performed the control on accounting separation :
*(please provide a copy of these documents)*

- ☐ Final reports
- ☐ Statement concerning compliance
- ☐ Other (please specify)

*Comments:*

5.10 What were the main conclusions of these controls on accounting separation :

- ☐ The model is 100% relevant
- ☐ The model is relevant, except a few points
- ☐ The model is not relevant
- ☐ Other (please specify)

*Comments:*

**Section 6- Other questions**

6.1 On a yearly average, how many FTE in your organization work on cost accounting and accounting separation?

| | Internal resources | Consultants |
|---|---|---|
| Engineers | | |
| Costing specialists | | |
| Regulatory lawyers | | |
| Other* | | |
| Other* | | |
| Other* | | |

*please specify

*Comments :*

6.2 What is your Budget in 2001 to control the SMPs on cost accounting and accounting separation issues (in Euros)?

€

6.3 What main difficulties did you meet on carrying out your monitoring activities?
*(e.g. difficulties of communication with the SMP, lack of budget, …)*

| |
|---|
| Difficulty 1 |
| Difficulty 2 |
| Difficulty 3 |

| |
|---|
| *Comments:* |

6.4 What suggestions do you have for the future to carry out your monitoring activities as good as possible?

| |
|---|
| Suggestion 1 |
| Suggestion 2 |
| Suggestion 3 |

| |
|---|
| *Comments:* |

6.5 What part of the model is publicly available?
*(please provide us with a copy of the document)*

- ☐ The methodology
- ☐ The figures
- ☐ The margin by product
- ☐ The main conclusions of the auditors about the model
- ☐ The final report of the auditors
- ☐ The NRA position on the cost model

| |
|---|
| *Comments :* |

6.6 Do you organize meetings with the SMPs and/or with the other operators to define rules for cost accounting .
and accounting separation?

- ☐ Yes (specify)
- ☐ No

| |
|---|
| *Please specify here the main subjects covered* |

6.7 Did you write texts (others than directive transpositions) to give rules or advises to the SMPs in terms of cost accounting models and accounting separation? (If yes, please provide us with a copy of the texts)

| |
|---|
| *Please list here the reference of the texts* |

6.8 Were there some official complaints to the NRA regarding cost accounting models or accounting separation?

☐
☐

| |
|---|
| *If yes, what were the main points of complaints? How did they end-up? Please provide us with the information you have on these conflicts.* |

**Section 1 - Measures taken by your NRA**

1.1 Did your NRA impose you specific measures about cost accounting or accounting separation?

☐ Yes
☐ No *If no, go directly to section 2*

1.2 Do these measures recommend/impose you to

☐ Develop a cost model
☐ Establish separated accounts
☐ Other (please specify)

Comments:

1.3 To which services/products do the cost accounting apply?
Please specify the level of granularity of the products/services considered.

Comments:

1.4 What allocation methodology is recommended/imposed by the NRA for the cost model?

☐ Fully-distributed costs
☐ Long-run average incremental costs
☐ Marginal costs
☐ Stand alone costs
☐ Embedded direct costs

Comments:

1.5 What cost base is recommended/imposed by the NRA for the cost model?

☐ Historic
☐ Current
☐ Forward-looking

Comments:

1.6 What are the main services/products categories recommended/imposed by the NRA to be represented in the separated accounts?

Comments:

1.7 On what cost base are separated accounts recommended/imposed by the NRA to be designed?

- ☐ Historic
- ☐ Current
- ☐ Forward-looking
- ☐ No recommendation

Comments:

1.8 What is/was the date of application for these measures?

1.9 Which legal value do these measures have?

- ☐ Obligation
- ☐ Recommendation
- ☐ Other (then please specify)

Comments:

1.10 Is there any other mobile operator (that is non-SMP) subject to these measures in your country?

Comments:

**Section 2 - Cost accounting model and separated accounts**

2.1 Did you develop a cost accounting model?

- ☐ Yes
- ☐ No (please specify if you inted to do it, when and which characteristics will have your model)

Comments:

2.2 This model is used for :

- ☐ Regulatory purposes only
- ☐ Regulatory purposes and internal use (product management,...)

Comments:

2.3 When was this model first developed?

2.4 Which service/product lines are concerned with this model?
Please specify the level of granularity of the services/products considered.

Comments:

2.5 Is it a top-down or a bottom-up model?

- ☐ Top-down
- ☐ Bottom-up

Comments:

2.6 What is the cost base used?

- ☐ Historic
- ☐ Current
- ☐ Forward-looking (forecasts)

| Comments: |
|---|
| |

2.7 What is the cost allocation method used?

- ☐ Fully-distributed costs
- ☐ Long-run average incremental costs
- ☐ Marginal costs
- ☐ Stand alone costs
- ☐ Embedded direct costs

| Comments: |
|---|
| |

2.8 Do you establish regulatory separated accounts (profit and loss and balance sheet)?
*(if yes, please provide the separated P&L and balance sheet).*

- ☐ Yes
- ☐ No (explain why)

| *Please give a summary of the approach you use to ensure accounting separation :* |
|---|
| |

2.9 Into what activities are your separated accounts structured?

| Comments: |
|---|
| |

2.10 Explain how costs are related to tariff determination.

| Comments: |
|---|
| |

**Section 3 - Control on your cost accounting model and separated accounts and publicity**

3.1 Were your model and your separated accounts audited/controlled by

- ☐ The NRA itself
- ☐ Yourself
- ☐ Independent auditors

| Comments: |
|---|
| |

3.2 If independent auditors have audited your model and your separated accounts, were they appointed by

- ☐ yourself
- ☐ the NRA

| Comments: |
|---|
| |

3.3 What was the scope of the control?

| Comments: |
|---|
| |

3.4 What documents have been issued at the end of the control :
*(please provide a copy of these documents)*

- ☐ Final reports
- ☐ Main conslusions of the auditors
- ☐ Other (please specify)

| Comments: |
|---|
| |

3.5 What part of the model is publicly available?
*(please provide us with a copy of the document)*

- ☐ The methodology
- ☐ The figures
- ☐ The margin by product
- ☐ The main conclusions of the control of the model
- ☐ The final report of the auditors
- ☐ The NRA position on the cost model

| Comments: |
|---|
| |

**Preliminary questions**

1. On yearly average, how many Full Time Equivalents in your organization support the management of the regulatory cost model(s)?

| | Internal resources | Consultants | |
|---|---|---|---|
| Engineers | | | (FTE) |
| Costing specialists | | | (FTE) |
| Regulatory lawyers | | | (FTE) |
| Other* | | | (FTE) |
| Other* | | | (FTE) |
| Other* | | | (FTE) |

*please specify

*Comments :*

2 In the context of tariffs' cost orientation, how many different cost model(s) do you use to determine the costs of interconnection, leased lines, voice telephony products and to establish the separated accounts?

- ☐ Different models for interconnection, leased lines, voice telephony and accounting separation
- ☐ The same model for the three products and for accounting separation
- ☐ Other (please specify)

*Comments : (if you have different models, please specify if they are reconciled)*

*Please answer section 1 to 6 for each cost model you use to determine the costs of interconnection, leased lines, voice telephony products and to establish the regulatory separated accounts.*
*(if you have several models, please make copies of the file)*

**Section1- General questions on the model**

*Answers to the following questions should enable us to understand the scope of the model.*

1.1 This model is used to determine :
*(please send us also the list of the products of this model)*

- ☐ the costs of interconnection traffic products
- ☐ the costs of the other interconnection products
- ☐ the costs of leased lines products
- ☐ the costs of voice telephony products
- ☐ the regulatory separated accounts
- ☐ Other (please specify)

| *Comments :* |
|---|
| |

1.2 This model is used for :

- ☐ Regulatory purposes only
- ☐ Regulatory purposes and internal use (product management,...)

| *Comments :* |
|---|
| |

1.3 When was this model first developed?

| |
|---|
| |

1.4 The model is reconciled with the statutory accounts (General Ledger) :

- ☐ Monthly
- ☐ Quarterly
- ☐ Yearly
- ☐ No
- ☐ Partly (please specify)
- ☐ Other (please specify)

| *Comments* |
|---|
| |

**Section 2- Definition of the costs included in the model**
*Answers to the following questions should enable us to understand the nature of the costs included in the model and to identify the costs excluded from the model.*

2.1 What is the source of the costs and of the revenues included in the model?

- ☐ General ledger
- ☐ Analytical/management accounts
- ☐ Other (specify)

*Comments : (Please describe here the source(s) included in the model)*

2.2 What is the cost base used?

- ☐ Historic
- ☐ Current
- ☐ Forward-looking
- ☐ Other (please specify)

*Comments : (if you have not implemented a current or a forward looking model, please specify here when it will be done)*

2.3 Which of the following costs are excluded from the model?
*(if some are only partly excluded, please specify)*

- ☐ Provisions for losses in value of fixed assets
- ☐ Work-in-progress assets depreciation
- ☐ Change in inventory
- ☐ Contingency and loss provisions
- ☐ Commercial costs
- ☐ New products development costs
- ☐ Personnel profit-sharing plan
- ☐ Pension funds cost related to retired employees
- ☐ Other pension funds costs
- ☐ Cost of capital
- ☐ Provisions for losses on current assets
- ☐ Interconnection costs
- ☐ Amortization of bond discounts & financial provisions
- ☐ Foreign exchange losses
- ☐ Losses on sales of short-term investments
- ☐ Interest expenses
- ☐ Other financial costs
- ☐ Holding costs related to M&A
- ☐ Other holding costs
- ☐ Income tax expenses
- ☐ Other taxes
- ☐ Legal costs
- ☐ Extraordinary losses

*Comments :*

2.4 Do you apply efficiency factors to the costs?

- ☐ Yes (please specify)
- ☐ No

*If yes, please specify which efficiency factors you apply and illustrate the methodologies used :*

**Section 3- Accounting methods used**
*Answers to the following question should enable us to understand the accounting methods that were used to determine the costs included in the cost model.*

3.1 What are the economic lifetime (i.e. depreciation duration) of these categories of assets in the model (in number of years)?

| Nature | Economic life time |
|---|---|
| **Cable & Connectic** | |
| Cable & Connectic access loops | |
| Cable & Connectic customers premises | |
| Cable & Connectic network transmission | |
| **Switches** | |
| Switches equipment | |
| Software at switches | |
| **Capitalized Labour** | |
| Capitalized Labour access loops | |
| Capitalized Labour customers premises | |
| Capitalized Labour network transmission | |
| Capitalized Labour switch | |
| Capitalized Labour switch management | |
| Capitalized Labour network design | |
| Capitalized Labour network management | |
| Capitalized Labour computer software | |
| Capitalized Labour financial applications | |
| Capitalized contracted billing applications | |
| **Others** | |
| Technical buildings | |
| Office buildings | |
| Street cabinets | |
| Payphones | |
| Vehicles | |
| Office machinery and equipment | |
| Computer equipment | |

Other asset class not covered

| | |
|---|---|
| | |
| | |
| | |

*Comments :*

3.2 Are the following costs capitalized?
(if they are partly capitalized, please specify)

a- computer software and program

- ☐ Yes
- ☐ No
- ☐ Partly (please specify the segmentation)

| *Comments :* |
|---|
| |

b- R&D

- ☐ Yes
- ☐ No
- ☐ Partly (please specify the segmentation)

| *Comments :* |
|---|
| |

c- New business development

- ☐ Yes
- ☐ No
- ☐ Partly (please specify the segmentation)

| *Comments :* |
|---|
| |

d- Own constructions

- ☐ Yes
- ☐ No
- ☐ Partly (please specify the segmentation)

| *Comments : (Please specify how you ensure that the cost capitalized represent efficient assets)* |
|---|
| |

e- Repairs and maintenance

- ☐ Yes
- ☐ No
- ☐ Partly (please specify the segmentation)

| *Comments :* |
|---|
| |

f- Successful M&A

- ☐ Yes
- ☐ No
- ☐ Partly (please specify the segmentation)

| *Comments :* |
|---|
| |

g- Failed M&A

- ☐ Yes
- ☐ No
- ☐ Partly (please specify the segmentation)

| *Comments :* |
|---|
| |

3.3 If you include a WACC in your model, please give following figures for last year available :

| | | |
|---|---|---|
| Year | | |
| Beta | | (%) |
| Risk Premium | | (%) |
| WACC | | (%) |
| Cost of debt | | (%) |

| Comments : |
|---|
| |

3.4 For the WACC, do you use the Beta and Risk Premium :

- ☐ Of the sector (please specify in "comments"  how you define it)
- ☐ Of your market (please specify in "comments"  how you define it)
- ☐ Other (please specify)

| *Comments :* |
|---|
| |

**Section 4 - Cost allocation methodologies**
*Answers to the following questions should enable us to understand the costs allocation method used.*
*Questions 4.3 to 4.14 are specific to top-down models; Questions 4.15 to 4.28 are specific to bottom-up models*

4.1 What is the cost allocation method used?

- ☐ Fully-distributed costs
- ☐ Long-run average incremental costs
- ☐ Marginal costs
- ☐ Stand alone costs
- ☐ Embedded direct costs
- ☐ Other (please specify)

| |
|---|
| *Comments : (Please give the cost allocation methods that you plan to implement in the future (and specify which year))* |

4.2 Is it a top-down or a bottom-up model?

- ☐ Top-down
- ☐ Bottom-up

| |
|---|
| *Comments :* |

*Questions 4.3 to 4.15 are specific to top-down models. If this is a bottom-up model, go to question 4.16.*

4.3 How do you ensure cost causal allocation

a- Do you use Activity Based Costing?

- ☐ Yes
- ☐ No

b- How many cost pools are identified in your model?

c- How many activities are identified in your model?

d- How many products are identified in your model?

| | |
|---|---|
| interconnection products : | |
| other products : | |

| |
|---|
| *Comments :* |

4.4 What is the % of costs allocated to products

a- directly :

b- indirectly (first allocated to activities) :

| *Comments :* |
|---|
| |

4.5 What information source did you use to split the costs by activity?

- ☐ General ledger
- ☐ Analytical/management accounts
- ☐ Other (please specify)

| Comments : |
|---|
| |

4.6 What are the main allocation keys for the network costs :
*(e.g. : local loop equipment allocated to the "subscriptions products" with the key "number of subscriptions").*

| | Allocations keys | Allocation to products | |
|---|---|---|---|
| | | Direct * (%) | Indirect (%) |
| Civil work - Ducts | | | |
| Local loop equipment | | | |
| Cables | | | |
| Transmission systems | | | |
| Create and develop plant | | | |
| Network management and administration | | | |
| Network maintenance | | | |
| Switches (access) | | | |
| Switches (traffic) | | | |
| *Please specify the way you splitted the switches costs between access and traffic* | | | |
| Others (if not specified in the list) | | | |

* : direct allocation = cost allocated to products without being first allocated to activities

| *Comments :* |
|---|
| |

4.7 What are the main allocation keys for the commercial costs :

| | Allocations keys | Allocation to products | |
|---|---|---|---|
| | | Direct (%) | Indirect (%) |
| Development of products | | | |
| Marketing and advertising | | | |
| Sales | | | |
| Billing | | | |
| Receivables | | | |
| Operation, information and customer care services management | | | |
| Bad debts | | | |
| Others (if not specified in the list) | | | |

| |
|---|
| *Comments :* |

4.8 What are the main allocation keys for the other costs :

| | Allocations keys | Allocation to products | |
|---|---|---|---|
| | | Direct (%) | Indirect (%) |
| Buildings | | | |
| Training | | | |
| Vehicles | | | |
| Software development | | | |
| Software maintenance | | | |
| Computer services | | | |
| Stock and distribution management | | | |
| Procurement management | | | |
| Human resources | | | |
| Protection and security on installations | | | |
| Corporate management | | | |
| Others (if not specify in the list) | | | |

| |
|---|
| *Comments :* |

4.9 Do you use the allocation key "revenues"?

☐ Yes
☐ No

If yes, please specify to allocate which costs?

| Nature | Volume in Euros (FY 00) |
|---|---|
| | |
| | |
| | |
| | |
| | |

4.10 Which costs have been considered as unattribuable?

*Comments :*

4.11 Are unattribuable costs clearly identified in a specific account?

☐ Yes
☐ No

*Comments :*

4.12 What is the % of unattribuable costs in the total of the costs?

*Comments :*

4.13 Did you undertake a public consultation with market players on the adoption of sound allocation methods and on the specific treatment to be given to unattribuable costs?

☐ Yes (please specify when)
☐ No

*Comments :*

4.14 What were the main conclusions of this consultation and what was decided in terms of treatment to be given to unattribuable costs?

*Write here the main conclusions :*

4.15 Do you follow these decisions ?

- [ ] Yes
- [ ] No (please specify why)

*Comments :*

*The following questions (4.15 to 4.28) are specific to bottom-up models.*
*If this is not a bottom-up model, go to question 4.3*

4.16 Does the bottom-up model take into account

- [ ] The existing network topology ("scorched node")
- [ ] An ideal topology ("scorched earth")
- [ ] Other (please specify)

*Comments :*

4.17 What information source do you use to determine the network costs?

- [ ] Information from the suppliers
- [ ] Information from the invoices
- [ ] Internal information
- [ ] Other (please specify)

*Please give a description of the source(s) used :*

4.18 How do you estimate the network investment that are not directly recorded?

- [ ] with international benchmarks
- [ ] with data from cost accounting
- [ ] with data supplied by other operators
- [ ] Other (please specify below)

*Comments :*

4.19 How do you estimate the operating costs?

- ☐ with international benchmarks
- ☐ with data from cost accounting
- ☐ with data supplied by other operators
- ☐ Other (please specify below)

| *Comments :* |
|---|
| |

4.20 How do you estimate the common costs?

- ☐ with international benchmarks
- ☐ with data from cost accounting
- ☐ with data supplied by other operators
- ☐ Other (please specify below)

| *Comments :* |
|---|
| |

4.21 What are the main cost drivers of the network costs (km, price/km,…)?

| | Cost drivers |
|---|---|
| Civil work - Ducts | |
| Local loop equipment | |
| Cables | |
| Switches (split access/traffic) | |
| Transmission systems | |
| Create and develop plant | |
| Network management and administration | |
| Network maintenance | |
| Others (if not specified in the list) | |

| *Comments :* |
|---|
| |

4.22 What are the main cost drivers for the commercial costs :

| | Cost drivers |
|---|---|
| Development of products | |
| Marketing and advertising | |
| Sales | |
| Billing | |
| Receivables | |
| Operation, information and customer care services management | |
| Bad debts | |
| Others (if not specified in the list) | |

*Comments :*

4.23 What are the main cost drivers for the other costs :

| | Cost drivers |
|---|---|
| Buildings | |
| Training | |
| Vehicles | |
| Software development | |
| Software maintenance | |
| Computer services | |
| Stock and distribution management | |
| Procurement management | |
| Human resources | |
| Protection and security on installations | |
| Corporate management | |
| Others (if not specify in the list) | |

*Comments :*

4.24 How many products are identified in your bottom-up model ?

| | |
|---|---|
| interconnection products : | |
| other products : | |

| *Comments :* |
|---|
| |

4.25 Was the bottom-up model reconciled with the top-down one?

☐ Yes
☐ No

| *Comments :* |
|---|
| |

4.26 Could you provide us a copy of this reconciliation and explain the main differences?

**Section 5- Relationship with tariffication**
*Your answer will enable us to understand how this model is used for tariffs determination.*
*It is therefore very important that you fulfill this section.*

5.1 In what way do you use the outputs of this model for the tariffs determination?

☐ Tariffs correspond to the unit costs determined by the model
☐ Other (please specify)

| *Comments :* |
|---|
| |

5.2 For the 15 biggest (in terms of revenues) interconnection, leased lines and voice telephony products of this model, please fulfil the following sheet :

| | Network costs | Commercial costs | Other costs | Total costs | Revenues | Volume | Unit Cost |
|---|---|---|---|---|---|---|---|
| | In millions of Euros | | | | | | In Euros |
| Product 1 : | | | | | | | |
| Product 2 : | | | | | | | |
| Product 3 : | | | | | | | |
| Product 4 : | | | | | | | |
| Product 5 : | | | | | | | |
| Product 6 : | | | | | | | |
| Product 7 : | | | | | | | |
| Product 8 : | | | | | | | |
| Product 9 : | | | | | | | |
| Product 10 : | | | | | | | |
| Product 11 : | | | | | | | |
| Product 12 : | | | | | | | |
| Product 13 : | | | | | | | |
| Product 14 : | | | | | | | |
| Product 15 : | | | | | | | |

*Comments :*

**Section 6- Publicity of the model and controls**

*Answers to the following questions should enable us to understand what part of the model is publicly available and what are the controls performed in the model.*

6.1 What part of the model is publicly available?
*(please provide us with a copy of the document)*

- ☐ The methodology
- ☐ The figures
- ☐ The margin by product
- ☐ The main conclusions of the auditors about the model
- ☐ The final report of the auditors
- ☐ The NRA position on the cost model

*Comments :*

6.2 Could you describe here the internal controls performed on the model?

6.3 Was this model audited by independent experts :

- ☐ Yes (please specify the name of the firm)
- ☐ No

*Comments :*

6.4 These experts were appointed by :

- ☐ yourself
- ☐ the NRA
- ☐ the Treasury Minister
- ☐ other (please specify)

*Comments :*

6.5 On what accounts was the model audited :

- ☐ 1998 accounts
- ☐ 1999 accounts
- ☐ 2000 accounts
- ☐ Other (please specify)

*Comments :*

6.6 Scope of the control included :

a- review of the relevance of the methodology

- ☐ Yes
- ☐ No

b- accuracy and completeness of the accounts

- ☐ Yes
- ☐ No

c- review of the volumes

- ☐ Yes
- ☐ No

| *Comments :* |
|---|
| |

6.7 Approximation of the number of man day spent by the auditors on this model :

- ☐ Less than 50
- ☐ 50 to 100
- ☐ 100 to 200
- ☐ More than 200

| *Comments :* |
|---|
| |

6.8 What documents have been issued by the firm that performed the control :
*(please provide a copy of these documents)*

- ☐ Final reports
- ☐ Statement concerning compliance
- ☐ Other (please specify)

| *Comments :* |
|---|
| |

6.9 What were the main conclusions of these controls :

- ☐ The model is 100% relevant
- ☐ The model is relevant, except a few points
- ☐ The model is not relevant
- ☐ Other (please specify)

| *Comments :* |
|---|
| |

**Section 7- Specifics questions on accounting separation**
*Answers to the following questions should enable us to understand the main features of the way the separated accounts are prepared.*

7.1 Do you establish regulatory separated accounts (profit and loss and balance sheet)?
*(if yes, please provide the separated P&L and balance sheet).*

- ☐ Yes
- ☐ No (explain why)

| *Please give a summary of the approach you use to ensure accounting separation :* |
|---|
| |

7.2 Were regulatory separated accounts and statutory accounts reconciled?
*(if yes, please provide the last reconciliation document)*

- ☐ Monthly
- ☐ Quarterly
- ☐ Yearly
- ☐ No (explain why)
- ☐ Partly (please specify)

| *Comments :* |
|---|
| |

7.3 Are your regulatory separated accounts structured into these activities?

Local access network
- ☐ yes
- ☐ no (please explain)

Core network
- ☐ yes
- ☐ no (please explain)

Retail
- ☐ yes
- ☐ no (please explain)

Other activities
- ☐ yes
- ☐ no (please explain)

| *Please give the detail of the activities that you distinguish for the accounting separation :* |
|---|
| |

7.4 How do you ensure that charges for services provided externally are consistent with charges for similar services provided internally?

7.5 Were the separated regulatory accounts audited by independent experts :

- ☐ Yes (please specify the name of the firm)
- ☐ No

*Additional comments on these independent experts :*

7.6 These experts were appointed by :

- ☐ yourself
- ☐ the NRA
- ☐ the Treasury Minister
- ☐ other (please specify)

*Comments :*

7.7 On what accounts was the model audited :

- ☐ 1998 accounts
- ☐ 1999 accounts
- ☐ 2000 accounts
- ☐ Other (please specify)

*Comments :*

7.8 Scope of the control included :

a- review of the relevance of the methodology

- ☐ Yes
- ☐ No

b- accuracy & completeness of the accounts

- ☐ Yes
- ☐ No

c- review of the volumes

- ☐ Yes
- ☐ No

| *Give here more details on the scope of the control :* |
|---|
| |

7.9 What documents have been issued by the firm that performed the control on accounting separation :
*(please provide a copy of these documents)*

- ☐ Final reports
- ☐ Statement concerning compliance
- ☐ Other (please specify)

| *Please describe the different documents issued by the auditors :* |
|---|
| |

7.10 What were the main conclusions of these controls on accounting separation :

- ☐ The model is 100% relevant
- ☐ The model is  relevant, except a few points
- ☐ The model is not relevant
- ☐ Other (please specify)

| *Please give a summary of the auditors main conclusions :* |
|---|
| |

# Appendix II: NRAs and SMP-operators contacted

*National Regulatory Authorities:*

- AGCOM: Autorità per le Garanzie nelle Comunicazioni (I)
- ART: Autorité de Régulation des Télécommunications (F)
- EETT: National Telecommunication and Post Commission (EL)
- CMT: Comisión del Mercado de las Telecomunicaciones (E)
  FICORA: Finnish Communication Regulatory Authority (FIN)
  ODTR: Office of the Director of Telecommunications Regulation (IRL)
  OFTEL: Office of Telecommunication (UK)
  RegTP: Regierungsbehörde für Telekommunikation und Post (D)
- RTR: Rundfunk und Telekom Regulierungs-GmbH (A)
  PTS: Post-och telestyrelsen (S)
  IBPT/BIPT: Institut belge des services postaux & des télécommunications (B)
- OPTA: Onafhankelijke Post en Telecommunicatie Autoriteit (NL)
- TST: Telestyrelsen (DK)
- ILR: Institut Luxembourgeois de Régulation (L)
- ANACOM: Autoridade Nacional de Comunicações (P)

*Fixed Telephony SMP-operators:*

- Telekom Austria (A)
- Belgacom (B)
- TDC (DK)
- Sonera (DK)
- Elisa Communications (FIN)
- Soon Communications (FIN)
- Finnet International (FIN)
- Auria - formerly Turun Puhelin (FIN)
- KV9 - formerly Kaukoverkko Ysi (FIN)
- France Télécom (F)
- Deutsche Telekom (D)
- OTE (EL)
- Eircom (IRL)
- Telecom Italia (I)
- EPT (L)
- KPN Telecom (NL)
- Portugal Telecom (P)
- Telefónica (E)
- Telia (S)
- British Telecom (UK)
- Kingston Communication (UK)

*Mobile SMP-operators:*

- Belgacom-Mobile Proximus (B)
- TDM (DK)
- Sonofon (DK)
- Sonera (FIN)
- Radiollinja/Elisa Communications (FIN)
- Alands Mobilteelfon (FIN)
- Orange (F)
- SFR (F)
- Panafon (EL)

- STET Hellas (EL)
- Eircell (IRL)
- Esat digifone (IRL)
- Omnitel-Vodafone (I)
- TIM (I)
- EPT (L)
- TMN (P)
- Telecel (P)
- Telefónica Móviles (E)
- Airtel (E)
- Telia mobile (S)
- KPN mobile (NL)
- Libertel (NL)
- Vodafone (UK)
- BT Cellnet (UK)

## Appendix III: Glossary

CAPEX: Capital Expenditure
CAPM: Capital Asset Pricing Model
CCA: Current Cost Accounting
EDC: Embedded Direct Costs
FCM: Financial Capital Maintenance
FDC: Fully-distributed costs
FL: Forward-looking
HCA: Historical Cost Accounting
IC: Interconnection
LLU: Local Loop unbundling
LRAIC: Long-run average incremental costs
LRIC: Long-run incremental costs
MDF: Main Distribution Frame
MEA: Modern Equivalent Asset
NRA: National Regulatory Authority
OCM: Operating Capital Maintenance
OPEX: Operational Expenditure
ROI: Reference Offer for Interconnection services
SAC: Stand-alone costs
SMP: Significant market power
WACC: weighted cost of capital