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Accounting Separation in the context of Open Network Provision

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Introduction

1. This report has been prepared as part of a study carried out by Arthur Andersen for Directorate General XIII (“DGXIII”) of the European Commission on issues related to accounting separation and interconnection pricing in the context of Open Network Provision (“ONP”). The report focuses on accounting separation rather than pricing which has been addressed in a separate Communication from the Commission¹.
2. The purpose of the report is to provide guidelines that may be applied by operators in the preparation of separate accounts in accordance with Article 8 of the Interconnection Directive. As such, the guidelines are concerned with regulatory reporting – they are *not* intended to impinge on the prevailing guidelines for statutory financial reporting in each Member State.
3. The guidelines focus on the level of disaggregation of activities, the allocation of costs, revenues and capital employed for the purposes of preparing separate accounts. The principles described may also be relevant to the determination of interconnection charges. However, there are additional factors – such as the relevance of costs – that may need to be taken into account when setting charges. These factors are outside the scope of our study.
4. The guidelines are structured as follows:
 - Section 1 considers accounting separation and the level of disaggregation of activities;
 - Section 2 considers transfer charges;
 - Section 3 considers the principles of allocation;
 - Section 4 considers the allocation of operating costs (including depreciation);
 - Section 5 considers the allocation of capital employed;
 - Section 6 considers the allocation of revenues; and
 - Section 7 considers reporting requirements.

¹ See Commission Recommendation on Interconnection in a liberalised telecommunications market, Part 1 – Interconnection Pricing, C(97) 3148, 15 October 1997.

5. The guidelines are not intended to be prescriptive, nor are they intended to provide a comprehensive set of allocation rules that operators must follow. Individual operators will need to develop their own allocation procedures and to apply these to their own costs, revenues and capital employed.
6. The main focus of the guidelines are incumbent operators. The principles discussed throughout the guidelines can, however, also be applied to other operators considered by National Regulatory Authorities (“NRAs”) to have market power. Notwithstanding this, the guidelines may need to be modified for other operators, such as integrated cable telephony and television businesses.
7. Finally, we do not underestimate the practical difficulties of preparing separate accounts in accordance with the principles set out in these guidelines. A range of methods may be needed to allocate and attribute operating and capital costs to different activities, including sampling and surveys. It is likely that the methods adopted by operators to allocate costs will be refined over time. This may be especially true in the first year in which separate accounts are prepared.
8. **The opinions expressed in this Study are those of the authors and do not necessarily reflect the views of the European Commission.**

1. Accounting Separation – Level of Disaggregation

Introduction

- 1.1 The Interconnection Directive states that telecommunications operators considered by NRAs to have significant market power shall be required to keep separate accounts for their activities related to interconnection - covering both interconnection services provided internally and those provided to other users - and other activities.
- 1.2 As far as incumbent operators are concerned the main objectives of accounting separation are:
- To expose the costs relating to different activities and, in particular, to ensure that the costs related to interconnection services are clearly identified and separated from the costs of providing other services;
 - To ensure that services provided internally – i.e. from one activity within the incumbent to another – are provided on similar terms to those offered externally; and
 - To encourage confidence in the cost allocation and attribution methodology.
- 1.3 This section of the guidelines considers the extent to which the activities and accounts of incumbent operators should be disaggregated in order to comply with the Directive.

Disaggregation of activities

- 1.4 We recommend an approach to accounting separation based on “businesses”, each of which will comprise a number of related activities or services. Given the requirement that separate accounts should be kept for interconnection and other activities, one approach to accounting separation would be to distinguish between a network or wholesale “business” - defined as that part of an operator that provides switching and transmission services – and “other” activities.
- 1.5 However, such a separation is unlikely to provide other operators with transparency about the boundary between the core switching and transmission network and the access network or local loop. Equally, it would not necessarily provide transparency about the network charges “paid” by the incumbent’s own Retail business. The following separation is therefore recommended:

- A Local Access-Network business;
- A Core Network business;
- A Retail business; and
- “Other activities”.

- 1.6 The definition of each business is considered below.
- 1.7 The separate identification of a Local Access-Network business is intended to make transparent the costs involved in the provision of connections to the telephony network and to distinguish these costs from those network costs that relate to the provision of interconnection services.
- 1.8 There is a case for further disaggregating the accounts of the Retail business and of “Other activities”. In particular, separate accounts should be prepared for each regulated activity within Retail. It will be up to NRAs to consider the extent of any further disaggregation, taking into account the transparency requirements of National and Community law.

Local Access-Network

- 1.9 Local Access-Network provides connections to the core networks. The accounts for the Local Access-Network business will include the costs and capital employed associated with providing and maintaining these connections. The total operating and capital costs of the Local Access-Network business *after* taking account of any access deficit contributions (“ADCs”) will be transferred to Retail (see below).
- 1.10 For accounting separation, the Local Access-Network business will include all the customer-dedicated components of the network including, for example, the line cards and ports located at concentrators and/or exchanges. The Core Network business will include all other network components.

Core Network

- 1.11 The Core Network business provides a range of wholesale interconnection services internally and externally in order to allow the customers of one operator to communicate with customers of the same or another operator, or to access services provided by another operator. These services include the switching and conveyance of calls. In addition, the Core Network business may provide other services to operators, such as engineering services related to the development and maintenance of private networks and to the development of competition (e.g. number portability and carrier selection).

- 1.12 The accounts for the Core Network business will include the costs, revenues and capital employed associated with the provision of these services. The revenues of the Core Network business will derive principally from the sale of interconnection services to the Retail business and to other operators.
- 1.13 If national regulation permits wholesale provision of transmission circuits, the associated revenues should be booked to the Core Network business.

Retail

- 1.14 The Retail business includes all those activities involving the selling of telephony services to end-users, including line rental, leased lines, calls, payphones and the provision of directory information.
- 1.15 The accounts for the Retail business will include the costs, revenues and capital employed associated with the provision of these services to end users. The costs allocated to Retail will include transfer charges related to the use of network resources or services provided by Local Access-Network and the Core Network businesses, and the marketing and billing costs associated with the provision of end user services.
- 1.16 NRAs will need to consider the extent to which the Retail accounts should be further disaggregated to distinguish between the costs and revenues of individual services taking into account the transparency requirements of National and Community law. Separate accounts should be prepared for each activity within Retail that is subject to regulation. It would not, however, be appropriate to require separate accounts to be prepared for activities that are not subject to regulatory control².

Other activities

- 1.17 Incumbent operators typically provide a wide range of other services including the rental, repair and maintenance of customer equipment. In addition, they may have interests in non-telecommunications activities (e.g. TV transmission). For the purposes of accounting separation, the costs, revenues and capital employed associated with these activities will be separately identified.
- 1.18 NRAs may consider that individual accounts should be prepared for some of these additional activities. This may be especially relevant for those incumbent operators that do not operate their mobile activities as separate businesses. It will be up to individual NRAs to specify the extent to which separate accounts for these activities will be prepared taking into account the transparency requirements of National and Community law.

² In principle, the extent to which separate accounts are prepared for individual Retail activities may be expected to diminish over time as the provision of services becomes more competitive.

2. Transfer Charges

Introduction

2.1 This section of the guidelines sets out the principles to be applied by operators in order to take account of the costs of products or services that are used internally.

Objectives

2.2 The objectives of separately identifying transfer charges are:

- To identify, measure and account for the cost of the internal consumption of resources;
- To identify areas of potential cross-subsidy; and
- To report as accurately as possible the overall performance of different activities.

2.3 A system of transfer charges should apply to services and products provided from one business (for example, Local Access-Network, Core Network and Retail) to another.

2.4 There should be a clear rationale for the transfer charges used and each charge should be supportable. Charges should be non-discriminatory and, as discussed in Section 7, there should be transparency of transfer charges in the separate accounts.

Measuring internal usage

2.5 The transfer charges for internal usage should be determined as the product of usage and unit charges. The charge for internal usage should be equivalent to the charge that would be levied if the product or service were sold externally rather than internally.

Interconnection charges

- 2.6 Article 7.3 of the Interconnection Directive states that different terms and conditions may be set for different categories of organisations authorised to provide networks and services where such differences can be objectively justified on the basis of the type of interconnection provided and/or the relevant national licensing conditions. It further states that NRAs will be responsible for ensuring that such differences do not distort competition and that the operator providing interconnection services applies the appropriate interconnection tariffs, terms and conditions when providing interconnection for its own services or those of its subsidiaries or partners.
- 2.7 For accounting separation purposes, it should be assumed that an operator's Retail business pays the same interconnection charge for the same service as other operators *unless there is good reason to do otherwise*.

Access deficit contributions and Universal Service contributions

- 2.8 The Interconnection Directive requires charges for interconnection to be separated from charges related to universal service, including any charges imposed as a result of operators being prevented by NRAs from rebalancing tariffs (i.e. access deficit contributions or ADCs). The Commission has indicated that tariff rebalancing should be completed by 1 January 2000 except in those Member States which have been granted an additional implementation period in accordance with the Full Competition Directive³.
- 2.9 In those Member States that operate access deficit schemes, ADCs should be assigned to the Local Access-Network business. ADCs would be recovered from other operators and from the Retail business. There should be no discrimination between ADCs charged to Retail and ADCs charged to other operators.
- 2.10 The accounting separation set out in Section 1 envisages that line rental will be a service provided by the Retail business. The revenues from line rental will therefore be recorded against Retail. However, the cost of providing customer lines will initially be recorded against the Local Access-Network business and there will need to be a transfer of costs to Retail in order to match revenues with their associated costs. The costs transferred to Retail should be net of any ADCs.
- 2.11 In those Member States that operate schemes to finance Universal Service obligations, any contributions – both by other operators and internally – should be separately identified in the accounts. As with ADCs, there should be no discrimination between Universal Service contributions charged to other operators and contributions charged internally.

³ Source: Communication from the Commission on Assessment Criteria for National Schemes for the Costing of Universal Service in telecommunications and Guidelines for the Member States on Operation of such Schemes, COM(96)608 final, Brussels, 11 November 1996.

3. Principles of Allocation

Introduction

- 3.1 In this section of our report, we set out in outline the principles that should be followed in order to allocate costs, capital employed and revenues for the purposes of preparing separate accounts. The application of these principles to operating costs, capital employed and revenues is considered in more detail in Sections 4, 5 and 6 respectively.
- 3.2 These principles may also be relevant to the determination of interconnection charges for unbundled interconnection services, for which purposes the costing systems of operators will need to be sufficiently detailed to permit – as far as possible – the allocation of costs to unbundled network components. There are, however, a number of additional factors – such as the relevance of costs - that may need to be taken into account when determining charges for specific interconnection services⁴. These issues are outside the scope of these guidelines.

Principles

- 3.3 Accounting separation should be based on the principle of causation: that is, costs⁵ and revenues should be allocated to those services or products that cause those costs or revenues to arise. This requires the implementation of cost allocation methodologies, such as Activity Based Costing. In practice, this requires that operators:
- Review each item of cost, capital employed and revenue;
 - Establish the driver that caused each item to arise; and
 - Use the driver to allocate each item to individual businesses.
- 3.4 All allocations may be subject to review by NRAs.

⁴ The nature of which may be expected to change over time in response to changing market requirements.

⁵ Including operating and capital costs.

- 3.5 Each item of cost and revenue must be allocated to the products and services provided by operators. In the case of revenue, we would anticipate that most, if not all, revenues can be allocated directly to those products or services to which they are related. This is not the case for costs, however, because a relatively high proportion of the costs of operators is shared between different products and services.
- 3.6 We set out below a framework within which to consider the allocation of costs between products and services.

Cost categories

- 3.7 Each cost item may be considered to fall into one of the following categories:
- Direct and directly attributable costs;
 - Indirectly attributable costs; and
 - Unattributable costs.
- 3.8 The categorisation of costs in this way provides the basis on which to apportion or allocate costs between products and services (which will need to be unbundled, as appropriate, in accordance with the requirements of the Interconnection Directive).

Direct and directly attributable costs

- 3.9 Direct costs are those costs that can be directly and unambiguously related to a service or product and which are recorded against the relevant product or service in the operator's accounting system.
- 3.10 Directly attributable costs are also directly and unambiguously related to a service or product but they are *not* recorded in the accounts against the product or service to which they relate.
- 3.11 The following may be examples of direct or directly attributable costs:
- Wages and salaries of Directory Enquiries staff which can be allocated directly to the Directory Enquiries service; and
 - Product-specific software development costs which can be directly allocated to the product in question.

Indirectly attributable costs

- 3.12 Indirectly attributable costs are those costs that can be related to a service or product on a non-arbitrary basis based on the relationship of the costs to direct and directly attributable costs. Such costs shall be allocated to the relevant service or product using an appropriate cost driver (eg. usage of share facilities).
- 3.13 For example, depreciation relating to power equipment may initially be allocated to the power equipment to which it relates. It may then be allocated to the network equipment that is supported by that power equipment – perhaps on the basis of usage - and finally to individual services based on the use that each service makes of the network equipment.

Unattributable costs

- 3.14 Unattributable costs are those costs for which no direct or indirect method of apportionment can be identified. It is therefore not possible to allocate these costs to products and services on a non-arbitrary basis. While it is accepted that a significant proportion of telecommunications operators' costs are joint and common, the application of rigorous cost allocation methods may be expected to reduce substantially the proportion of these costs that are truly unattributable. The Federal Communications Commission, for example, has stated that it believes that a well-designed cost allocation system may enable 80-90% of costs to be allocated based on direct or indirect cost causation.
- 3.15 Unattributable costs should be clearly identified and addressed separately by NRAs.

The treatment of unattributable costs

- 3.15 There is no single way of allocating unattributable costs to products and services. Among the most common methods used by companies for the purposes of *ex post* financial reporting are the following:
- The Gross Revenue Method in which costs are allocated to products and services in proportion to their share of total revenue;
 - The Net Revenue Method in which costs are allocated to products and services in proportion to their contribution to net revenue (i.e. gross revenues less inter-business charges); and
 - The Attributable Cost Method, or Equal Proportionate Mark-Ups (“EPMUs”), in which costs are allocated in proportion to the attributable costs⁶ of products and services.

⁶ Including direct costs, directly attributable costs and indirectly attributable costs.

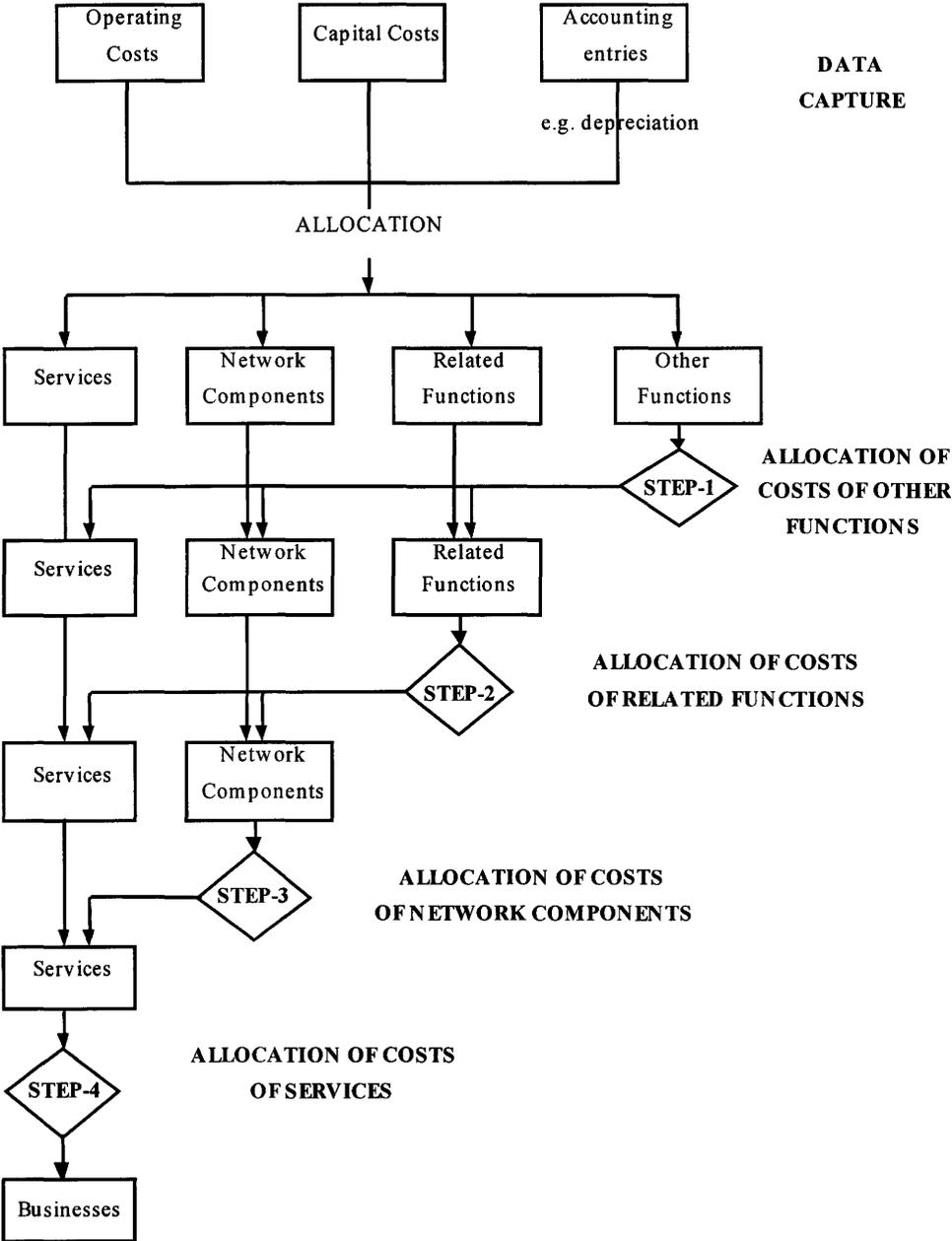
- 3.16 Both the Gross and Net Revenue Methods depend on revenues as the basis of allocation. Use of these methods would be circular when, as is the case with the *ex ante* determination of interconnection prices, the purpose of allocating unattributable costs is to determine the level of allowed revenue and hence prices for each service.
- 3.17 Of these methods, therefore, only EPMUs are a feasible approach to the allocation of costs for price-setting purposes. Indeed, this approach has already been adopted in the interconnection pricing regimes of a number of countries, including a number of Member States of the European Union.
- 3.18 There are, in addition, a number of arguably more complex approaches to the allocation of unattributable costs for price-setting purposes⁷. The informational requirements of such approaches are typically more onerous than for methods such as EPMUs. Consequently, regulatory control may be more difficult. For this reason, among others, there has been limited practical application of these approaches.
- 3.19 It is outside the scope of this study to provide definitive guidance on the treatment of unattributable costs when determining cost-oriented interconnection prices. It is for NRAs to determine an appropriate approach that takes account of:
- The practicalities of implementing each approach;
 - The proportion of costs considered unattributable: clearly, the approach(es) used may be expected to have a greater impact on interconnection prices if the proportion of costs deemed unattributable is high; and
 - The nature of unattributable costs: it may, for example, be appropriate to apply separate mark-ups for capital and operating costs. Similarly, it may be necessary to apply one mark-up for those unattributable costs that relate to a sub-set of products and services only, and another mark-up for those unattributable costs that are truly common to all services.
- 3.20 In terms of *ex post* financial reporting under accounting separation (see section 7) we recommend that the method(s) used to allocate unattributable costs when determining charges for interconnection services should also be applied when preparing separate accounts. We believe that this will provide maximum transparency about the assumptions on which charges were initially based.

The cost allocation process

- 3.21 Figure 3.1 illustrates a typical cost allocation process. It should be noted that *actual* allocation processes may vary depending on the entity's organisational structure and the way(s) in which financial/operating data are captured, and will be considerably more complex and involved than Figure 3.1 implies. It is important to note, however, that the ultimate aim of allocating costs is the same.

⁷ For example, Ramsey pricing.

Figure 3.1 – A typical cost allocation process



3.22 The process starts from information and data captured by the general ledger or other costing or financial systems operated by the company. The costing information held by these systems may be divided between operating costs, capital costs and accounting entries such as depreciation.

3.23 Costs may be attributed either directly to services or to cost pools called network components, related functions or other functions. These are defined as follows:

- **Services** These are the costs that can be directly identified with a particular service. For these purposes, the term “service” refers both to end-user services (e.g. the provision of payphones) and intermediate services (e.g. network services).
- **Network components** This pool contains the costs relating to the various components of transmission, switching and other network plant and systems. The costs will be in respect of network components that cannot be attributed directly to a particular service as they are utilised in the provision of a number of services.
- **Related functions** This pool contains the costs of functions necessary for the provision of services to the customer such as billing, maintenance, and customer services.
- **Other functions** This pool contains the costs of functions that are not related to the provision of particular services but are an important part of the operations of the company. Examples of such costs include planning, personnel and general finance.

3.24 As noted, there are a series of steps which allocate cost pools in a tiered approach to eventually allocate costs to services. These step allocations are performed using appropriate drivers. Each step is summarised below:

- **Step 1** The allocation of other functions across related functions, network elements and services.
- **Step 2** The allocation of the related function costs to services and the network elements.
- **Step 3** The allocation of network components to services.
- **Step 4** The grouping of services into businesses (as defined for the purposes of accounting separation).

3.25 Each of the allocation steps illustrated above could involve a number of detailed sub-steps, particularly if the initial capture of cost information is at an aggregated level. Where it is possible to perform an allocation via a number of direct or indirect attributions this is preferable to allocation through a single arbitrary step.

- 3.26 It is anticipated that telecommunications operators will need to use sampling techniques and periodic activity reviews in order to allocate costs (including capital costs) to the services that they provide and, subsequently to the businesses defined for the purposes of accounting separation. For example, periodic analysis of the tasks undertaken by staff in customer call centres may be used to determine the amount of time spent by those staff on different tasks. This information may then be used to allocate - either directly or indirectly - the costs associated with the staff to the services provided by the operator.
- 3.27 Sampling techniques may also be used by operators whose financial systems do not *currently* provide the level of detailed financial information required for accounting separation. The need to use these techniques may, however, diminish as the quality and availability of financial information improves.

4. Operating Costs

Introduction

- 4.1 In this section of the guidelines we consider the application of the principles described in Section 3 to the operating costs, including depreciation, of operators.

Application to operating costs

- 4.2 The cost allocation process outlined in the previous section relates, in principle, to both operating and capital costs. Table 4.1 below provides a summary of possible allocation and attribution methods for operating costs under the following headings:
- Depreciation;
 - Provision, installation and maintenance costs;
 - Network planning and development costs;
 - Network management costs;
 - Marketing and sales costs;
 - Billing and collection costs;
 - Operator services costs;
 - Directory services costs;
 - Payments to other operators; and
 - Support costs.
- 4.3 These headings are purely illustrative and are not intended to reflect the way in which operators are expected to record costs. They are intended to provide high-level guidance only. Individual operators will need to develop cost allocation procedures specific to the way in which they currently capture and record costs, and to refine these over time, as appropriate.
- 4.4 The final column of Table 4.1 provides an indication of the *principal* businesses to which it might be expected that the majority of the operating costs in question would be allocated.

Table 4.1 Methods of allocating operating costs (cont.)*

Category of Operating cost	Description	Method of Allocation	Principal Businesses
Network management costs (cont.)	Other costs	Allocate to network components/other plant on the basis of the plant managed, where possible.	Core Network, Local Access-Network
Marketing and sales costs	Payroll	Direct to products and services where possible; otherwise allocate between products based on labour time.	Retail
	Cost of sales of equipment	Allocate to customer equipment services within "Other activities".	Other Activities
	Publicity	Direct to products and services where possible. Otherwise, for those costs where multiple services are being marketed or promoted, cost shall be attributed to the related services on a reasonable basis.	Retail
	Promotions		
	Market research		
	Distributors fees		
	Other costs		
Billing and collection costs	Payroll costs	Direct to products and services where possible; otherwise allocate between products based on labour time.	Retail (some costs to Core Network)
	Other billing costs (incl. bad debts)	Direct to products and services where possible; otherwise allocate between products based on usage (e.g. number of bills produced).	Retail (some costs to Core Network)

* Residual unattributable costs should be specifically identified by operators and their treatment considered separately by NRAs.

Table 4.1 Methods of allocating operating costs (cont.)*

Category of Operating cost	Description	Method of Allocation	Principal Businesses
Operator services costs	Payroll costs	Direct to services where possible. The costs of staff that carry out tasks for several operator services shall be allocated to the related operator services based on time spent on different tasks.	Retail
Directory services costs	Payroll and other costs	Direct to products and services.	Retail
Payments to other operators	Out-payments for outgoing international traffic	Direct to products and services.	Retail
Support costs	Payments for interconnection agreements	Direct to products and services.	Retail
	Human resources function costs	HR function costs should be allocated to the staff that are overseen by the HR function and allocated using the same basis as the payroll costs of HR staff.	All
	Finance and other head office support functions	If related specifically to a product, service or business allocate accordingly.	All
	Building costs and rent	Costs should be allocated in the same way as land and buildings (see Section 5).	All
	General computing/IT costs	Allocate to the applications run by the operator on the basis of the use of the computers to support each application. Costs allocated to applications can then be attributed to those products and services that they support.	All

* Residual unattributable costs should be specifically identified by operators and their treatment considered separately by NRAs.

5. Cost of Capital and Capital Employed

Introduction

- 5.1 Article 7.2 of the Interconnection Directive requires that charges for interconnection shall be cost-oriented, including a reasonable return on investment. The determinants of the level of this return are:
- The cost of capital; and
 - A capital value.
- 5.2 The calculation and setting of a cost of capital is outside the scope of this study. However, there must be consistency between the measure of capital employed on which the cost of capital and the capital employed reported in the separate accounts required by the Interconnection Directive. This will enable comparison of the actual percentage returns earned by operators from their regulated activities such as interconnection with the cost of capital allowed by NRAs when reviewing charges for these activities. The need for consistency, and the implications of this for the allocation of items of capital employed, are the focus of this section.

Cost of capital

- 5.3 The cost of capital of operators should reflect the opportunity cost of funds invested in network components and other related assets. It conventionally reflects the following:
- The (weighted) average cost of debt for the different forms of debt held by each operator;
 - The cost of equity as measured by the returns that shareholders require in order to invest in the network given the associated risks; and
 - The values of debt and equity.
- 5.4 This information can then be used to determine the weighted average cost of capital (WACC) using the following formula:

$$\text{WACC} = r_e \cdot E/(D+E) + r_d \cdot D/(D+E)$$

where r_e is the cost of equity, r_d is the cost of debt, E is the total value of equity and D is the total value of interest-bearing debt.

- 5.5 The calculation of the WACC for an individual operator *in total* is relatively straightforward – notwithstanding that there is scope for discussion about the precise derivation and value of inputs into the WACC formulae. NRAs will need to consider whether application of the global cost of capital represented by the WACC is appropriate for the regulated activities of operators. If so, the global WACC may be used for the purpose of determining interconnection charges.
- 5.6 Adjustments to this figure will need to be considered on a case-by-case basis. However, even if the global WACC is adjusted to reflect, say, the different risks facing the regulated and unregulated activities of operators, it is likely that a single WACC will apply to all regulated activities⁸.

The WACC and capital value

- 5.7 The WACC must be applied to a capital value for network components and other related assets in order to determine the return that needs to be recovered through interconnection charges. While it may be easy to identify the values of debt and equity for an operator as a whole, it is not easy to do so for each of its constituent activities. This is because decisions about debt finance are largely corporate decisions determined by a number of factors, such as historical borrowing facilities and tax planning considerations. Hence, the debt position of the corporate may not relate specifically to the funding requirements of individual activities. An alternative approach to determining the capital value for regulated activities (such as interconnection) is therefore required.
- 5.8 One approach is provided by the following balance sheet identity:

$$\text{Shareholders' funds (i.e. equity) + Debt = Net Assets excluding debt}^9$$

- 5.9 It follows that the capital values of regulated activities can be determined by apportioning net assets or capital employed. This apportionment should be carried out on a causal basis.

⁸ Implicit in this approach is the assumption that all the regulated activities of operators have the same financial structure – i.e. the same proportions of debt and equity finance.

⁹ I.e. fixed assets + current assets – creditors (excluding debt) - provisions.

Capital employed

- 5.10 Table 5.1 provides a summary of possible allocation methods for different items of capital employed, together with an indication of the principal businesses to which it might be expected that the majority of each item would be allocated. The application of these and, as appropriate, other methods will determine the capital values of different regulated activities, including interconnection.
- 5.11 The table is not intended to be an exhaustive list of items that might be classified as capital employed nor of the methods for allocating them to different activities.
- 5.12 For price-setting purposes, NRAs and operators will be concerned with average capital employed during any period rather than with capital employed at a single point in time such as the financial year end. This is because a “snap-shot” at any one point in time may not be representative of the average level of capital employed by operators. Specifically, working capital balances at a single point in time may not be representative of average working capital requirements over an extended period. The separate accounts of operators should therefore show average capital employed, rather than year-end balances (see Section 7).

Table 5.1 Methods of allocating capital employed*

Category of assets and liabilities	Description	Method of Allocation	Principal Businesses
<p>Tangible assets Primary Plant- Switching equipment</p>	<p>Local switching equipment</p> <p>Tandem switching equipment</p> <p>International switching equipment</p> <p>Switching equipment for special services networks</p> <p>Other switching equipment</p>	<p>Direct to access or network components where possible. Otherwise allocate to Local Access-Network services and to network components on the basis of the relevant cost of the equipment dedicated to provide customer lines and of the parts dedicated to switch traffic, respectively. Local switch network components can be allocated to products and services based on seconds of use.</p> <p>Direct to network components where possible, otherwise allocate based on seconds of use.</p> <p>Direct to network components where possible, otherwise allocate based on seconds of use.</p> <p>Direct to core network components where appropriate/required by regulation or to the specific services provided by other networks – e.g. data transmission switching equipment should be allocated directly to data transmission services.</p> <p>Direct to network services where possible, otherwise allocate to other switching network components on the basis of the use of the equipment.</p>	<p>Core Network (some costs to Local Access-Network)</p> <p>Core Network</p> <p>Core Network</p> <p>Core Network, Other activities</p> <p>Core Network</p>

Table 5.1 Methods of allocating capital employed (cont.)*

Category of assets and liabilities	Description	Method of Allocation	Principal Businesses
Transmission equipment	Traffic-sensitive transmission equipment	Direct to network components where possible, otherwise allocate based on the usage of circuits.	Core Network
	Cable and wire	Direct to access or network components where possible, otherwise allocate to components based on the amount of cable used to provide different services.	Local Access-Network, Core Network
	Local loop equipment	Direct to products where possible (e.g. separately identifiable ISDN access equipment), otherwise allocate between access services based on line usage.	Local Access-Network
	Radio and satellite equipment	Direct to network components where possible, otherwise allocate based on the usage of channels.	Core Network
	Transmission equipment for special services networks	Direct to the specific non-PSTN/non-ISDN services provided by the network – e.g. data transmission equipment directly allocated to data transmission services.	Core Network
	International/submarine cable	Direct to network components where possible, otherwise allocate based on usage.	Core Network

? Residual unattributable costs should be specifically identified by operators and their treatment considered separately by NRAs.

Table 5.1 Methods of allocating capital employed (cont.)*

Category of assets and liabilities	Description	Method of Allocation	Principal Businesses
Other primary network assets	Special network plant	Plant and equipment that is used solely to provide one specific service should be allocated directly to the relevant services. Examples may include: <ul style="list-style-type: none"> • Intelligent networks equipment; • Data transmission equipment; • Multimedia equipment. 	Core Network Other activities
<i>Support Plant</i>	Customer premises equipment	Direct to products and services.	Other activities
	Public payphones and related equipment	Direct to service.	Retail
	Ducting	Ducting can be allocated to the cable and wire that it supports and allocated to products in the same way as cable and wire.	Local Access-Network, Core Network, Core Network
	Power equipment	Allocate to primary plant groups on the basis of the use of power equipment to support each plant- e.g. kilowatts per hour. Assets should then be allocated to products in the same way as the relevant primary plant groups.	Local Access-Network, Core Network, Core Network

? Residual unattributable costs should be specifically identified by operators and their treatment considered separately by NRAs.

Table 5.1 Methods of allocating capital employed (cont.)*

Category of assets and liabilities	Description	Method of Allocation	Principal Businesses
	Network management systems	Allocate to primary plant of the different networks provided on the basis of the use of the systems to support each plant – e.g. time spent to control local exchanges, tandem exchanges and international exchanges. Costs should be attributed to products and services in the same way as the related primary plant group.	Core Network
Non-network fixed assets	Land and buildings	Allocate to products, services and network components on the basis of the space occupied (i.e. floor space) to support each product, service or network component.	All
	General computers	Allocate to the applications run by the operator on the basis of the use of the computers to support each application. Costs allocated to applications can then be attributed to those products and services that they support.	All
	Motor vehicles	Allocate to the products and network components based on usage.	All
	Furniture and office equipment	Allocate to the products and network components based on usage.	All
<u>Intangible fixed assets</u>	Intangible fixed assets	Direct to products where possible. Any residual or unattributable assets will need to be allocated on an arbitrary basis, to be agreed with the NRA.	All

? Residual unattributable costs should be specifically identified by operators and their treatment considered separately by NRAs.

Table 5.1 Methods of allocating capital employed (cont.)*

Category of assets and liabilities	Description	Method of Allocation	Principal Businesses
<p><u>Working capital</u></p>	<p>Fixed asset investments: Pure financial investments Investments in unrelated activities Other investments</p>	<p>Direct to "Other activities". Direct to "Other activities".</p>	<p>Other activities Other activities</p>
	<p>Short-term investments (including cash at bank and in hand)</p>	<p>Direct to the services to which the investments are related, otherwise allocate based on usage.</p>	<p>All</p>
	<p>Stocks</p>	<p>Direct to businesses where possible, otherwise allocate based on the operational requirements of each business.</p>	<p>All</p>
	<p>Trade debtors/receivables</p>	<p>Stocks should be allocated directly to products and services.</p>	<p>All</p>
	<p>Other debtors/receivables</p>	<p>Trade debtors may be allocated to products and services based on billing system information where possible. Unattributable balances will need to be allocated on an arbitrary basis, to be agreed with the NRA.</p>	<p>All</p>
	<p>Other debtors/receivables</p>	<p>Other debtors/receivables should be apportioned to products and services if possible. Unattributable balances will need to be allocated on an arbitrary basis, to be agreed with the NRA.</p>	<p>All</p>

? Residual unattributable costs should be specifically identified by operators and their treatment considered separately by NRAs.

Table 5.1 Methods of allocating capital employed (cont.)

Category of assets and liabilities	Description	Method of Allocation	Principal Businesses
<u>Working capital (cont.)</u>	Trade creditors	Trade creditors should be allocated directly to products and services if possible. Unattributable trade creditors will need to be allocated on an arbitrary basis, to be agreed with the NRA.	All
	Long term provisions	Direct to the activities that give rise to the provisions in question.	All
	Liabilities for taxation and dividends	No allocation required. Instead average liabilities should be taken into account when considering the operational cash requirements of each business (see "Short-term investments")	All

? Residual unattributable costs should be specifically identified by operators and their treatment considered separately by NRAs.

The need for consistency in the treatment of working capital

5.13 Table 5.1 proposes one approach to the treatment of working capital in the calculation of capital employed. There are, however, other approaches which may be equally valid. In practice, there are two principles that ought to be applied when considering the treatment of individual items of working capital for the purposes of separate accounting. They are as follows:

- There should be consistency between the treatment of assets and their associated costs and revenues; and
- Inclusion or exclusion of individual items ought, in principle, to have a corresponding impact on the WACC. These two effects (i.e. the decision to include or exclude items and the corresponding adjustment to the WACC) offset each other in terms of their overall effect on the absolute return required by operators.

The treatment of working capital

5.14 The application of these principles to the treatment of fixed asset investments, short-term investments, long-term provisions, and liabilities for taxation and dividends is considered in turn below. These are potentially contentious areas and the purpose of the following paragraphs is to provide guidance on the way(s) in which they could be treated.

Fixed asset investments

5.15 Fixed asset investments include, among other things, investments in subsidiary undertakings, other investments and loans.

5.16 Pure financial investments and investments in unrelated activities should be expected to earn a return in their own right and, as a general rule, such investments should not be treated as capital employed for price setting purposes *unless* there are good reasons to do so. For the purposes of accounting separation these investments should be allocated to “Other activities”.

5.17 Those fixed asset investments that *are* regarded as working capital should be included in the definition of capital employed, in which case they would be allowed (*ex ante*) to earn a return equal to the calculated WACC. For the purposes of accounting separation, the investment would be allocated between the services and/or businesses that purchased services from the investment.

- 5.18 Irrespective of the approach adopted, care needs to be taken with the treatment of any transfer charges between fixed asset investments and other businesses. If the investment was excluded from capital employed, the transfer charge would need to be based on the rates that could be charged for providing services externally.
- 5.19 This would not, however, be appropriate if the investment was treated as part of the capital employed of the business(es) using the services provided by the investment. In this case, the profit element associated with the services provided by the investment would be taken into account through the application of the WACC to total capital employed (including the fixed asset investment). Consequently, a transfer charge based on market rates would lead to the profit element being double-counted. The transfer charge should therefore exclude any allowance for profit.

Short-term investments (including cash)

- 5.20 The treatment of short-term investments and cash raises similar issues to the treatment of fixed asset investments. There are two potential reasons for *excluding* short-term investments from the calculation of capital employed:
- First, cash balances could be considered surplus to operational requirements.
- If a firm does not distribute all of its profits, then – all other things being equal – its net cash balances would increase. This cash could be used to invest in existing or new activities¹⁰, or to repay debt. Alternatively, it could simply be retained as cash, in which case the firm’s cash balances would increase. Such accumulations could be considered surplus to the firm’s operational requirements and excluded from the calculation of capital employed.
- Second, short-term investments may earn a return in their own right.
- If short-term investments already earn a return no additional reward is required and they should be excluded from the calculation of capital employed. The returns from such investments should be similarly excluded.
- 5.21 If short-term investments are excluded from the calculation of capital employed used for regulatory purposes, they should be allocated – for the purposes of accounting separation – to “Other activities”.
- 5.22 Alternatively, it could be argued that short-term investments should be included in the calculation of capital employed. In order to be included, however, it will be necessary for operators to demonstrate that such balances should be regarded as a part of their operational requirements.

¹⁰ If invested in new activities, the new investment would be treated as a fixed asset investment.

Long-term provisions

- 5.23 The inclusion of long-term provisions in the calculation of capital employed reduces the level of capital employed. However, as long as the calculation of capital employed is compatible with the measure used to determine the WACC, their inclusion should, in principle, have no impact on the level of the return required¹¹.
- 5.24 For the purposes of accounting separation, balance sheet information (see Section 7) should be consistent with the definition of capital employed used for price-setting purposes. This will allow users of separate accounts to compare, on a consistent basis, the returns actually earned by operators with their cost of capital.
- 5.25 If provisions are included in the definition of capital employed for regulatory purposes, the WACC should be calculated using the cost of debt and of equity only. If, on the other hand, they are excluded (i.e. not deducted in calculating the value of capital employed) the WACC should reflect the cost of debt, equity *and* provisions. In practice, we believe that it would be easier to adopt the former of these approaches – i.e. to determine the cost of capital as the weighted average cost of debt and equity, and to include provisions in capital employed.
- 5.26 This will require the allocation of provisions to businesses. Where possible, provisions should be allocated directly to the activities that give rise to the provisions (and then on to businesses in the same way as all other items of capital employed allocated to the activities in question) based on the rationale for the provision.

Liabilities for taxation and dividends

- 5.27 Liabilities for taxation and dividends are short-term liabilities that arise because taxation and dividends have not yet been paid. When these liabilities become payable by an operator, either its cash balances will fall or its debt will increase (or a combination of the two). We suggest that these liabilities are not allocated to individual businesses. Instead we suggest that *average* liabilities for taxation and dividends in any period should be taken into account when considering the cash balances required by operators for operational purposes (see above).

¹¹ To illustrate this, assume an organisation with total shareholders funds of 20, debt of 60 and provisions of 20. Assume also that the cost of equity is 20% and the cost of debt is 10%. The cost of provisions is assumed to be 0%. If provisions are excluded from the calculation of capital employed, capital employed is 80 and the cost of capital is $(20/80 \times 20\%) + (60/80 \times 10\%)$; i.e. 12.5%. The required return is therefore 10 (12.5% of 80). On the other hand, if provisions are included in the definition of capital employed, capital employed is 100 and the cost of capital is $(20/100 \times 20\%) + (60/100 \times 10\%) + (20/100 \times 0\%)$, i.e. 10%. However, the required return remains at 10 (derived as 10% of 100).

6. Revenue

Introduction

- 6.1 Section 3 set out some principles for the allocation and attribution of costs and revenues to the products and services offered by operators. In this section we consider the application of these principles to revenue.

Revenue from core telephony activities

- 6.2 It is expected that revenues from the provision of core telephony products and services can be directly allocated to the products and services to which they relate based on accounting records and billing system information. In those cases where direct allocation based on accounting records or billing system data is not possible, revenues should be attributed on the basis of causation.
- 6.3 The allocation of revenues from core telephony services between Local Access-Network, Core Network and Retail for a fixed telephone network is summarised below¹².

Connection charges

- 6.4 Charges for establishing new connections to the fixed telephone network (other than for establishing a Point of Interconnect – see Interconnection charges below) should be assigned to Retail.

Line rental charges

- 6.5 Line rental charges should be assigned to Retail.

Revenues from leased lines

- 6.6 Revenue from leased lines should be allocated to Retail.

¹² The same principles can be applied by analogy to other networks.

Access deficit contributions

- 6.7 In those Member States that operate Access Deficit Schemes, access deficit contributions should be allocated to Local Access-Network.

Universal Service contributions

- 6.8 In those Member States that operate schemes to finance Universal Service obligations, contributions from other operators should be allocated to Retail. In addition, there should be an explanatory note to the accounts demonstrating that there is no discrimination between the contributions charged to other operators and those charged (implicitly) internally.

Interconnection charges

- 6.9 Interconnection charges, including the one-off costs of establishing a Point of Interconnect and volume-related charges, should be allocated to Core Network.

Call charges

- 6.10 Revenue from call charges should be allocated to the appropriate service within the Retail business.

Equipment rentals and sales

- 6.11 Revenue from the rental and sale of equipment such as telephones and facsimile machines should be allocated to the appropriate services within "Other activities".

Revenue from advertising in directories

- 6.12 Revenue received from advertising in directories should be allocated to a directory services account in "Other activities".

Engineering services/consultancy

- 6.13 Revenue from engineering services/consultancy other than for interconnection should be allocated to "Other activities".

Other revenue

- 6.14 Operators may also generate income from non-telephony services. In accordance with the principle of causation these should be allocated to the activities to which they relate.
- 6.15 One example would be revenue from sub-letting parts of properties used by the core telephony businesses, the revenue from which could be treated in a number of ways. Options include:
- Treating the revenue as revenue for the business sub-letting the accommodation; and
 - Recording the revenue under “Other activities”.
- 6.16 No one approach is necessarily better than the others that may be available. However, it is important that the revenues from non-core activities and the costs associated with them are treated consistently. Failure to do so would lead to the profits of one business being understated and the profits of another overstated.

Income from fixed asset investments

- 6.17 Income from fixed asset investments should be allocated in the same way as the investments to which they relate.
- 6.18 Given the approach adopted in Section 5 to the allocation of pure financial investments and investments in unrelated activities the income from these investments would be allocated to “Other activities”.
- 6.19 Income from fixed asset investments should only be allocated to Local Access-Network, Core Network or Retail if the related investments are allocated in this way.

Income from short-term investments

- 6.20 The same principles apply to income received from short-term investments. The income should be allocated to the business to which the associated investment is allocated.

7. Reporting Requirements

Introduction

7.1 In this section of the guidelines we set out the information that operators should prepare for the purposes of accounting separation and consider the extent to which it should be published.

Suggested accounts

7.2 In accordance with the objectives of accounting separation, separate accounts for the Local Access-Network, Core Network and Retail activities of operators should be prepared with information relating to “Other activities” summarised in a single set of accounts¹³.

7.3 The following information should be prepared for each set of accounts:

- 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.

7.4 Operator’s Retail activities include both regulated and unregulated activities. Separate accounts for *each* regulated activity should be prepared. NRAs will need to determine the retail activities for which separate accounts should be prepared taking into account the transparency requirements of National and Community law.

7.5 It would not be appropriate to require operators to reveal detailed financial information about their unregulated activities that they would not otherwise be required to reveal for statutory reporting purposes. Such information may be regarded as commercially confidential. Information relating to such activities should instead be shown in total and reported as “Retail – other activities”.

¹³ If, as discussed in Section 1, NRAs require that separate sets of accounts should be prepared for certain “Other activities”, reports should also be prepared for these. This would reduce the scope of activities included in the “Other activities” accounts.

Content of reports

- 7.6 A suggested profit and loss account and balance sheet for Core Network for the purposes of accounting separation are shown in Figure 7.1 at the end of this section. Suggested formats for Local Access-Network, Retail and Other activities are shown in Figures 7.2, 7.3 and 7.4 respectively.
- 7.7 All accounts should make explicit any transfer charges to or from other businesses. For example, charges paid by the operator's own Retail activity for interconnection services should be clearly shown as a cost in the Retail accounts and as a revenue item in the Core Network accounts.
- 7.8 The accounts should also make explicit any differences between the costs allocated to different activities by the operator and the costs that the NRA allowed for the purpose of determining charges. This will provide transparency about the extent of costs excluded by the NRA for charging purposes and about the reasons for their exclusion.

Basis of preparation

- 7.9 Separate accounts should be prepared on a current cost basis unless there are practical reasons to do otherwise¹⁴.
- 7.10 Appendix 1 provides an introduction to current cost accounting ("CCA").

Audit requirement

- 7.11 As set out in Article 8 of the Interconnection Directive, the separate accounts prepared by operators shall be subject to independent audit in accordance with the relevant rules of national legislation.

Other information

- 7.12 The following information should also be prepared as part of accounting separation:
- A statement of accounting policies used in the preparation of the accounts;
 - A reconciliation of the separate accounts to the statutory accounts of the operator;

¹⁴ The use of a current cost accounting system is consistent with the Commission's recommendation to use forward-looking long run incremental costs as the basis for determining interconnection charges. See, for example, the Commission Recommendation on Interconnection in a liberalised telecommunications market, Part 1 – Interconnection Pricing, C(97) 3148, 15 October 1997.

- A matrix summarising the total transfer charges between different accounts. This matrix will make explicit the total charges from, for example, Core Network to Retail and will be an input into the reconciliation of the separate accounts to the statutory accounts;
- A statement describing the basis on which unattributable costs have been allocated between different accounts¹⁵;
- Information about the cost allocation methodologies employed in order to prepare separate accounts. This should be at a level of detail that makes clear the relationship between costs and interconnection charges;
- A statement showing the average cost of network components; and
- In those Member States that operate schemes to finance Universal Service obligations, an explanatory note demonstrating that there is no discrimination between charges level on other operators and those levied (implicitly) internally.

7.13 The format in which the above information should be presented is for operators to determine in consultation with their NRA.

7.14 The Interconnection Directive also requires that operators provide interconnection to other operators under the same terms and conditions as they provide for their own services (i.e. internally) or those of their subsidiaries or partners. For these purposes, operators will need to provide information to their NRA demonstrating that there has been no undue discrimination between the provision of services internally and those provided externally. It shall be up to each NRA to consider how it wishes this information to be provided and the process by which such information will be validated.

Publication of information

7.15 Publication of information would serve a number of purposes including the following:

- It would make transparent the relationship between interconnection charges and costs;
- It would provide transparency about the interconnection charges paid by the operator's own Retail activities and assurance that there was no undue discrimination between internal and external provision of interconnection services; and
- It would help to establish confidence in the interconnection regime.

7.16 For these reasons we recommend that NRAs encourage publication of as much of the above information as possible.

¹⁵ Best practice is to allocate unattributable costs in the ex post financial reports in the same way as they were allocated for the purposes of price setting.

- 7.17 Information that is proven to be commercially confidential should not be published.
- 7.18 There will inevitably be changes in the cost allocation methods used by operators, particularly for those operators that have not historically been required to prepare separate accounts. Accordingly, NRAs should consider the extent to which the above information is published in the first year after adoption of the Interconnection Directive. Notwithstanding this, we recommend publication of the cost allocation methodologies employed by operators at the earliest opportunity.

Figure 7.1 – Suggested reporting formats for the Core Network business

(a) Profit and Loss

	Current Year	Prior Year	
Turnover			
From Retail			
From other operators			
Total turnover	_____	_____	①
Operating costs			
CCA adjustments (if any)			
Total operating costs	_____	_____	②
Return	_____	_____	③ = ① -
			\\LONFS2009\VOL 1\AA\DATA\Cmd\ D\DGXIII\REPORT \finrep.docOLE_LI NK4②

The calculation of the return must be consistent with the basis on which the cost of capital is calculated. Therefore, if - as envisaged in the main body of the guidelines – a pre-tax and pre-interest WACC is used, the return shown in the accounts should be equivalent to profit before interest and tax.

Figure 7.1 (cont.) – Suggested reporting formats for the Core Network business

(b) Balance sheet information

	Current Year	Prior Year
Fixed assets		
Tangible fixed assets		
Intangible fixed assets		
Investments		
Total fixed assets		①
Current assets		
Stocks		
Debtors		
Investments ¹⁾		
Cash at bank & in hand		
Total current assets		②
Creditors		③
Provisions for liabilities and charges		④
Mean capital employed		⑤ = ① + ② - ③ - ④

All entries in the “balance sheet” should be prepared on a current cost basis unless there are practical reasons to do otherwise. They should be average values for the year to which they relate. Where possible and material the average values shown should be weighted averages. If information is not available, a simple average of opening and closing balances may initially be used.

(c) Return on capital employed

	Current Year	Prior Year
Return		①
Mean capital employed		②
Return on mean capital employed (%)		③ = ①/②

Figure 7.2 – Suggested reporting formats for the Local Access-Network business

(a) Profit and Loss

	Current Year	Prior Year	
Turnover			
Transfer charges to Retail	_____	_____	
Total turnover			①
Operating costs			
CCA adjustments (if any)	_____	_____	
Total operating costs			②
Return (excluding ADCs, if any)	_____	_____	③ = ① - ②
ADCs (if any)			
From other operators			
From Retail	_____	_____	
Total ADCs			↵
Return (including ADCs, if any)	_____	_____	↵ = ③ + ↵

(b) Balance sheet information

As for Core Network.

(c) Return on capital employed

As for Core Network.

Figure 7.3 – Suggested reporting formats for the Retail business

(a) Profit and Loss

	Current Year	Prior Year
Turnover		
Connection charges		
Rental charges		
Call charges		
Other turnover		
Total turnover		①
Operating costs		
Operating costs specific to Retail		
Transfer charges from Core Network		
Transfer charge from Local Access-Network		
ADCs paid to Local Access- Network		
CCA adjustments (if any)		
Total operating costs		②
Return (excluding Universal Service Contributions, if any)		③ = ① - ②
Universal Service contributions from other operators (if any) ¹⁶		↵
Return (including Universal Service contributions, if any)		↵ = ③ + ↵

The same formats would apply to separate regulated activities within Retail.

(b) Balance sheet information

As for Core Network.

¹⁶ Universal Service contributions applied internally would net off to zero and are therefore not shown in the profit and loss for Retail.

(c) Return on capital employed

As for Core Network.

Figure 7.4 – Suggested reporting formats for “Other activities”

(a) Profit and Loss

	Current Year	Prior Year	
Turnover			①
Operating costs			②
Return			③ = ① - ②

As discussed in the main body of the guidelines there may be a case for disaggregating “Other activities” in order to provide greater transparency of the performance of specific activities. It will be up to individual NRAs to specify the extent to which separate accounts for these activities will be prepared.

(b) Balance sheet information

As for Core Network.

(c) Return on capital employed

As for Core Network.

Appendix 1 – Current Cost Accounting adjustments

Introduction

1. Current Cost Accounting (“CCA”) is a methodology originally devised for financial reporting in times of rapidly changing prices where traditional Historical Cost Accounting (“HCA”) was considered inadequate. There are two alternative approaches to CCA. The approaches differ in their approach to “capital maintenance”. That is, the manner in which the capital of the company is viewed when determining profit.
2. Capital can either be viewed in operational terms (i.e. as the company’s capacity to produce goods and services) or in financial terms (i.e. as the value of shareholder’s equity interest). These are known as operating capital maintenance and financial capital maintenance concepts respectively:
 - Operating Capital Maintenance (“OCM”) considers the operating capability of the company. Proponents of OCM assert that 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.
 - Financial Capital Maintenance (“FCM”) considers the financial capital of the company is maintained in current price terms. 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.
3. We set out below the main adjustments required for the purposes of current cost accounting under the OCM and FCM concepts

The main adjustments under OCM

4. As set out above, this concept is concerned with the maintenance of the productive capacity of the company. One of the significant adjustments relates to the revaluation of fixed assets to current cost. Due to this revaluation additional adjustments are then required to restate depreciation amounts. These are identified below.

Revaluation of fixed assets

5. Under OCM the gross book value of assets is revalued to take account of *specific* price changes in the price of assets and changes in technology.

6. One way of calculating the current cost of assets is to apply specific price indices to the existing gross book value of assets. These may be derived from the company's procurement department. Alternatively, Modern Equivalent Asset ("MEA") valuation methods may be used. These base the value of assets on the current cost of modern equivalent assets subject to cost "abatements". These abatements are discussed further below.

Supplementary depreciation

7. The depreciation charge for the year is calculated on the basis of the new asset valuations. This ensures that the current cost of fixed assets consumed during the year is charged against revenue. For each asset, or group of assets, the OCM depreciation charge - assuming straight line depreciation - can be derived by dividing the gross replacement cost by asset life.
8. Supplementary depreciation is the difference between historical cost depreciation and current cost depreciation charge. It may be positive or negative depending on whether the value of assets is rising or falling. It is a charge against profits in the P&L account.

"Backlog" depreciation

9. The total current cost depreciation (i.e. the sum of historical and supplementary depreciation) charges over the life of an asset will not equal the replacement cost of the asset at the end of its life. The difference is "backlog" depreciation.
10. Under OCM, backlog depreciation is not debited to the P&L account. Instead it is debited directly to the current cost reserve ("CCR"). This is because it does not form part of the current period's current cost of utilising the asset; rather it represents the effect on past consumption of subsequent price changes.
11. Transfers to or from the current cost reserve represent the *net* amount of the restatement of the gross current cost and the restatement of the accumulated depreciation; that is, they represent the change in the net value of the asset from one period to another.

Illustration of these concepts

12. The tables below illustrates the above concepts for an asset purchased for 10,000 ECU. The assumed life of the asset is 4 years. For simplicity, it is assumed that the asset is depreciated on a straight line basis. In Table A1.1 it is assumed that the cost of replacing the asset falls by 10% per annum. Table A1.2, on the other hand, assumes that the cost of replacement increases by 5% per annum.

Table A1.1 Replacement cost falling by 10% per annum

Year	Current Cost		Depreciation				
		Current cost	Historical	Supple- mentary	Cumulative	“Required”	Backlog
0	10,000						
1	9,000	2,250.00	2,500.00	(250.00)	2,250.00	2,250.00	Nil
2	8,100	2,025.00	2,500.00	(475.00)	4,275.00	4,050.00	(225.00)
3	7,290	1,822.50	2,500.00	(677.50)	5,872.50	5,467.50	(405.00)
4	6,561	1,640.25	2,500.00	(859.75)	7,107.75	6,561.00	(546.75)

Table A1.2 Replacement cost rising by 5% per annum

Year	Current Cost		Depreciation				
		Current cost	Historical	Supple- mentary	Cumulative	“Required”	Backlog
0	10,000.00						
1	10,500.00	2,625.00	2,500.00	125.00	2,625.00	2,625.00	Nil
2	11,025.00	2,756.25	2,500.00	256.25	5,381.25	5,512.50	131.25
3	11,576.25	2,894.06	2,500.00	394.06	8,406.56	8,682.19	275.63
4	12,155.06	3,038.77	2,500.00	538.77	11,720.96	12,155.06	434.10

13. Derivation/explanation:

- Current cost is the gross replacement cost of the asset;
- Current cost depreciation is derived as the gross replacement cost divided by the asset life;
- Historical cost depreciation is the original acquisition cost divided by the asset life;

- Supplementary depreciation is the additional depreciation charged as a result of revaluing the asset (it can also be derived as current cost depreciation less historical cost depreciation);
- Cumulative depreciation is the sum of cumulative current cost depreciation and backlog depreciation;
- “Required” depreciation is the cumulative depreciation that would have been charged given the current cost of the asset – put another way, it is the difference between the gross and net replacement cost of the asset; and
- Backlog depreciation is the difference between required depreciation and cumulative depreciation.

Other OCM adjustments

14. Other current cost accounting adjustments under OCM including the following:
 - Cost of sales adjustments;
 - Monetary working capital adjustments;
 - Gearing adjustments; and
 - Adjustments to profit on sale of tangible fixed assets.
15. These items are not discussed in this appendix. Detailed guidance can be obtained from “Accounting for the effects of changing prices: a Handbook”, issued by the Accounting Standards Committee in the UK in 1986.

The main adjustments under FCM

16. Under FCM there are similar adjustments to be made as in the OCM concept. However, some of the treatments in terms of P&L effects are different.

Revaluation of fixed assets

17. As for OCM.

Supplementary depreciation

18. As for OCM.

Backlog depreciation

19. As for OCM.

Holding gains and shareholders' funds

20. Under FCM, profit is recognised only after taking account of holding gains or losses that arise due to the effect of asset-specific inflation on the current cost value of assets and the effect of general inflation on shareholders' funds. Current cost profit under FCM can be derived as follows:

$$\text{FCM profit} = \text{HC profit} + \text{holding gains/(losses)} - \text{the erosion in the value of shareholders' funds due to general inflation}$$

21. Holding gains (or losses) comprise two components:

- The gain in the current cost value of assets as a result of changes in the cost of assets; that is, as a result of asset revaluations; and
- The element of the revaluation that is written off as depreciation during the year in question.

22. The gain in current cost can be derived as:

$$\text{NBV(HC)}_{t-1} \times (\text{GRC}_t/\text{acquisition cost}) \text{ less } \text{NBV(HC)}_{t-1} \times (\text{GRC}_{t-1}/\text{acquisition cost})$$

where NBV(HC)_{t-1} is the written down historical cost of the asset at the end of the previous year, GRC is the gross replacement cost and acquisition cost is the original purchase consideration. The above formula reduces to the net book value in current cost terms at the end of the previous year multiplied by the change in the asset-specific price index. For the purposes of accounting separation in accordance with the Interconnection Directive, this amount shall be credited to the P&L.

23. The element of the revaluation that is written off as depreciation is derived as:

$$\text{HC depreciation} \times (\text{GRC}_t/\text{acquisition cost}) \text{ less } \text{HC depreciation}$$

24. Given that HC depreciation is derived as acquisition cost divided by asset life, this formula reduces to:

$$(\text{gross replacement cost} - \text{acquisition cost})/\text{asset life}$$

25. As discussed above, this is equivalent to supplementary depreciation. For the purposes of accounting separation in accordance with the Interconnection Directive, it shall be debited to the P&L.

26. The effect of general inflation on shareholders' funds is taken into account through an adjustment to shareholders' funds, determined by multiplying the opening value of shareholders' funds by the change in the index of general price inflation for the period. This is debited to the P&L and credited to a financial capital maintenance reserve.

Which capital maintenance concept?

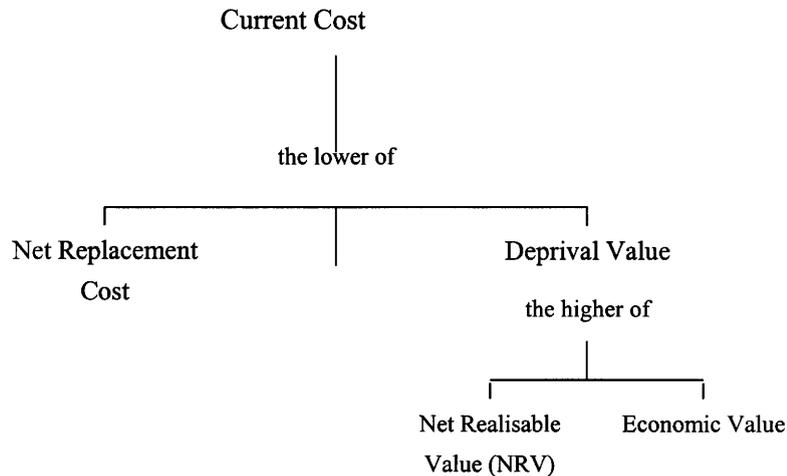
27. This appendix has so far set out the main adjustments required to historical cost accounts in order to derive current cost information using OCM and FCM. It has been included to reflect the fact that the transition to LRIC from fully allocated historical costs as the basis for determining interconnection charges requires that assets are valued at their market value (or current cost). The use of current cost information is therefore a key aspect in helping to determine appropriate interconnection charges.
28. In some Member States, the use of current cost information as the basis for setting interconnection charges may be an interim step in the transition to LRIC. The choice of capital maintenance concept is therefore critical.
29. If OCM was used to determine charges, the revenue requirement¹⁷ would be derived as the sum of operating costs, historical cost depreciation, supplementary depreciation and a return on net assets. Under FCM, the revenue requirement would be the sum of operating costs, historical cost depreciation, supplementary depreciation and a return on net assets *less* holding gains/losses *plus* the adjustment to shareholders' funds. Required revenue therefore differs depending on the capital maintenance concept used.
30. 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.
31. Under FCM, however, the returns to the providers of capital would equal the required return¹⁸ (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 on which to determine interconnection charges (albeit as an interim stage prior to the use of LRIC information) FCM is the preferred capital maintenance concept. It follows, therefore, that separate accounts would also need to be prepared using the FCM concept.

Calculation of current cost asset values

32. A key element of the current cost methodology is the valuation of assets. Assets should be valued according to the following decision rule:

¹⁷ Defined as the level of revenue required in order to earn a reasonable return.

¹⁸ Subject to the level of investment in assets being efficient.



Net Replacement Cost

33. The Net Replacement Cost is the cost of replacing the asset with another asset of similar characteristics and age.
34. A key element of this formula is the calculation of the replacement cost of the asset. Replacement cost can simply be the cost today of replacing the asset with an identical one. However, when technology is changing rapidly, the existing asset may no longer be replaceable (e.g. it is no longer manufactured). In this case it is necessary to calculate the MEA value which is the value of an asset with the same level of capacity and functionality as the existing asset. The issues relating to the calculation of MEA values for telecommunications operators are considered further below.

Deprival Value

35. Deprival Value (“DV”) represents the recoverable value of the asset to the organisation; that is, the higher of the economic value the asset is likely to generate or the net realisable value (“NRV”) of the asset if it were sold.
36. Economic Value (“EV”) is a measure of the value of an asset based on the net present value of future cash flows.
37. The valuation rules can be summarised as follows:
- If $EV > NRV$, the company will keep the asset in its current use.
 - If $NRV > EV$, the company will sell the asset now as the proceeds from the sale would exceed the economic value that it would be expected to generate from its continued use.

38. Therefore the deprival value or recoverable amount of the asset is the higher of EV and NRV. The current cost therefore is the lower of its deprival value and the net replacement cost. That is, the lower of the amount the company could recover from the asset and the cost to the company to replace the asset with an identical one.

MEA valuation issues in telecommunications

39. The adoption of CCA methodologies in telecommunications is complicated by the rate of technological change in the industry. This has implications in both identifying suitable replacement costs for old technology assets and ensuring the assets exhibit the same levels of functionality and capability.
40. Examples of technological issues for telecommunications operators include:
- Copper versus fibre cables;
 - Analogue versus digital switches; and
 - PDH technology versus SDH technology.
41. The new technologies are usually far superior to the old technologies in terms of functionality and efficiency. However, since MEA values are required to reflect assets of equivalent capacity and functionality, it is necessary to make adjustments to the current purchase price and also the related operating costs - for example, the new asset may require less maintenance. These adjustments are known as "abatements".

Illustration of abatement exercises

42. Consider the valuation of two digital switches. Assume that one of the switches is an older basic type while the other is a newer type that has additional feature facilities such as voice mail. The supplier may only have the current replacement cost of the newer switch. In this case, the costs of the additional functionality should be deducted from the cost to derive an appropriate cost for the basic type.