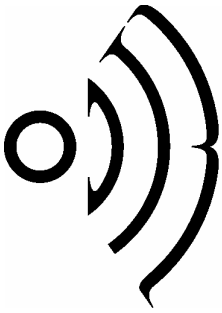

Office of the Director of
Telecommunications
Regulation

Costing Methodologies for use in Accounting Separation

Consultation paper

Document No. ODTR 99/26 **April, 1999**

Oifig an Stiúrthóra Rialála Teileachumarsáide
Office of the Director of Telecommunications Regulation
Abbey Court, Irish Life Centre, Lower Abbey Street, Dublin 1.
Telephone +353-1-804 9600 *Fax* +353-1-804 9680
Web: www.odtr.ie

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1. Introduction

The Director of Telecommunications Regulation ("the Director") is responsible for the regulation of the Irish telecommunications sector in accordance with national and EU legislation. A key issue of importance to the sector is that of facilitating and sustaining effective competition. One of the key tools available to the Director in this area is that of Accounting Separation, whose primary purpose is to ensure that charges of a Significant Market Power operator ("SMP") are cost based, transparent and non-discriminatory. In early March, the ODTR issued a consultation paper (ODTR 99/10) on how accounting separation should be developed in Ireland.
This paper further develops the accounting separation process and seeks views on how revenues, costs, assets and liabilities should be allocated across the separated accounts.

These matters will be considered in the light of the requirements in Irish and EU law, in particular the requirements that that the separated accounts be appropriate for the market and in compliance with the principles of the legislation, including the principles of cost orientation, transparency and non-discrimination.

The Director welcomes comments on all of the key issues raised in this paper. Comments should be submitted in writing before 5pm on Friday, **28th May 1999** to: -

Maeve O'Reilly
Office of the Director of Telecommunications Regulation
Abbey Court
Irish Life Centre
Lower Abbey Street
Dublin 1
Tel: +353-1-804 9600 Fax: +353-1-804 9680
Email: oreillym@odtr.ie

All comments are welcome, but it would make the task of analysing responses easier if comments reference the relevant question numbers from this document. In order to promote further openness and transparency the ODTR will, in its report on the consultation, summarise the responses received. In order to satisfactorily answer many of the questions raised in this consultation paper, the Director believes that confidential business information will be of enormous value to her office. She encourages this information to be forwarded with replies and requests that it is included in a separate annex and clearly marked "Confidential". Information of this nature will only be made available to ODTR staff and will not be disclosed to third parties.
Having analysed and considered the comments received, the ODTR will publish a report on the consultation in June 1999.

This is a consultative document only. This document does not constitute legal, commercial or technical advice. The Director is not bound by it. The consultation is without prejudice to the legal position of the Director or her rights and duties to regulate the market generally.

2. Background

Both EU and Irish legislation recognise that, in the interests of developing and sustaining competition in the telecommunications industry, new entrants to the market must have the facility to interconnect to the network of an incumbent operator. Under the legislation, a telecommunications industry operator providing fixed public telephone networks and designated as having SMP, is required to publish a Reference Interconnection Offer ("RIO"). The RIO must include a statement of the rates at which other licensed operators may interconnect to the SMP operator's network. To assist in ensuring that these rates fairly reflect the associated costs, the legislation also requires transparency in and access to the accounts of such organisations. This transparency/access mandate includes accounting separation[1]. This involves the separate identification of all elements of cost and revenue related to the various activities of the organisation, so helping to ensure transparency of internal cost transfers and discouraging cross-subsidisation between activities.

Directive 97/33/EC of the European Parliament and Council establishes the legal and regulatory framework for the interconnection of telecommunications networks within the EU - a framework that includes a requirement for accounting separation. The provisions of the Directive are transposed into Irish law by Statutory Instrument No. 15 of 1998, signed by the Minister for Public Enterprise, which sets down the manner in which the Directive's principles are to apply in Ireland. Finally, EU Commission Recommendation of 8 April 1998 provides detailed guidelines to National Regulatory Authorities (NRA) on accounting separation.

The Director is now engaged in the development of accounting separation arrangements in the Irish telecommunications sector. To assist in this work, the Director invites submissions from interested parties on the matters referred to in sections below concerning the costing methodologies to be used in accounting separation and publication of financial information for telecommunications operators.

2.1 Legislative Background

There is a range of relevant legislation in this area; the most relevant of which is summarised below:

Interconnection Legislation

- *Council Directive 97/33/EC on interconnection in Telecommunications with regard to ensuring universal service and interoperability through application of the principles of Open Network Provision (ONP), and*
- *The European Communities (Interconnection In Telecommunication) Regulations, 1998, SI No. 15 of 1998, transposing the above directive*

[1] The drawing up by the SMP Operator of accounts separated for its different business units and, specifically, separated between interconnection and other activities

This legislation states that organisations providing the public telecommunications networks and/or publicly available services that have been designated by the Director as having Significant Market Power, and which offer interconnection services to other organisations are required to keep separate accounts for their activities relating to interconnection and 'other activities'. These accounts should identify all elements of cost and revenue, 'with the basis of their calculation and the detailed attribution methods used, related to their interconnection activity including an itemised breakdown of fixed asset and structural costs.' It is likely that major subsidiary companies of an SMP Operator may be disaggregated within ' other activities'. The ODTR is currently completing its examination of this matter.

National regulatory authorities shall ensure that a description of the cost accounting system, showing the main categories under which costs are grouped and the rules used for the allocation of costs to interconnection, is made available on request.

NRAs 'may publish such information as would contribute to an open and competitive market, while taking account of considerations of commercial confidentiality.'

Voice Telephony Legislation

- *Council Directive 98/10/EC on the application of open network provision (ONP) to voice telephony and on universal service for telecommunications in a competitive environment, and*

- *European Communities (Voice Telephony and Universal Service) Regulations, 1999, SI No. 71 of 1999, transposing the above directive and Directive No. 97/33/EC*

  This legislation states that an organisation, which has an obligation for its tariffs to follow the principle of cost orientation in accordance with the legislation, shall operate and maintain a cost accounting system based on generally accepted accounting practices and which is suitable for compliance with the legislation's requirements.

  The Director may issue directions establishing standards for cost accounting systems required pursuant to this legislation and an organisation subject to this legislation shall comply with any such directions.

Leased Lines

- *Council Directive 92/44/EC on the application of open network provision to leased lines as amended by 94/439/EC and Directive 97/51/EC*

- *European Communities (Leased Lines) Regulations, 1998, SI No. 109 of 1998, transposing the above directive*

  This legislation states that tariffs for leased lines must follow the basic principles of cost orientation and transparency, and are independent of the type of

application, which the users of the leased lines implement. A notified[2] organisation shall operate and maintain a cost accounting system suitable for the implementation of these and other principles set out in the legislation.

Licence Condition

- *Pro Forma General Telecommunications Licence (ODTR Document No. 98/50R)*

  Condition 15 of the General Telecommunications Licence applies to organisations that have been designated as having SMP in the fixed telephone network and services market. The condition provides, inter alia, that the licensee shall maintain accounting records in a form which enables the activities of any business unit specified in any direction given by the Director to be separately identifiable, and which the Director considers to be sufficient to show and explain the transactions of each of those business units.

European Commission Recommendations

In addition, the Commission has published recommendations on the pricing of interconnection as well as on costing methods that could be used to calculate such prices. The relevant documents are:

- *Commission Recommendation of 8 January 1998 on interconnection in a liberalised telecommunications market (as amended) – Part 1 Interconnection Pricing (98/195/EC as amended by 98/511/EC)*

  This Commission Recommendation (the "8/1/98 Recommendation") states that interconnect costs should be calculated on the basis of forward-looking long run average incremental costs since these costs closely approximate those of an efficient operator employing modern technology.

- *Commission Recommendation of 8 April 1998 on interconnection in a liberalised telecommunications market – Part 2 – Accounting separation and cost accounting) (98/322/EC)*

  This Commission Recommendation (the "8/4/98 Recommendation") concerns the implementation of accounting separation and cost accounting systems by operators designated by their NRA as having significant market power in accordance with Article 8(2) of Directive 97/33/EC for implementation of interconnection obligations, with particular regard to the principles of transparency and cost orientation.

[2] An organisation directed by the Director to provide at any point within a specific geographic area, a type of leased line that is specified in Annex II, as amended by Article 1 of Commission Decision 94/439**,** of Council Directive 92/44.

3. Scope of this Consultation

This consultation seeks the views of interested parties on the cost methodologies to be used by relevant SMP operators. In particular, the sections to follow consider:-

- the principles of cost causation in the cost allocation process
- the types of cost allocation
- sampling techniques used in cost allocations
- relevant costs for separated accounts versus accounts for decision making
- the assessment of capital employed
- the need for consistency in the treatment of working capital
- asset lives and depreciation
- revenue allocation
- current costs accounting and it's impact

The above issues have been considered in light of the legislative framework as outlined in Section 2 above.

Following this consultation, the ODTR will issue a report recommending methods of cost allocation to be used by an SMP Operator. These methods will provide summary guidance only. Individual SMP operators will still need to develop detailed cost allocation procedures specific to the way in which they currently capture and record costs, and to refine these over time, as appropriate.

A description of Telecom Éireann's costing system, together with its costs drivers must be published by Telecom Éireann in accordance with EU Legislation**.** Telecom Éireann intends to publish this information with its published separated accounts. It may be appropriate for this information to be published prior to the publication of separated accounts to enable other operators to comment on the cost allocation procedures adopted by Telecom Éireann.

The Director would welcome comments on the following:-

Q3.I *Do you believe that Telecom Éireann should publish a detailed description of its costing system prior to the publication of separated accounts? Please give reasons for your answer.*

Q3.II *What level of detail do you believe would be appropriate for Telecom Éireann to publish in the description of its costing system? What is the basis for your belief?*

4. The Cost Allocation Process

This section considers the cost allocation process and the principles that should be followed in order to allocate costs[3], capital employed and revenues for the purposes of preparing separate accounts. These principles are also relevant to the determination of interconnection and lease line charges. The application of these principles is considered in more detail in sections 5 - 7.

4.1 Principles of Cost Allocation

The 8/4/98 Recommendation recommends that the allocation of costs, capital employed and revenue is done in accordance with the principle of cost causation (such as activity-based costing ("ABC")), i.e. costs and revenues should be allocated to those services or products that cause those costs or revenues to arise.
The amount of overheads required to be apportioned on an arbitrary basis, because there is no particular activity to which they can be directly or indirectly allocated, should be kept to an absolute minimum. The Recommendation states that a "well defined cost-allocation system will enable at least 90 % of the costs to be allocated on the basis of direct or indirect cost-causation[4]".
For unbundled interconnection services, (for which purposes the costing systems of operators should be sufficiently detailed to permit - as far as possible - the allocation of costs to unbundled network components).

Following the principle of causation requires an operator to implement appropriate and detailed cost allocation methodologies in its cost accounting system. In practice, this would require an operator to:

a) review each item of cost, capital employed and revenue,
b) establish the driver that caused each item to arise, and
c) use the driver to allocate each item,
d) pooling costs that cannot be related on a causation basis to activities and allocating on a predetermined basis. These types of costs are considered further in the following paragraphs on unattributable costs.

There are three other important principles, which could be adopted: -

i) **Transparency:** the operator should publish updated versions of its cost allocation methodology when changes are made to it.
ii) **Consistency:** the same bases of allocation should preferably be used from year to year. Where there are changes made the operator should restate the previous year's separate accounts on the new bases.
iii) **Materiality:** the use of specific allocation bases may not be necessary if the effect on the allocation is not material to the outcome. Of course, it may not be possible to measure the effect without adopting an alternative basis and, in cases

[3] Both operating and capital related.
[4] Directly attributable costs are those costs that can be directly and unambiguously related to a product or service. Indirectly attributable costs are those costs that can be apportioned to products or services on a measured non-arbitrary basis based on the relationship of the costs with directly attributable costs (i.e. using usage factors for each consuming shared resources).

of doubt, the most appropriate activity related cost apportionment basis should be used.

4.2 Cost Categories

Following the principle of cost causation, -each item of cost and revenue should be allocated to the products and services provided by an operator. In the case of revenue most, if not all, revenues can be allocated directly to their related products or services. However, this is not the case for costs due to the relatively high proportion of the costs that are shared between different products and services. Each cost item may be considered to fall into one of the following categories:-

a) Direct and directly attributable costs

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.

Directly attributable costs are also directly and unambiguously related to a service or product but they are not recorded in the financial accounts against the product or service to which they relate.

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.

b) Indirectly attributable costs

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 (e.g. usage of shared facilities).

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 (possibly on the basis of usage).

In order to derive the apportionment bases sampling techniques may be used, as long as these are based on appropriate statistical techniques, which result in an immaterial margin of error (This topic is further discussed at Section 4.4).

c) Unattributable costs

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. These costs are likely to be of the character of 'corporate overheads'.

A significant level of telecommunications operators' costs are joint and common in nature, however the rigorous application of cost causation methods may be expected to reduce substantially the proportion of these costs that are truly unattributable.

The 8/4/98 Recommendation recommends that “unattributable costs (the cost which can only be attributed on an arbitrary basis) be clearly identified in a specific account and be the subject of a specific treatment by the NRA” in accordance with relevant competition rules and in compliance with the principles of transparency and proportionality.

There are many different ways of allocating unattributable costs to products and services. The Attributable Cost Method, or Equal Proportionate Mark-Ups ("EPMUs"), is an example of one way of allocating these costs. This method allocates the unattributable costs in proportion to the attributable costs[5] of products and services. Extracts from relevant EU legislation on the treatment of unattributable common costs are set out in Appendix XI, the methods described are similar to the Attributable Cost Method. There are a number of arguably more complex approaches to the allocation of unattributable costs for price-setting purposes[6]. The informational requirements of such approaches may be more onerous than for methods such as EPMUs.

The decision on what is an appropriate approach must take account of:-

- The practicalities of implementing the approach;
- The proportion of costs considered unattributable; and
- The nature of unattributable costs: it may, for example, be appropriate to apply separate mark-ups for capital and operating costs. Also, 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.

4.3 A Typical Cost Allocation Process

Set out in Appendix II is 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 Appendix II implies, but the ultimate aim of allocating costs is the same.

[5] Including direct costs, directly allocated costs and indirectly attributable costs.
[6] For example, Ramsey pricing.

4.4 Sampling Techniques

Telecommunications operators may need to use sampling techniques and periodic activity reviews in order to allocate costs to the services that the operators provide and, subsequently to the businesses defined for the purposes of accounting separation. The most accurate sampling data will come from surveying the entire population of interest. However, limited resources may prevent entire populations being used for such allocations, and an operator may have to base its allocations on samples of the entire population. 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 would then be used to allocate - either directly or indirectly - all of the costs associated with the staff to the services provided by the operator.

It is essential that any sample data used for allocation purposes is unbiased and sufficiently large enough to be representative of the total population data e.g. sample traffic data is representative of the entire traffic, and is not skewed by seasonal or other factors.

4.5 Relevant Costs for Regulatory Decisions

Regulatory decision making is based on a combination of financial analysis and non-financial information. Financial analysis involves the preparation of relevant costs, which can be defined as costs arising as a direct consequence of the current decision to provide a specific product/service.

Non relevant costs should be excluded when determining charges for services. Examples may include restructuring provisions etc.

While certain costs published under accounting separation may be allocated to business areas as part of the costing/pricing methodology, they may not be relevant in making certain decisions and may have to be reallocated or excluded from the decision process.

Charges for interconnection services should be set to cover the fully justified costs of conveyance and include a contribution to relevant overheads. The charges also cover a rate of return, applied to relevant capital employed.

The actual treatment of non-relevant costs for regulatory decision purposes is important for accounting separation. To increase transparency of the accounting separation statements, the non-relevant costs could be allocated to other business areas / disaggregated activities, thus enabling a clear linkage between the published accounting separation statements and the costs used in any regulatory decision. An alternative could be to disclose these costs in the published accounting separation documents as reconciling items.

The Director would welcome comments on the following:-

Section 4.1

Q4.1.I *What guiding principles should apply when allocating costs, capital employed and revenue?*

Section 4.2

Q4.2.I *What do you believe is an appropriate method of allocating unattributable costs to products and services? What is the basis for your belief?*

Section 4.4

Q4.4.I *Do you agree that some costs may have to be allocated to products and services based on sample data?*
If you disagree, how should these costs be allocated and what is the basis for this allocation?

Q4.4.II *What guiding principles should be applied when deriving sample data? What are your reasons for these guiding principles?*

Section 4.5

Q4.5.I *What costs and elements of capital employed do you believe may not be relevant for regulatory decision purposes, e.g. in interconnect pricing? What is the basis for your belief?*

Q4.5.II *Treatment of costs excluded for regulatory decision purposes under accounting separation?*

a) Do you believe that the above costs should be reallocated to other business areas/disaggregated activities? What is the basis for your belief?
b) Do you believe that these costs should be disclosed as reconciling items in the separate accounts? What is the basis for your belief?
c) If you disagree with a) and b), what is an appropriate method for dealing with these costs? What are your reasons for this treatment?

5. Operating Cost Allocation

This section considers the application of the principles described in Section 4 to the operating costs, including depreciation, of operators.

The cost allocation process outlined in the previous section and in Appendix II relates, in principle, to both operating and capital costs. Appendix III 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.

These allocation and attribution methods are from the *Commission Recommendation of 8 April 1998 on interconnection in a liberalised telecommunications market – Part 2 – Accounting separation and cost accounting) (98/322/EC)* and the headings are purely illustrative and are not intended to reflect the way in which operators are expected to record costs. They provide high-level guidance only and individual operators will have to develop cost allocation procedures specific to the way in which they currently capture and record costs. These procedures should be refined over time as appropriate. The final column of the table in Appendix II 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.

The Director would welcome comments on the following:-

Q5.I *Do you agree with the Commission's recommendations on cost allocation methods?*
If you disagree, what other methods may be more appropriate for allocating these costs? What are your reasons for these cost allocation methods?

Q5.II *What additional types of operating costs and their associated allocation methods should be added to the table? What are your reasons for including these costs and allocation methods?*

6. Revenue Allocation

This section follows on from the previous section on operating costs and considers the application of the principles described in Section 4 to revenue allocation.

6.1 Revenue from Telephony Activities

Generally the revenues from the provision of telephony products and services can be directly allocated to the products and services to which it relates based on accounting records and billing system information. In those instances where direct allocation based on the above is not possible, revenues should be attributed on the basis of causation.
The allocation of revenue from telephony services between the main business areas of an operator is summarised in Appendix IV. These allocation methods are from the *Commission Recommendation of 8 April 1998 on interconnection in a liberalised telecommunications market – Part 2 – Accounting separation and cost accounting) (98/322/EC).*

6.2 Other Revenue

Operators may also earn income from non-telephony services. These revenues should be allocated to the activities to which they relate in accordance with the principle of causation.

One example of non-telephony revenue would be the revenue from sub-letting parts of the properties used by the telephony businesses. This revenue could be treated in a number of different ways as follows:-

a) treating the revenue as revenues for the business sub-letting the accommodation,

b) recording the revenue under 'Other Activities`.

It is important that notwithstanding the actual approach used, the treatment of non-telephony revenues and their associated costs is consistent. Failure to do so would lead to the profits of one business area being understated and the profits of another overstated.

Income from Fixed Asset Investments
Income from Fixed Asset Investments should be allocated in the same way as the investments to which it relates. Following the allocation approach in the 8/4/98 Recommendation (which is set out in the Appendix V and discussed in the following section) to the allocation of Pure Financial Investments and Investments in Unrelated Activities the income from these investments would be allocated to 'Other Activities'[7].

[7] Consultation Paper ODTR 99/10 defines "Other Activities" as a business area into which the costs, revenues and capital employed associated with a wide range of other services including rental, repair and maintenance of customer equipment and non-telecommunications equipment are identified for accounting separation purposes

Income from Fixed Asset Investments would only be allocated to other business areas (e.g. Core Network) if the related investments were allocated in this way.

Income from Short-Term Investments
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.

The Director would welcome comments on the following:-

Q6.I *Do you agree with the Commission's recommendations on methods of revenue allocation?*
If you disagree, what other methods may be more appropriate for allocating these revenues? What are your reasons for these different allocation methods?

Q6.II *What other types of revenue and their associated allocation methods should be added to the table? What is your basis for including these revenues and allocation methods?*

7. Allocation of Capital Employed

In the ODTR document 99/16 'Telecom Éireann Reference Interconnect Offer' the Director welcomed comments on an appropriate approach to calculating the value to be used as the return percentage in the return on capital employed ("ROCE"). Article 7(2) of the Interconnection Directive requires that charges for interconnection be cost-oriented, including a reasonable return on investment. The determinants of this are:-

a) the cost of capital (or ROCE), and
b) a capital value (or capital employed).

This section of the consultation paper considers the application of the principles described in Section 4 to calculating the capital value.

There must be consistency between the measure of capital employed on which the return is based and the measure of capital employed reported in the separate accounts required by the Interconnection Directive[8]. This consistency will enable comparison of the actual percentage returns earned by operators from their activities such as interconnection with the cost of capital allowed by the ODTR when reviewing charges for these activities.

7.1 The Cost of Capital and Capital Employed

The cost of capital must be applied to the capital employed in 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 corporation may not relate specifically to the funding requirements of individual activities.

An alternative approach to determining the capital employed for activities (such as interconnection) is therefore required.

One approach is provided by the following balance sheet identity:

Shareholders' funds (i.e. equity) + debt = net assets excluding debt[9]

This approach enables the capital employed in the various activities to be determined by apportioning net assets. This apportionment should be carried out on a causal basis.

[8] Commission Recommendation of 8 April 1998 on interconnection in a liberalised telecommunications market (as amended) – Part 1 Interconnection Pricing (98/195/EC as amended by 98/511/EC)
[9] i.e. fixed assets + current assets – creditors(excluding debt) - provisions

7.2 Allocation of Capital Employed

Set out in Appendix V is a table summarising the possible allocation methods for the 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. These allocation methods are from the *Commission Recommendation of 8 April 1998 on interconnection in a liberalised telecommunications market – Part 2 – Accounting separation and cost accounting) (98/322/EC).*

The application of these and, as appropriate, other methods will determine the capital employed of the different activities of an operator.

This 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.

The average capital employed during any period rather than capital employed at a single point in time (such as the financial year-end) is used for price-setting purposes. This is because a 'snap-shot` at any point in time may not be representative of the average level of capital employed by operators in their activities. Specifically, the working capital balance of an activity at a single point in time may not be representative of average working capital requirements of that activity over an extended period of time.

7.3 Consistency of Treatment of Working Capital

Appendix V sets out one approach to the treatment of working capital in the calculation of capital employed. There are, however, other approaches which may be equally valid. There are two principles that should be applied when considering the treatment of individual items of working capital. They are as follows:-

a) there should be consistency between the treatment of assets and their associated costs and revenues, and

b) inclusion or exclusion of individual items ought, in principle, to have a corresponding impact on the return on capital employed. These two effects (i.e. the decision to include or exclude items and the corresponding adjustment to the return on capital employed) offset each other in terms of their overall effect on the absolute return required by operators.

7.4 Asset Lives

Virtually all fixed assets have finite useful economic lives. In order to reflect properly all the costs of an operator, it is necessary for there to be a charge in respect of the use of such assets, i.e. depreciation.

Depreciation has been defined a measure of the wearing out, consumption or other reduction in the useful economic life of a fixed asset, whether arising form use, effluxion of time or obsolescence through technological or market changes.

Depreciation should be allocated so as to charge a fair proportion of cost or valuation of the asset to each accounting period expected to benefit from its use.

The assessment of depreciation, and its allocation involves the consideration of three factors:

a) The carrying amount of the asset
b) The length of the asset's expected useful economic life to the business and
c) The estimated residual value of the asset at the end of its useful economic life

It is essential that asset lives are estimated on a realistic basis.

The determination of the useful economic lives of fixed assets in telecommunications is complicated by the rate of technological change in the industry. This has implications in both identifying suitable useful lives for old technology assets and ensuring the assets exhibit the same levels of functionality and capability.

Examples of technological issues for telecommunications operators include:
- Copper versus fibre cables;
- Analogue versus digital switches
- PDH transmission technology versus SDH technology.

The new technologies are usually far superior to the old technologies in terms of functionality and efficiency. This needs to be reflected in the number of years over which these old and new technology assets are depreciated. It also has implications for fixed asset classes.

Appendix VI gives an example of the functional areas \ asset classes to be found in a telecommunication operator's PSTN network. The diagram illustrates six main functional areas in the PSTN network:-

1) User Terminating Equipment
2) Remote Concentrator Unit
3) Local Exchange Switch
4) Transit Exchange Switch
5) International Switching Centre
6) Interconnecting Transmission and equipment

Due to the varying technologies in and hence useful lives of each asset class, it would be inappropriate to use one overall asset life for all assets. Also, the different technologies within each of the classes raise the issue of the appropriateness of using an overall asset life for each asset class. For example, should the asset lives of transmission links be set based on their technology (copper, fibre, etc.), or their location in the network (Local loop, Junction) or both, or only on their asset class (transmission links).
The appendices listed below provide an overview of some of the various network elements and components that make up a telecommunications network.
These appendices are not an exhaustive list of all telecommunications network elements and components, nor of all the different technologies that are used in each element and component.

- Appendix VII – Transmission Elements of PSTN Network
- Appendix VIII – Switching Elements of PSTN Network
- Appendix IX – Other Network Assets
- Appendix X – General Fixed Assets

Appendix XI provides a table detailing various network elements and components, and in certain instances the different technologies used. This table should be used, where possible, when responding to the questions below. This table is not an exhaustive schedule of all the relevant assets, network elements and components.

The Director would welcome comments on the following:-

Section 7.2

Q7.2.I *Do you agree with the Commission's recommendations on allocation methods for capital employed?*
If you disagree, what other principles may be more appropriate for allocating capital employed? What is the basis for these principles?

Q7.2.II *What other types of capital employed and their associated allocation methods should be added to the table? What is your reason for including these assets and allocation methods?*

Section 7.3

Q7.3.I *What guiding principles should apply when considering the treatment of individual items of working capital?*

Section 7.4

Q7.4.I *What is an appropriate basis for depreciating assets?*

a) *Do you believe that asset lives should be set on a functional basis, as shown above in the example split of a PSTN Network into asset classes\functions?*
If yes, what do you believe would be an appropriate breakdown of assets classes\functions (and their asset lives) for the network of a telecommunications operator?
b) *Do you believe that assets lives should be set on an element and component basis[10]? What is the basis for your belief?*
If yes, what do you believe would be appropriate network elements and components (and their asset lives)? What is your basis for these elements and components?
c) *If you do not agree with either of the above, on what basis should asset lives be set, and what is the basis for your belief?*

[10] Example of component and network element depreciation; the processor and line cards in a RCU could have different asset lives to each other even though they are part of the same asset class, while all user terminating equipment could have the same asset life.

Q7.4.II *Accounting for differences in technology.*

a) Do you believe that where network elements and components are of a different technology[11] they should have different asset lives? If yes, what do you believe would be an appropriate breakdown of technologies for the network elements and components (and their asset lives) arising from the previous question?

b) If you disagree with the above?

1) Do you believe that network elements and components, which are of a different technology, should not have different asset lives? What is the basis for your belief?

2) If you do not agree with either of the above, on what basis should asset lives be set for network elements and components which are of a different technology?

Q7.4.III *In the year of acquisition do you believe that:*

a) a full year's depreciation should be provided?

b) depreciation should be provided from the month of acquisition?

c) depreciation should be provided from the day of acquisition?

d) no depreciation should be provided?

e) that an alternative approach should be used?

What is your reason for your belief?

Q7.4.IV *In the year of an asset's disposal, do you believe that:*

a) a full year's depreciation should be provided?

b) depreciation should be provided up to the month of disposal?

c) depreciation should be provided up to the day of disposal?

d) no depreciation should be provided?

e) that an alternative approach should be used?

What is the reason for your belief?

Q7.4.V *Where a change in asset life occurs, which may result in an increased depreciation charge due to the write off of assets older than the revised asset life and a charge to bring other assets into alignment. Do you believe that:*

a) all of the excess depreciation should be allowed in the year the asset life changes?

b) the excess depreciation arising on older assets should be disallowed?

c) only new assets be depreciated using the new life?

d) The excess depreciation should be apportioned over a fixed number of years?

e) that an alternative approach should be used?

What is the reason for your belief?

Q7.4.VI *Depreciation of assets in the course of construction. Do you believe that depreciation be provided:*

a) On component parts once they are in use?

b) Only when the asset is completed and in use?

c) that an alternative approach should be used?

What is the reason for your belief?

[11] Transmission links could be composed of copper, co-axial or fibre cable. They could also be radio transmission links.

8. Current Cost Accounting

The '8/1/98 Recommendation' recommends that interconnection charges should be calculated on the basis of forward looking long run average incremental costs ('LRAIC'). The use of LRAIC[12] implies a cost accounting system using activity-based allocation of current costs rather than historic costs. The transition to LRIC[13] from fully allocated historical costs as the basis for determining interconnection charges would require assets to be valued at their market value (or current cost), and hence depreciation and capital employed would be on a current cost basis.

The use of current cost information is therefore a key aspect in helping to determine appropriate interconnection charges. The use of current cost information as the basis for setting interconnection charges may be an interim step in the transition to LRIC. The '8/1/98 Recommendation' recommends NRAs to set deadlines for their notified operators[14] for the implementation of new cost accounting systems based on current costs, where such systems are not already in place.

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. Telecommunications is an industry that experiences a rapid rate of technological change. The new technologies are usually far superior to the old technologies in terms of functionality and efficiency and may have different cost structures.

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.

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[15],

[12] Long Run Average Interconnection Costs (LRAIC): The term used by the European Commission to describe LRIC with the increment defined as the total service.

[13] Long Run Incremental Costs (LRIC): The incremental costs that would arise in the long run with a defined increment to demand.

[14] Organisations notified by their NRA as having significant market power on the national market for interconnection under Article 7(2) of Directive 97/33/EC.

[15] In efficient terms and in a long run approach.

- 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[16].

Set out in Appendix XII are the main adjustments required to historical cost accounts in order to derive current cost information using either OCM or FCM.

The use of current cost information is a key aspect in helping to determine appropriate interconnection charges and therefore the choice of capital maintenance concept as employed by an efficient operator[17] is important.

If OCM was used to determine charges, the revenue requirement[18] 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.

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. Therefore FCM is the preferred capital maintenance concept.

A key element of the current cost methodology is the valuation of assets. Assets could be valued according to the considerations and decision rules set out in Appendix XIII. It is the ODTR's view that the Net Replacement Cost valuation method is the most appropriate method to use for valuing assets at their current cost.

The cost allocation methods used under HCA are also appropriate for CCA. However, when assets are re-valued on the basis of MEA[19], the allocation of the CCA values for these assets may need to be adjusted to reflect the cost drivers of the MEA technology where these differ from the existing drivers used.

The ODTR paper on Accounting Separation (ODTR 99/10[20]) asked questions regarding the nature and extent of such accounting separation and what information should be published. This paper did not consider the accounting methodology \ methodologies to be used as a basis for the preparation of Accounting Separation statements and supporting information. As highlighted above, an important element of LRIC is the use of current cost information. In order to increase transparency, it might therefore be necessary to prepare the Accounting Separation statements and

[16] For the capital as employed by an efficient operator.
[17] Subject to the level of investment in assets being efficient.
[18] Defined as the level of revenue required in order to earn a reasonable return.
[19] Modern Equivalent Asset, see Appendix XIII for an explanation of this term.
[20] Accounting separation and publication of financial information by telecommunications operators, Consultation Paper

supporting information on both a HCA basis and CCA basis with appropriate supporting reconciliations and information.

As mentioned previously, NRAs are recommended to set a deadline for the implementation of cost accounting systems based on current costs and activity based costing. The implementation of a new costing system can be a time consuming process. A CCA system may be adapted from an existing HCA system as part of the development of a Top-Down LRIC model, and the current cost information used in a Bottom Model could also be used in a CCA system. There are therefore important project elements in common between this paper and our LRIC consultation (ODTR 99/17)[21]. While the overall timeframe for the development of a CCA system may be long, it would be possible to develop the system in a number of interim stages while taking into account any likely linkages between these stages, for example all core network assets could be re-valued as the first stage in the implementation project.

The Director would welcome comments on the following:-

Q8.I *The appropriate capital maintenance concept to use when preparing current cost information.*

- *a) Do you agree with the proposed use of the financial capital maintenance concept?*
- *b) If you disagree with the use of the financial capital maintenance concept,*
  - *1) Do you believe that the operating capital maintenance concept should be used, what is the basis for this belief?*
  - *2) Do you believe that an alternative capital maintenance concept should be used, what is the basis for this belief?*

Q8.II *The appropriate current cost asset valuation methodology.*

- *a) Do you agree with the proposed use of the Net Replacement Cost methodology to value assets on a current cost basis?*
- *c) If you disagree with the use of the Net Replacement Cost methodology?*
  - *1) Do you believe that the Deprival Value methodology should be used, what is the basis for this belief?*
  - *2) Do you believe that an alternative current cost asset valuation methodology should be used, what is the basis for this belief?*

Q8.III *The accounting methodology \ methodologies to be used as a basis for the preparation of Accounting Separation statements.*

- *a) Do you believe that Accounting Separation statements should be prepared on an HCA basis only, what is the basis for your belief?*
- *b) Do you believe that Accounting Separation statements should be prepared on both a HCA and CCA basis with appropriate supporting reconciliations and information , what is the basis for your belief?*
- *c) Do you believe that Accounting Separation statements should be prepared on a CCA basis only, what is the basis for your belief?*

[21] The Development of Long Run Incremental Costing for Interconnection, Consultation Paper

Q8.IV *What do you believe are appropriate interim stages / milestones in the implementation of Current Cost Accounting and what are their associated duration? What is the basis for your belief?*

9. Related Matters

This consultation paper is one of a series of linked papers that the ODTR is issuing during the early part of 1999. The issues raised in these papers are closely related and the outcome of each consultation will impact on others. However, the ODTR believes that the modular approach to these consultations provides the most flexible and fastest method of progressing key issues in the market.

Interested parties are referred to the following consultation documents:

Accounting Separation (ODTR 99/10[22]): Consultation paper published on 4th March, comments requested by 31st March, proposed report on consultation in May 1999
This paper addresses the requirement for accounting separation and asks questions about the nature and extent of such separation and what information should be published on foot of such accounting separation.

The Development of Long Run Incremental Costs for Interconnection (ODTR 99/17[23]): Consultation paper published in March 1999, comments requested by 30th April 1999, proposed report on consultation in May 1999
A key issue that has been the subject of much discussion throughout Europe is the basis on which interconnection costs are calculated. In line with best practice throughout Europe and in particular Part 1 of the European Commission Recommendation on Interconnection (98/195/EC), the Director considers LRIC based costing to be the most appropriate basis to be used.

This consultation will seek views on the different methods of implementing LRIC and how they may be best applied in Ireland's liberalised environment.

[22] Accounting separation and publication of financial information by telecommunications operators, Consultation Paper

[23] The Development of Long Run Incremental Costing for Interconnection, Consultation Paper

Appendix I – Extracts from EU Legislation Relating to Unattributable Costs

Council Directive 98/10/EC on the application of open network provision (ONP) to voice telephony and on universal service for telecommunications in a competitive environment

Article 18 Paragraph (3) (b)

"common costs, i.e. costs which cannot be directly assigned to either the voice telephony service or other activities, shall be allocated as follows:

(i) whenever possible, common cost categories shall be allocated on the basis of direct analysis of the origin of the costs themselves;

(ii) when direct analysis is not possible, common cost categories shall be allocated on the basis of an indirect linkage to another cost category or group of cost categories for which direct assignment or allocation is possible; the indirect linkage shall be based on comparable cost structures;

(iii) when neither direct nor indirect measures of cost allocation can be found, the cost category shall be allocated on the basis of a general allocator computed by using the ratio of all expenses directly or indirectly assigned or allocated to, on the one hand, the voice telephony service and, on the other hand, other services.

Other cost accounting systems may be applied if they are suitable for the implementation of Article 17 and have been approved as such by the national regulatory authority for application by the telecommunications organisations, subject to the Commission's being informed prior to their application."

Council Directive 92/44/EC on the application of open network provision to leased lines as amended by 94/439/EC and Directive 97/51/EC

Article 10 Paragraph 2 (b)

"common costs, that is costs which can neither be directly assigned to leased lines nor to other activities, are allocated as follows:

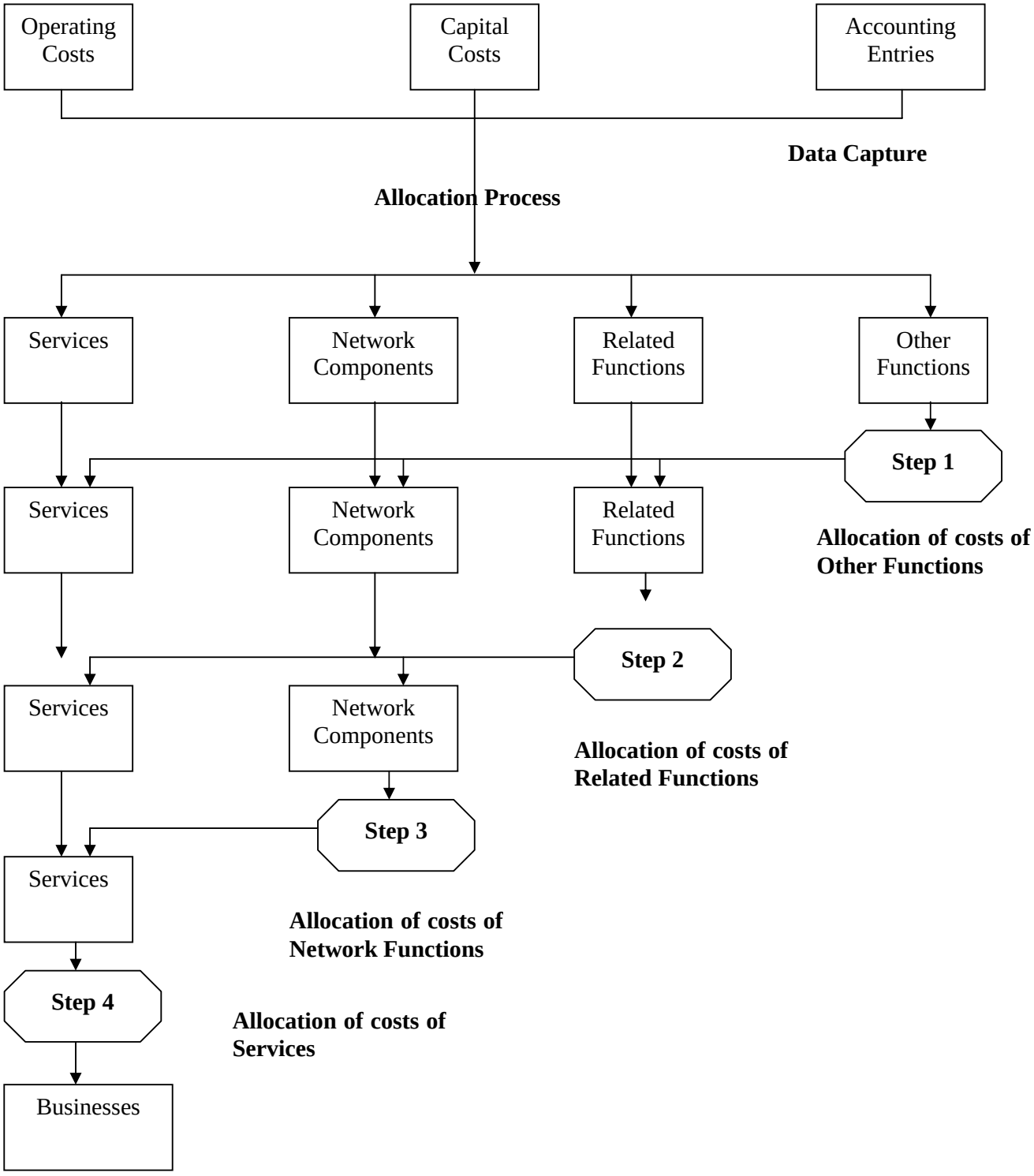
(i) whenever possible, common cost categories shall be allocated based upon direct analysis of the origin of the costs themselves;

(ii) when direct analysis is not possible, common cost categories shall be allocated based upon an indirect linkage to another cost category or group of cost categories for which a direct assignment or allocation is possible. The indirect linkage shall be based on comparable cost structures;

(iii) when neither direct nor indirect measures of cost allocation can be found, the cost category shall be allocated on the basis of a general allocator computed by using the ratio of all expenses directly or indirectly assigned or allocated to leased lines, on the one hand, to those allocated to other services, on the other hand.

After 31 December 1993, other cost accounting systems may be applied if they are suitable for the implementation of paragraph 1 and have as such been approved by the national regulatory authority for application by the telecommunications organisations, subject to the Commission's being informed prior to their application."

Appendix II – A Typical Cost Allocation Process



The cost allocation 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.

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.

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).

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 step.

Appendix III – Methods of Allocating Operating Costs[24]

Category of Operating cost	Description	Method of Allocation	Principal Businesses
Depreciation	Depreciation	The allocation of depreciation should follow the allocation of the fixed assets to which it relates.	All
Provision and installation of Equipment	Payroll costs	Direct to network components/other plant where possible; otherwise allocate based on the time spent carrying out installation work.	Core Network, Local Access-Network
	Installation, contract and maintenance costs	Direct to network components/other plant on the basis of the plant installed or maintained where possible.	Core Network, Local Access-Network
Maintenance and repair costs	Payroll costs	Direct to network component/other plant where possible; otherwise allocate based on the time spent carrying out installation work.	Core Network, Local Access-Network
	Other costs	Direct to network components/other plant where possible.	Core Network, Local Access-Network
Network planning and developments costs	Payroll and external costs	Direct to network component/other plant where possible.	Core Network, Local Access-Network
Network management costs	Payroll costs	Allocate to network component/other plant on the basis of the time spent by staff to manage each type of plant.	Core Network, Local Access-Network
	Other costs	Allocate to network components/other plant on the basis of the plant managed, where possible.	Core Network, Local Access-Network

[24] Commission Recommendation of 8 January 1998 on interconnection in a liberalised telecommunications market – Part 2 – Accounting separation and cost accounting (98/322/EC)

Category of Operating cost	Description	Method of Allocation	Principal Businesses
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 Promotions Market research Distributors fees Other costs	Direct to products and services where possible. Otherwise, for those costs where multiple services are being marketed or promoted, cost should be attributed to the related services on a reasonable basis.	Retail
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)
Operator services costs	Payroll costs	Direct to services where possible. The costs of staff that carry out tasks for several operator services should 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
	Payments for interconnection agreements	Direct to products and services.	Retail

Category of Operating cost	Description	Method of Allocation	Principal Businesses
Support costs	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.	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

Appendix IV – Methods of Allocating Capital Employed[25]

Category of assets and liabilities	Description	Method of Allocation	Principal Businesses
Tangible assets			
Primary Plant-			
Switching equipment	Local switching equipment	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.	Core Network (some costs to Local Access-Network)
	Tandem switching equipment	Direct to network components where possible, otherwise allocate based on seconds of use.	Core Network
	International switching equipment	Direct to network components where possible, otherwise allocate based on seconds of use.	Core Network
	Switching equipment for special services networks	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.	Core Network, Other activities

[25] Commission Recommendation of 8 January 1998 on interconnection in a liberalised telecommunications market – Part 2 – Accounting separation and cost accounting (98/322/EC)

Category of assets and liabilities	Description	Method of Allocation	Principal Businesses
	Other switching equipment	Direct to network services where possible, otherwise allocate to other switching network components on the basis of the use of the equipment.	Core Network
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

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: Intelligent networks equipment; Data transmission equipment; Multimedia equipment.	Core Network Other activities
	Customer premises equipment	Direct to products and services.	Other activities
	Public payphones and related equipment	Direct to service.	Retail
Support Plant	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
	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
	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

Category of assets and liabilities	**Description**	**Method of Allocation**	**Principal Businesses**
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
Intangible fixed assets	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
Working capital			
	Fixed asset investments:		
	Pure financial investments	Direct to "Other activities".	Other activities
	Investments in unrelated activities	Direct to "Other activities".	Other activities

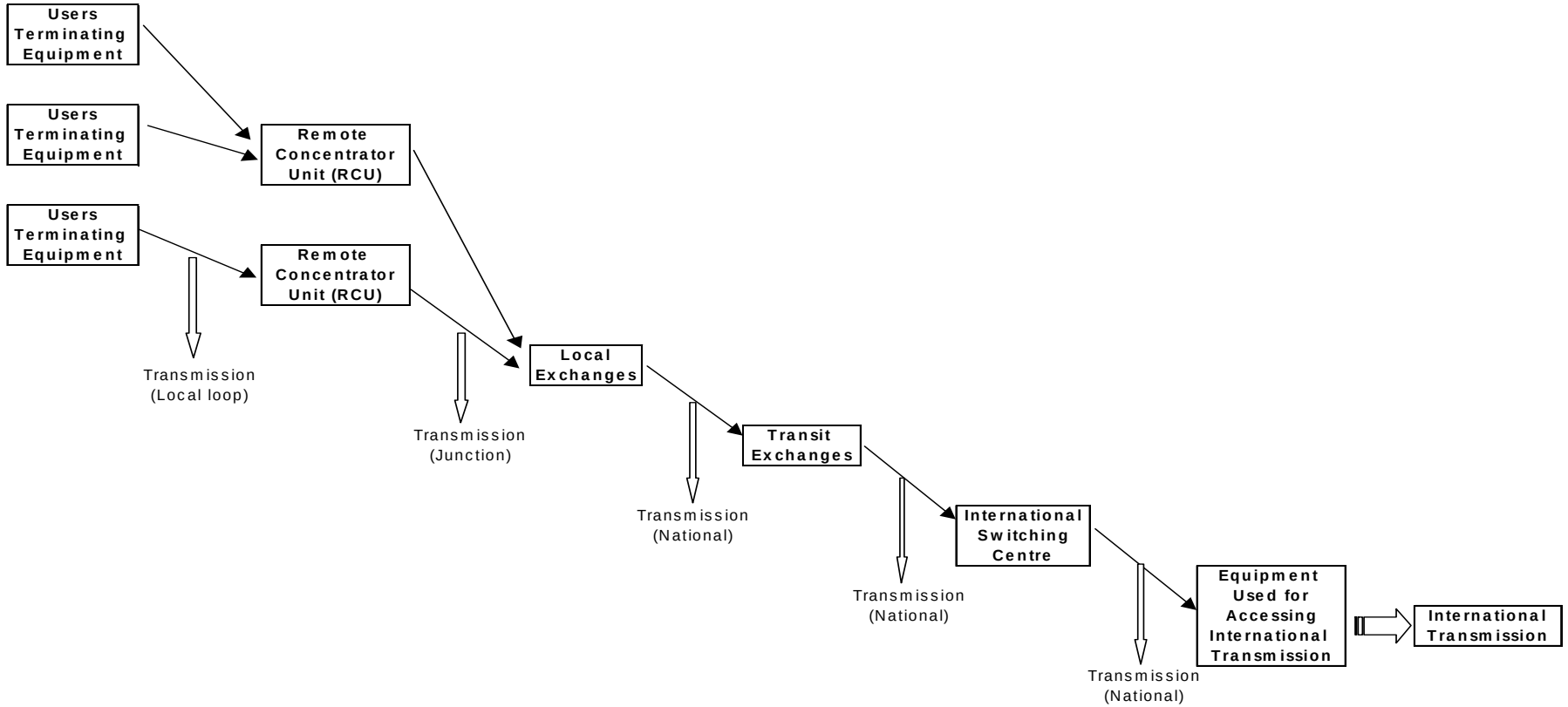
Category of assets and liabilities	Description	Method of Allocation	Principal Businesses
	Other investments	Direct to the services to which the investments are related, otherwise allocate based on usage.	All
	Short-term investments (including cash at bank and in hand)	Direct to businesses where possible, otherwise allocate based on the operational requirements of each business.	All
	Stocks	Stocks should be allocated directly to products and services.	All
	Trade debtors/receivables	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.	All
	Other debtors/receivables	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.	All
	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

Appendix V – Revenue Allocation[26]

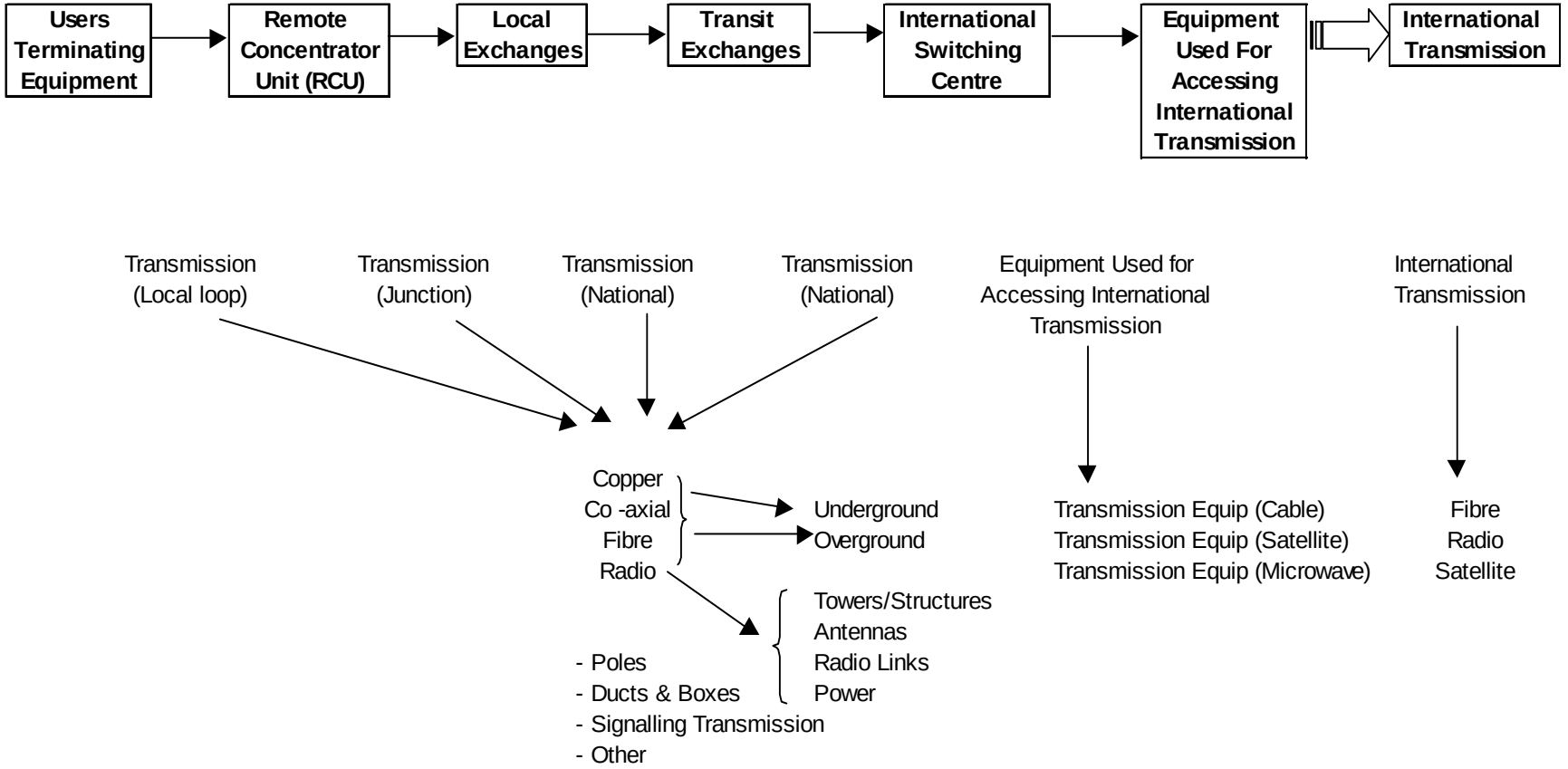
Connection charges	Charges for establishing new connections to the fixed telephone network (other than for establishing a point of interconnect) should be assigned to retail.
Customer line rental charges	Line rental charges should be assigned to retail.
Revenues from leased lines	Revenue from leased lines should be allocated to retail.
Revenues from line rental to other operators	Where provided to other market players, revenue from line rental of unbundled local loops should be assigned to local access network.
Access deficit contributions	In those Member States that operate access deficit schemes, access deficit contributions should be allocated to local access network.
Universal service contributions	In those Member States that operate schemes to finance universal service obligations, contributions from other operators should be allocated to retail.
Interconnection charges	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	Revenue from call charges should be allocated to the appropriate service within the retail business.
Equipment rentals and sales	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	Revenue received from advertising in directories should be allocated to a directory services account in 'other activities`.
Engineering services/consultancy	Revenue from engineering services/consultancy other than for interconnection should be allocated to 'other activities`.

[26] Commission Recommendation of 8 January 1998 on interconnection in a liberalised telecommunications market – Part 2 – Accounting separation and cost accounting (98/322/EC)

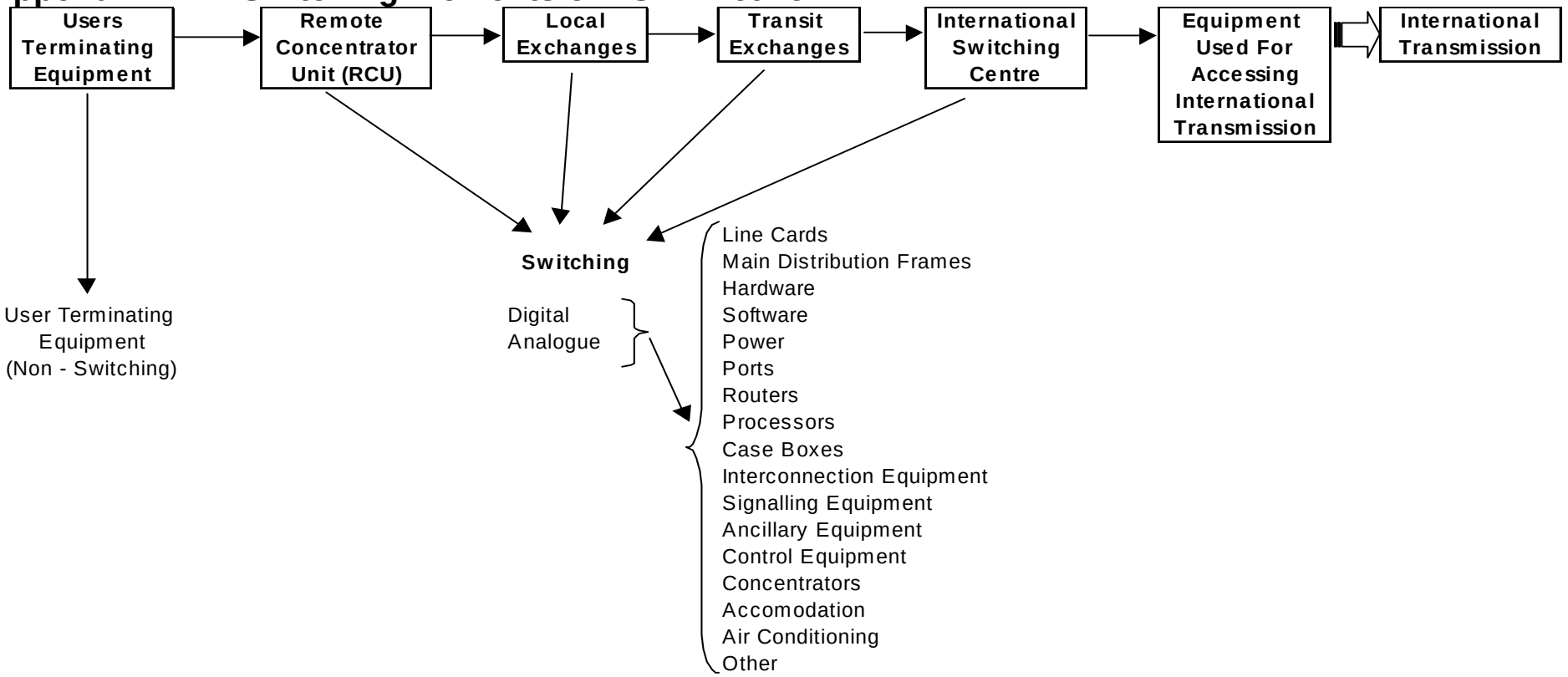
Appendix VI – Location of Fixed Assets in the PSTN Network



Appendix VII – Transmission Elements of PSTN Network



Appendix VIII - Switching Elements of PSTN Network



Appendix IX – Other Network Assets

The networks below will use transmission and switching processes similar to the PSTN, but because of technological change, different equipment will be used and as a result different asset lives may be appropriate

Intelligent Networks

Service Control Point Equipment
Intelligent Peripheral Equipment
Switch Specific Equipment
Other

Lease Line Networks

Exchange Customer Interface Units
Cross Connect Equipment
Multiplex Equipment
Miscellaneous Equipment
Operator Support Systems
VPN Equipment
Modems
HDSL
Analogue Lease Line Equipment

Frame Relay Network

Frame Relay Equipment
Power Unit
Hardware
Software
Access Port
Network Switch
Management Centres

ATM

Multiplexers
Concentrators
ATM Cross Connect
ATM Switch

X.25 & X.28

Network elements used when signalling by X.25 & X.28 Protocols

Other Network Equipment

Cross Connect Equipment
A/D Conversion Equipment
Miscellaneous & Test Equipment
Concentrators
Multiplexors
Repeaters
ADSL & HDSL
Accomodation for the above
Other

Network Management Centres

Traffic Management Systems
Signalling Management Systems
Transmission Management Systems
Data Management Systems
Other

Billing Systems

Centralised Processing
- Hardware
- Software

Transmission

Switch Based Equipment
- Hardware
- Software

Other

Facilities Management
- Non Standard Equipment
- Internet Access

Operator Equipment
Capital Technical Research
Kiosks
Generators
Test Equipment

Appendix X – General Fixed Assets

Property

Land
General Buildings

Fixtures & Fittings

Owned
Rented

Information Systems

Hardware
Operating Software
Application Software
Office Equipment

Transport

Cars
Vans
Trucks
Mechanical Aids

Appendix XI – Schedule of Fixed Assets

1 Transmission Elements of PSTN Network

		Years Local Loop	Years Junction	Years National
Copper				
	Overground			
	Underground			
Co - Axial				
	Overground			
	Underground			
Fibre				
	Overground			
	Underground			
Radio				
	Towers/Structures			
	Antennas			
	Radio Links			
	Power			
Ducts & Boxes				
Poles				
PCM Mux				
PDH Mux				
SDH Mux				
PCM Equipment				
PDH Equipment				
SDH Equipment				
ADSL Equipment				
HDSL Equipment				
Cross Connect Equipment				
Repeaters				
Signalling Transmission				
Other				

			Years
IInternational			
	Cable Transmission		
	Satellite Transmission		
	Transmission Equipment (Cable)		
	Transmission Equipment (Satellite)		
	Microwave Transmission		
		Towers/Structures	
		Antennas	
		Radio Links	
		Power	
	Repeaters		
	Other		

2 Switching Elements of PSTN Network

(a) User Terminating Equipment

Years	Years
Digital	Analogue

(b) Remote Concentrator Unit

	Years	Years
	Digital	Analogue
Line Cards		
Hardware		
Software		
Air Conditioning		
Power		
Routers		
Case Boxes		
Signalling Equipment		
Main Distribution Frames		
Processors		
Accomodation		
Security Equipment		
Ancillary Equipment		
Exchange Ports		
Concentrators		
Control Equipment		
Ancillary Equipment		
Other		

(c) Local Exchange Switch

	Years	Years
	Digital	Analogue
Line Cards		
Main Distribution Frames		
Hardware		
Software		
Power		
Routers		
Case Boxes		
Interconnection Equipment		
Processors: Prim,ary		
Secondary		
Air Conditioning		
Accomodation		
Security Equipment		
Exchange Ports		
Control Equipment		
Signalling Equipment		
Concentrators		
Ancillary Equipment		
Other		

(d) Transit Exchanges

	Years Digital	Years Analogue
Switch		
Hardware		
Software		
Power		
Routers		
Case Boxes		
Interconnection Equipment		
Processors: Primary		
Secondary		
Air Conditioning		
Accomodation		
Security Equipment		
Exchange Ports		
Control Equipment		
Signalling Equipment		
Concentrators		
Ancillary Equipment		
Other		

(e) International Switching Centre

	Years Digital	Years Analogue
Hardware		
Software		
Power		
Routers		
Case Boxes		
Interconnection Equipment		
Processors: Primary		
Secondary		
Air Conditioning		
Accomodation		
Security Equipment		
Exchange Ports		
Control Equipment		
Signalling Equipment		
Concentrators		
Ancillary Equipment		
Other		

3 Other Network Assets

	Years
Intelligent Networks	
Service Control Point Equipment	
Intelligent Peripheral Equipment	
Switch Specific Equipment	
Other	
Lease Line Networks	
Exchange Customer Interface Unit	
Cross Connect Equipment	
Multiplex Equipment	
Miscellaneous Equipment	
Operator Support Systems	
VPN Equipment	
Modems	
HDSL Equipment	
ADSL Equipment	
Analogue Lease Line Equipment	
Other	
Frame Relay Network	
Frame Relay Equipment	
Power Unit	
Hardware	
Software	
Access Port	
Network Switch	
Management Centres	
Other	
ATM	
Multiplexer	
Concentrator	
Switch	
ATM Cross Connect	
Other	
General Network Equipment	
Cross Connect Equipment	
A/D Conversion Equipment	
Miscellaneous and Test Equipment	
Repeaters	
Other	

Other Network Assets (Continued)

	Years
Network Management Centres	
Traffic Management Systems	
Signalling Management Systems	
Transmission Management Systems	
Data Management Systems	
Other	
Billing Systems	
Centralised Processing	
Hardware	
Software	
Transmission used by Billing	
Switch Based Equipment	
Hardware	
Software	
Other	
Facilities Management	
Non-standard equipment	
Internet Access	
Operator Equipment	
Capital Technical Research	
Kiosks	
Generators	
Test Equipment	
Other	

4 General Fixed Assets

	Years
Property	
Land	
General Buildings	
Fixtures & Fittings	
Owned	
Rented	
Information Systems	
Hardware	
Operating Software	
Application Software	
Office Equipment	
Transport	
Cars	
Vans	
Trucks	
Mechanical Aids	
Other	

Appendix XI – Capital Maintenance Concepts

The main adjustments under OCM

As set out in Section 8, this concept is concerned with the maintenance of the productive capacity of the operator. 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

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.

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 in the following appendix.

Supplementary depreciation

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.

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 profit and loss account.

Illustration of these concepts

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

Table 1
Replacement Cost falling by 10% per annum

Year	Current Cost	Depreciation					
		Current Cost	Historical	Supplementary	Cumulative	'Required'	Backlog
0	10,000						
1	9,000	2,250	2,500	(250)	2,250	2,250	Nil
2	8,100	2,025	2,500	(475)	4,275	4,050	(225)
3	7,290	1,822.50	2,500	(677.50)	5,872.5	5,467.50	(405)
4	6,561	1,640.25	2,500	(859.75)	7,107.75	6,561	(546.75)

Table 2
Replacement Cost rising by 5% per annum

Year	Current Cost	Depreciation					
		Current Cost	Historical	Supplementary	Cumulative	'Required'	Backlog
0	10,000						
1	10,500	2,625	2,500	125	2,625	2625	Nil
2	11,025	2,756.25	2,500	256.25	5,381.25	5512.50	131.25
3	11,576.25	2,894.06	2,500	394.06	8,406.56	8682.19	275.63
4	12,155.06	3,037.77	2,500	538.77	11,720.96	12,155.06	434.1

Explanation of above column headings:-

- 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 as at the end of the previous period, backlog depreciation for the previous period and current cost depreciation for the current period. This is equivalent to required depreciation at the end of the previous plus current cost depreciation for the current period,
- '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.

The main adjustments under FCM

Under FCM there are similar adjustments to be made as in the OCM concept concerning the revaluation of fixed assets and supplementary depreciation. However, under FCM some of the treatments in terms of the profit and loss need to be are

further adjusted to take into 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.

Revaluation of fixed assets

As for OCM.

Supplementary depreciation

As for OCM.

Backlog depreciation

As for OCM.

Holding gains and shareholders' funds

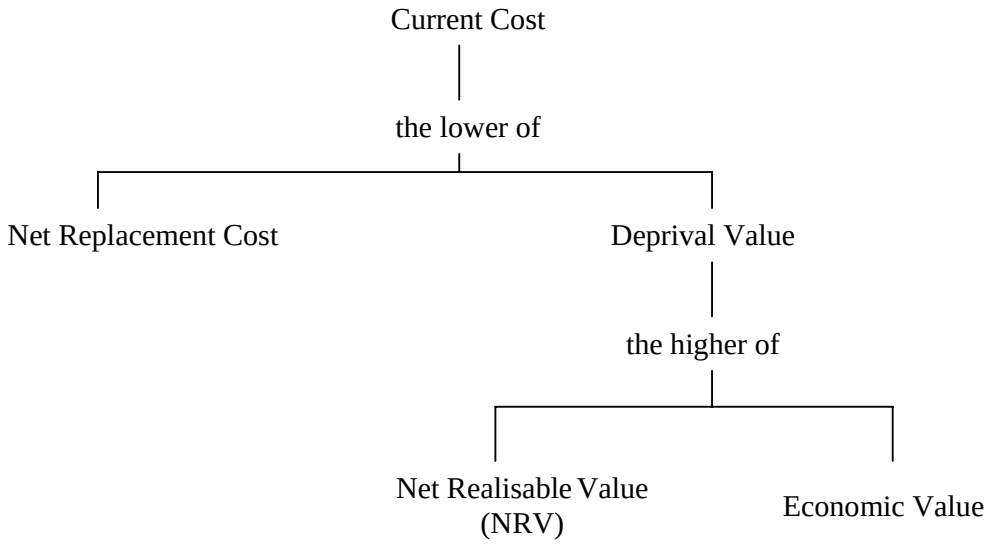
Under FCM, profit is recognised only after taking account of holding gains or losses that arise due to the effect of asset-specific inflation on the current cost value of assets and the effect of general inflation on shareholders' funds.

Holding gains (or losses) comprise two components:

a) 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
b) The element of the revaluation that is written off as depreciation during the year in question.

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.

Appendix XII – Asset Valuation Methods Under CCA



a) Net replacement cost

The net replacement cost is the cost of replacing the asset with another asset of similar characteristics and age. 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 modern equivalent asset ("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.

b) Deprival value

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.

Economic value
Economic value ("EV") is a measure of the value of an asset based on the net present value of future cash flows.

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.

  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.

Modern equivalent asset valuation issues

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.

Examples of technological issues for telecommunications operators include:
- copper versus fibre cables,
- analogue versus digital switches, and
- PDH transmission technology versus SDH technology.

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

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.