CYPRUS TELECOMMUNICATIONS AUTHORITY (CYTA)

STRICTLY CONFIDENTIAL

B2. DESIGN SPECIFICATION DOCUMENT

FOR THE

«LRAIC AND ACCOUNTING SEPARATION»

CONTENTS

I. INTRODUCTION

This document addresses the structure to be used for the LRAIC model, describes the valuation methods under CCA, defines accounting separation and explains the system requirements needed in order to support LRAIC and AS.
In order to calculate LRAIC costs, it is necessary to define a structure where costs are grouped together into functional groups which share a single cost driver – for each of these Cost Groups, a Cost-Volume Relationship (CVR) or Cost-Cost Relationship (CCR) will be defined which represents the changes in cost that result from changes in the volumes of services which CYTA provides.

In the case of CVRs, the cost driver will be external to CYTA, for example the amount of local call minutes, whereas the driver for CCRs will be internal to CYTA, such as total salary cost. A structure which links together the Cost Groups, CVRs and CCRs in a logical and consistent way is needed to calculate the LRAIC costs.

Section II sets out the structure that will be implemented for the LRAIC model, including the definition of cost groupings and the linkages to CVRs. The cost drivers for the various cost groups have also been defined.
Both the LRAIC and Accounting Separation results must be presented using a Current Cost Accounting (CCA) approach to valuing the assets. This means that every group of assets must be revalued to convert from historic costs to current costs, resulting in new asset values and depreciation amounts. There are a number of different methods that can be used to revalue according to CCA principles, and it is necessary to define the approach before performing the revaluation. **Section III** describes the methods that will be used to value the assets of CYTA according to current cost techniques. This section considers each group of assets in detail, and summarises the valuation method to be used along with any other related issues.

It is a regulatory requirement that CYTA produces separate P&L and Balance Sheets for a number of different business areas, and also that Leased Line products are separately identified within these areas. **Section IV** of this document therefore contains information regarding the framework for accounting separation. More specifically the appropriate labelling requirements are documented, the segmentation of assets, costs and revenues is defined as well as the reporting requirements for P&L and Balance Sheet.

II. LRAIC SPECIFICATION

1. INTRODUCTION AND BACKGROUND

This section describes the structure to be used for the LRAIC model.

We have built on the assumptions and concepts that were previously defined (and specified in the Conceptual Framework Document) to further consider the cost groupings, considering the cost elements that will be needed to support LRAIC/CCA, and the linkages to CVRs. Cost drivers have also been suggested for all cost groups that require a CVR.

2. GROUPING OF COSTS

The LRAIC model will take the existing FDC model as a starting point, and provide an additional mechanism where the costs are adjusted according to the variations in volumes that result from removing an increment (for example, the changes in cost that result from removing all local call minutes from the CYTA products).

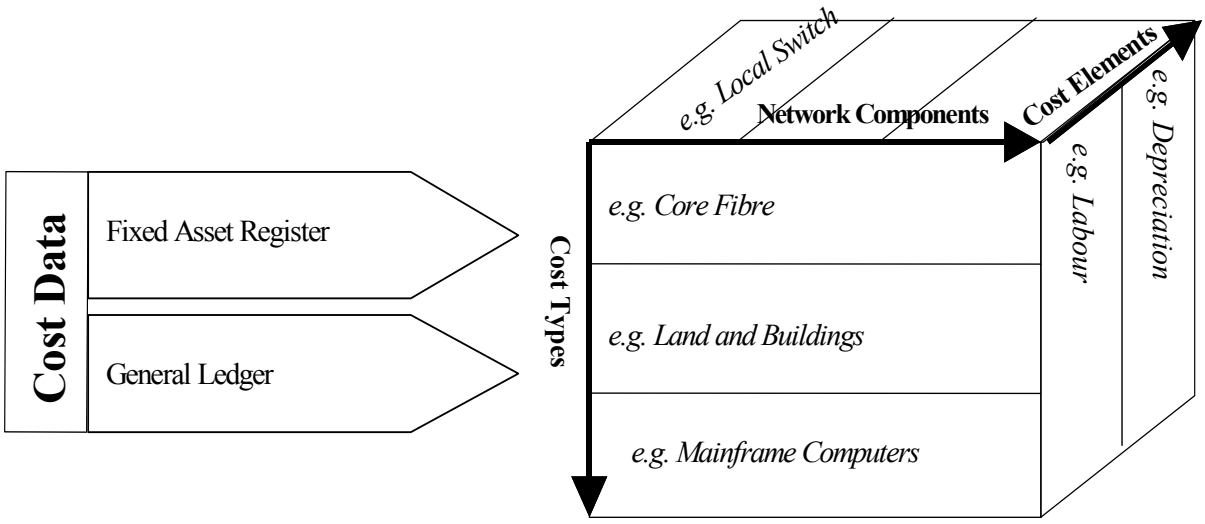
In order to accurately model these variations, it is necessary to group costs in such a way that each group has a single LRAIC cost driver, which may be an external variable (such as trunk call minutes) in the case of Cost Volume Relationships (CVRs), or an internal variable (such as total switch asset value) in the case of Cost-Cost Relationships (CCRs).

So Cost Groups are defined, each representing the costs that will be modeled via a single CVR or CCR. These Cost Groups are typically formed from a combination of one or more cost pools from the existing FDC model.

In addition, the costs within each cost group are further broken down into Cost Categories, also known as Cost Elements. These represent different types of operating and capital cost, such as labour, depreciation and capital employed.

For those Cost Groups, which relate to network elements, there is a further categorization: each Cost Group is assigned to a particular network component, such as “Local Switch” or “RSU-Local Link”. This allows LRAIC costs to be calculated for each different network component prior to application of the markup, and distribution (via routing pools) to the products.

The figure below illustrates the approach – costs are input to the system from the FAR, GL and Balance Sheet, these costs are allocated (via existing FDC allocations) to Cost Groups such as Core Fibre, Land & Buildings or Mainframe Computers, and these Cost Groups are also categorized as network components, such as Local Switch.



2.1 Cost Elements

It is possible to distinguish between cost elements even where such costs are incurred in relation to similar assets and may therefore be grouped together. This distinction reflects differences in the nature of the underlying activities and in where these costs are recorded in the existing CYTA FDC costing system. The distinction is important because there may be different cost drivers associated with some of these cost elements, and therefore CVRs may need to be derived separately for some cost elements.

The cost elements include capital, depreciation and operating costs. All the existing FDC cost categories will be included in this structure, although where elements are related and have the same volume driver, they may be combined for LRAIC purposes. There will be some new cost elements which relate to the need to calculate capital and depreciation costs for the CCA revaluation.

We define 14 cost elements as set out below of which the last three are new, and are related solely to the CCA revaluation.

- Material
- Transport
- Labour
- Excavation
- Reinstatement
- Depreciation
- Invoices paid to Third Parties
- Debtors
- Creditors
- Accumulated Depreciation
- HCA Capital
- CCA Net Replacement Cost
- CCA Depreciation (Supplementary)
- CCA Holding gain/loss

2.2 Cost Groups

The cost groups have been defined to distinguish cost items, which are functionally distinct. The list is compatible with the overall approach in terms of the stand-alone network, with the defined increments and with the services for which LRAIC estimates are required.
In general, LRAIC cost groups may be formed from a combination of one or more cost pools. In a small number of cases the LRAIC cost groups may need to be derived from a split of the existing cost pools.

2.3 Network Components

In order to arrive at long run incremental costs for defined services, it is necessary to build up the costs from specified network components, with these components constructed from cost categories. The network components reflect 'loaded' network assets i.e. including a share of relevant support costs.

The increments Access, Core, Shared and Rest increments are then built up from the network building blocks.

For example, the network component 'Local Switch' will reflect the specific costs relevant to these assets *plus* a share of support costs such as maintenance and power.

3. DRIVERS

In order to calculate long run incremental costs accurately, it is necessary to identify those variables, either exogenous or endogenous, which 'drive' costs. The drivers will clearly vary across different cost element, and elements in the same cost category may have different drivers

On the basis of volume data to be contained within the LRAIC system, it is possible to identify the volumes associated with each increment and the costs sensitive to exogenous drivers.

Once the costs dependent on exogenous drivers are determined in the model, other costs dependent on those costs can be determined. Costs that are driven externally are affected by Cost Volume Relationships (CVRs), while those that are driven internally are affected by Cost-Cost Relationships (CCRs).

4. DEPENDENCIES

As discussed above, costs within the LRAIC model will be related to either:

- Exogenous drivers, such as traffic minutes, or number of lines; or
- Endogenous drivers, such as the Net Replacement Cost of switches or total operating expenditure.

In order to capture the different drivers, it is necessary to define 'hierarchies' of relationships within the model. This allows for those costs, which are driven by data external to the model to be allocated first, with successive interdependencies being 'rippled' through the model. The dependency hierarchy must be defined in such a way as to ensure there is no circularity in the dependencies.

The guiding principle is to define those costs, which are specific to network assets at the 'top' of the hierarchy (since these are generally the costs which are driven by exogenous variables such as call and line volumes). Following this it is possible to define, at successive layers of the chain, those costs, which are increasingly 'general' in terms of their relationships with network assets.

III. CURRENT COST ACCOUNTING SPECIFICATION

1. APPROACH TO CURRENT COST VALUATIONS FOR EACH TECHNOLOGY GROUP.

1.1 Switching

This asset category covers all exchanges in the hierarchy, including RSUs, Local, Regional and International switches. The absolute valuation methodology is the only appropriate method for this asset class given the nature of the changing technology in this area.

The valuation will be based on the mix of installed capacities for each exchange technology using the MEA principles. Existing digital equipment currently in use by CYTA will be revalued on the basis of the most up-to-date digital technology.

1.2 Transmission Equipment

Transmission is an area where there has been technological change, with a move from analogue to digital technology, copper to fibre, and most recently PDH to SDH technology. In the case of CYTA, all of the core network is digital, and is provided over either fibre or radio systems. There is PDH multex equipment in use in the network, but this is generally fully depreciated. The approach will therefore be to use an absolute valuation for all SDH equipment, and to value any un-depreciated PDH equipment as the MEA equivalent (i.e., SDH).

Radio systems may be regarded as appropriate, for example due to the nature of the terrain, and so radio routes will be retained in the valuation rather than being replaced with an MEA. Again, an absolute valuation will be used.

1.3 Access Network, Cables and Ducts

The access network is less subject to change than the core and switching networks, so there is less need to consider the effects of new technologies, especially as the scorched node assumption implies that the existing topology of switches, cabinets and distribution points should be retained.

The network is largely comprised of copper cables laid in duct or directly buried. A programme of mapping the cable and duct assets is already under way in CYTA, and is currently around 70% complete. This means that an absolute valuation can be performed using the 70% data already captured as a sample, then adjusted to allow for the remaining 30%.

One particular issue concerns the subscriber network, which links customers to the nearest distribution point. CYTA's current policy is use underground cables for almost all new installations, and it could therefore be considered appropriate to use an MEA of underground cable for all existing overhead installations. However, after careful consideration and discussion with CYTA access network staff in order to retain the existing topology of distribution points, it has been decided to revalue the subscriber network system as is, rather using an MEA.

For the duct network, plastic, asbestos and cement pipes exist. The MEA approach will be to substitute plastic ducts for all other types except for cases where cast iron is used for extra reinforcement. The current network architecture dictates that duct is installed in multiples of 2, 4, 8, 12 and 16 so these multiples will be used for the MEA. This approach is to be adopted because modern best practice (and current CYTA practice) is to use plastic ducts, and to install it in these multiples.
Installation labour forms the greater part of the duct capital, and so careful consideration will be given to this. Labour rates will be differentiated between different surface types, and further search will be carried out to identify the percentage of soft and hard soil per area; and hence, break down labour costs.

1.4 Mobile

The mobile network uses modern GSM equipment, and will therefore be valued on an absolute basis. Prices will be based on the most recent contract. Within this contract, discounts are offered based on the size of the network (as indicated by number of TRXs). The valuation will be performed as if the network was built at the actual rate achieved in CYTA, with 2003 prices and discounts reflecting the volumes that this represents.

1.5 Land & Buildings

The valuation of buildings will be performed, based on a split between network and non-network building, and using floor area as the driver. Certain buildings, for example those in city centres, or especially large buildings, may be considered as special cases and valued accordingly. A distinction will be made between network buildings (which contain mainly network equipment) and non-network buildings (which contain mainly people/offices).

1.6 Power Equipment

Power equipment falls into two asset classes, and this reflects the split between network power plant (such as diesel generators) and more general-purpose power equipment for office buildings.

1.7 IT

Computer hardware falls into two main categories, mainframe and personal computers. Quantities and prices are available for all items, and a current supply contract exists for new computers, so an absolute valuation will be performed.

There are two types of software: that bought in, and that developed internally.

For bought software, an absolute valuation is straightforward. For the internally developed software, the valuation will be based on the man-hours incurred in the projects, valued at current labour rates.

IV. DESIGNING ACCOUNTING SEPARATION

1. DETERMINATION OF BUSINESS STRUCTURES

CYTA has decided that for the implementation of AS, it will adhere to the definition of business lines as per the regulation of AS (issued 31.12.2002), for both the fixed and the mobile networks. To this, subdivisions will be added to accommodate the requirement to provide accounting information for the domestic leased lines as well, as per the leased lines regulation (issued 24.4.2003)

1.1 Fixed Network

The fixed network is segregated into four business lines:

- ***Core Network***
  Covers the provision of internal and external interconnection, and the Obligated Provider's transit and carrier services provided through the switching infrastructure of its network.

- ***Local Access Network***
  Covers the provision and maintenance of the subscribers' connection to the core network of the operator in question and/or the use of a cable, radio communication, optical or other electromagnetic means.

- ***Retail sales***
  Covering the activities relating to the provision, to the end users, of fixed telephony services, leased lines, directory services, as well as the marketing and invoicing activities associated with the provision of services to the end users.

- ***Other activities***
  All other services including: selling and repairing terminal equipment and non-telecommunication related activities.

1.2 Mobile Network

The Required provider for the mobile network should report separately on the following business lines:

- ***Mobile network***
  Covers the provision of termination, transit, roaming and other telecommunication services offered through the fixed and mobile infrastructure of their public mobile network.

- ***Retail sales***
  Covers the activities associated with the provision to the end users of mobile telephony mobile telephony services, directory services, related value-added services, any form of subsidisation of mobile terminal equipment, as well as the marketing and invoicing associated with the provision of services to final users.

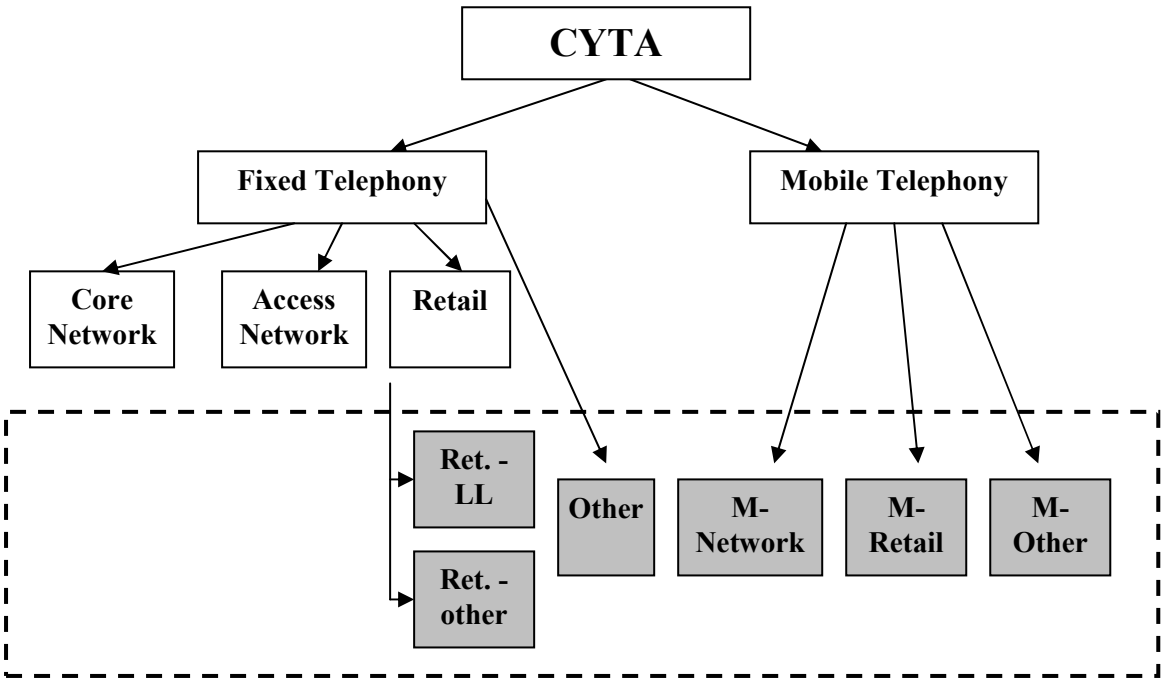
- ***Other activities***
  All other services.

2. ANALYSIS AND SEGMENTATION OF COST CATEGORIES AND REVENUES

2.1 Identification of the separated business units

According to the relevant regulations, CYTA must produce separated accounts for the following seven business units: Core Network, Access Network, Retail, Other, Mobile Network, Mobile Retail, and Mobile Other. Furthermore, the regulation for leased lines requires the production of separated accounts for the subdivision of leased lines as a distinct business unit. The breakdown of accounting separated units is therefore as follows:

Figure: The different business units and sub-units for AS purposes



2.2 Labelling – an overview

The most important issue, as regards the capacity of the costing system to analyse and segment cost categories and revenues to the seven business units (as well as domestic leased lines), is the **concept of labelling**.

During the cost allocation process in the costing system, there will be a gradual attribution of cost elements to each business unit, at the level where this is feasible. This cost element will carry the AS-related "tag" all the way through the costing system, until it is allocated to products. At the product level, one will be able to identify labels (both for the seven business units and for the leased line subdivisions) and produce the AS reports required by the regulation.

As part of the AS reports, revenues must also be entered and labelled through the costing system. For the purpose of estimating transfer charges between different business units, the cost of capital of each business unit must be taken into account.

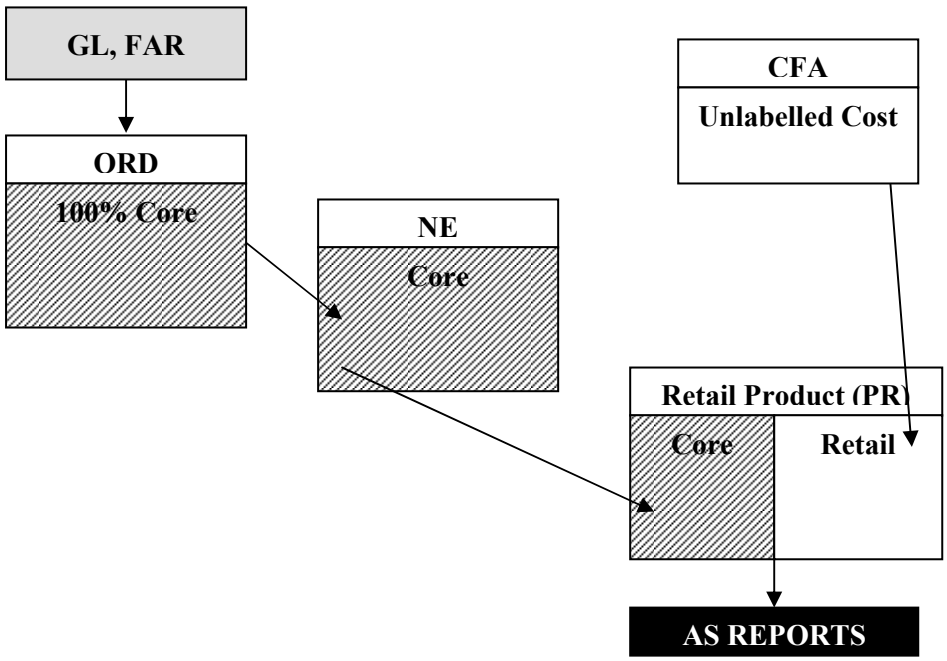
The labelling process with respect to AS is shown in brief in the diagram of the following paragraph.

2.3 Labelled and unlabelled costs

Costs will be labelled with respect to each business unit during the cost allocation process, and will carry the "AS tag" along up to the product level.

When certain costs cannot be attributed to a specific business unit above the product level, they will be allocated to the AS unit to which the corresponding product belongs (e.g. unlabelled cost ending up to a retail product will be labelled as "retail" for AS purposes).

Figure: Graphical representation of the labelling process through an example



Consider an Ordinary Cost Pool (ORD), which contains 100% Core Network cost. This is then allocated to a Network Element (NE). Assume this NE allocates cost to a Retail Product (PR). The portion of the cost of the PR that originates from the NE is labelled as "**Core**". However, this PR also receives cost from a CFA that has not been labelled.

The part of the PR cost that comes from the NE will continue to bear the label "**Core**", whereas the unlabelled part of the PR will be labelled according to the business unit to which the PR belongs.

Therefore, the unlabelled part of the cost of the PR will be labelled as "**Retail**".

2.4 Segmentation of revenues

The segmentation of revenues, as will appear in the AS reports, flows from the labelling of products according to the above categories. For the calculation of revenues, both transfer charges (including the cost of capital) and actual revenues will be taken into account in the system.

3. DEFINITION OF INTER-BUSINESS TRANSFER CHARGES

The definition of the businesses and the allocation of assets and activities within those businesses will give rise to various transfer charges between the businesses. The main charges are indicated by the broken arrows in the diagram, and examples are given of the types of service that are transferred. The broken arrows show the direction of the notional cash flow (e.g Retail will be 'paying' Network).