

***MEASURING THE COSTS FOR ACCESS PRICING
HUNGARIAN COMPETITION AUTHORITY
BUDAPEST, HUNGARY
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1. Introduction

1. The Hungarian telecommunications industry is still in a transition state. The Hungarian Parliament adopted the new Communications Act¹ in June 2001, and it took effect on December 23, 2001. As the Act is only a legislative framework the detailed regulation is laid by the governmental and ministerial decrees came into force also on December 23, 2001. In consequence of the new legislation the international, long distance and local – in 39 out of the 54 so called primary areas of the country – fixed telephone services formerly provided exclusively by MATAV became liberalised. Furthermore MATAV which is the dominant provider of local services in the abovementioned primary areas is obliged to provide local loop unbundling. The other concession companies (Vivendi, HTCC and Monortel – the so called LTOs) are still in monopoly position in the case of local calls. Their exclusive rights of providing these services will expire at last on November 2, 2002. In terms of pricing the mobile services have already been fully liberalised since 1998 as the Government has abolished the price regulation. However in terms of market entry it is not totally open as in 1999 the Government ensured in the concession agreements that till January 1, 2003 it will not issue any new licences in the field of GSM services.

2. The Communications Act obliges service providers to interconnect with one another and it makes mandatory for service providers which have Significant Market Power on the market of fixed telephone services, mobile radiotelephone services, leased line services or interconnection services to grant network access, interconnection and local loop unbundling. These latter services must be provided on the basis of the reference interconnection offers (RIO) and the reference unbundling offers (RUO) approved by the Hungarian Communications Authority (CA). The prices offered in the RIOs and RUOs have to be based on relevant costs determined by the method of Forward Looking Long Run Incremental Costs (FL-LRIC) calculation. As a derogation operators with SMP can apply the FDC-model (Fully Distributed Costs) this year to calculate their relevant costs of the above mentioned services but by the end of 2002 they must elaborate their LRIC-models as well. The detailed rules of costing these services and applying the FDC methodology are laid down in a ministerial decree² and in a ministerial directive³. The rules of applying the LRIC methodology are not determined yet.

3. The Communications Act declares that the LTOs and MATAV disposing of concession rights must be treated as having SMP on the market of fixed telephone services so they have to apply cost-oriented prices and work out their costing models. On the other markets the CA has to identify the SMP operators yet according to the criteria laid down in the Communications Act.

¹ Act No. XL. of 2001 on Communications

² Ministerial decree No. 1/2002. (I. 11.)

³ Ministerial directive No. 1/2002. (I. 11.)

4. Similar discrepancy can be observed in the field of costing practices. As a part of the preparatory process for the future liberalisation the CA and the Office for the Government Commissioner in charge of IT with the involvement of Andersen Kft. carried out a Costing Project in 2000 and in 2001 in order to develop a costing model based on FDC methodology and identify the unit cost of the defined interconnection and public telephone services. These projects aimed at creating cost models in order to identify the unit costs of fixed telephone services and they did not cover the measurement of unit costs of mobile telephone services although there were heavy complaints about the fix to mobile termination tariffs as they were excessive compared with the mobile to mobile termination fees. Mobile termination rates are subject to an ongoing competition supervision proceeding partly based on suspected collusion and on abuse of dominant position. The antitrust scrutiny does not cover detailed costing of the relevant mobile services it only examines whether the prices were in line with the Competition Act.

5. Nevertheless the application of cost-oriented prices could not be initiated yet. Although the underlying regulation came into force on December 23, 2001 service providers were not able to prepare themselves for the adaptation of these rules as significant part of the secondary legislation came out just a few days before the date of market opening (December 23, 2001). In these days the CA is just studying the modified RIOs as the first versions were disapproved. The final decision is expected to be adopted till the end of June.

2. The FDC-model

6. As it was outlined before the aim of the regulator in connection with interconnection charges is to grant cost-oriented prices for services provided by operators that have Significant Market Power on the respective markets of fixed telephone services, mobile radiotelephone services, leased line services and interconnection services. The regulatory goal is that the explicit obligation of cost-orientation applies only for the services where prices are not limited by competition. In order to distinct the costs of regulated and non-regulated services operators must follow the directions of the ministerial decree on accounting separation⁴. The decree requires that every service provider must keep its sales and other revenues from one of the four above mentioned markets distinct from the revenues coming from ensuring other services. The respective obligation in the case of operating costs and other expenditures applies only for the SMP-operators.

7. The allocation of costs to every single service follows the principles of Activity Based Costing (ABC). After defining the concerned services and the activities needed for providing those services the service provider has to create cost categories (cost pools) that reflect the operator's cost structure and the formerly defined activity structure. For the purpose of isolating the costs of the regulated part of the firm from those of the remainder part the created cost categories can include only the relevant costs of providing the regulated services, i.e. the costs that incurred in order to provide those services and the development of which is a function of the service's generated traffic. Thereupon, one has to define the cost drivers in order to allocate costs to activities and activity drivers in order to distribute the activities' costs. The last step is the assignment of the cost items from cost categories to activities and then from activities to services with an intermediary allocation of support and general network activities' costs to core (primary) activities. Whenever the costs of an activity cannot be unequivocally assigned to the regulated services the distribution between regulated and non-regulated services is based on the division of the quantity of the related activity driver between the two types of services. In order that the regulator could control this process the service providers must document the applied cost drivers and activity drivers and submit them to the CA.

⁴ Ministerial decree on accounting separation in the field of telecommunications, No. 25/2001. (XII. 22.)

8. In this FDC-model which is only applicable this year so as to alleviate the operators' meeting the new requirement of cost-orientation the regulated firms must fully distribute their historical costs to the related services. During this process they have to disregard the extraordinary expenses and the financing costs (these latter are incorporated in the model by the calculation of the return on capital) and reallocate their material type, personal type and depreciation costs and the difference of other expenditures and other revenues to the corresponding cost category.

9. The model acknowledges all the operating costs of the service providers that are booked in their general ledgers. This means that there is no need for any adjustment because the cost items of the cost categories are audited items originating from the companies' accounting. The model does not examine whether the reported costs were "fair and reasonable" but accepts the provisions of the accounting law⁵ in this respect. However a supplemental audit is required by the ministerial decree in connection with the accounting separation. The service providers must have their separately booked revenue, cost and expenditure records supervised by an auditor too.

10. As the companies' accounting systems aim at satisfying all the shareholders' information requirements they cannot entirely serve the orders of the telecommunications sector's regulator. Some of the operators' general ledger accounts are too aggregated while others are too detailed to make an accurate cost distribution so it is necessary to rearrange the reported costs and create cost categories of operating costs. The common or indirect costs should be allocated (under the ABC-methodology) by the help of cost drivers and activity drivers.

11. As a part of the operating costs depreciation is also taken into account among the relevant costs of providing telecommunications services. The FDC-model does not establish new rules for calculating depreciation but accepts the directions of the accounting law. This law gives the companies some freedom in elaborating their amortisation policies and in determining the rate of amortisation with regard to the expected useful life of the asset and the expected realisable value of the asset at the end of its useful life. The rate of depreciation can be set as a function of either time or performance. The amount of the depreciation to be charged is the rate of amortisation times the asset's gross book value or net book value (NBV). Thus the regulation does not cover specific fields of determining the path of depreciation and does not take into account the changes in the asset's future price. To a limited extent some adjustments can be incorporated in the model: if depreciation is determined as a function of the asset's net book value price decreases should be reckoned with because according to the accounting law one has to devalue the asset if the market price of the asset is steadily and significantly lower than the asset's net book value.

12. The last component of relevant costs is capital cost. Financing costs include the costs of both equity and debt and equal to the asset base times the rate of return. The value that underlies the asset base is the average net book value of each network element of the period examined, accordingly $K_i = (NBV_{\text{beginning-of-period}} + NBV_{\text{end-of-period}}) / 2$. Since the model is aiming at measuring the costs of regulated services only those assets are taken into account that are necessary for providing those services and only in a proportion in which they were used for providing those services (this latter is ensured by the ABC's cost allocation mechanism). So the asset base in the FDC-model is based on the historic value of the assets adjusted for depreciation, devaluation, asset disposals and capital expenditures and it does not attempt to estimate the assets real, actual value. The main reason of the regulator of choosing this method was its simplicity which is easily understandable in the light of its transience. For the same reasons the regulator does not control the magnitude of the asset base, service providers can independently decide on their future investment plans but they cannot incorporate their expenditures on future or ongoing investments in their present prices.

⁵ Act No. C of 2000 on accounting

13. As it was mentioned above financial costs were taken into account in the relevant costs only indirectly, through the cost of capital and not as part of the operating expenditures. Thus the costs of capital include the costs of both equity and debt. In consequence the rate of return is based on the well-known formula of the Weighted Average Cost of Capital. But the individual service providers cannot actually vindicate their actual WACC which reflect to their own company's risk and their owners' expectations because the regulator has determined a uniform industrial WACC-rate of 19% for 2002.

14. The authority's goal is to determine the unit cost of the regulated services in order to ensure and control that the prices of those services be cost-oriented. According to the ministerial directive unit costs must be calculated as the ratio of the determined total costs of a given service and the total quantity of that service actually sold in the examined period.

15. The prices of fixed telephone services were in the past determined by ministerial decrees which in the case of retail tariffs followed the price cap methodology. As the prices of the services were not grounded by a similar cost calculation at the time when the price cap model was introduced the latest prices do not reflect the underlying costs either. The 2001 Andersen-study showed that the regulated customer line rental charge is far less than the cost of providing it while in the case of interconnection and call services the regulated prices significantly exceed the underlying costs (detailed presentation see later). In order to avoid rate shock that would be caused if customer line rental charges were adjusted to the underlying costs the regulator warranted contribution to access deficit as it made possible to charge 2.0 HUF per minute (0.008 EUR/minute or 0.0075 USD/minute) beyond the calculated unit costs of the interconnection services.

3. The LRIC-model

16. The Communications Act requires that SMP-operators set their prices of network services based on the underlying costs. In determining those costs they must follow the principles of Forward Looking Long Run Incremental Cost (FL-LRIC) calculation. However, the Communications Act ensures that service providers should comply with this requirement only in 2003 and this year they can apply the FDC-methodology. So service providers must establish their costing models based on the LRIC-method by 2003 which have to be approved by the CA

17. The reason for this alleviation is that there is no practical experience in Hungary in applying the LRIC-methodology yet. Furthermore the detailed rules of applying it are not clear either. The ministerial decree on the rules of costing network services delegates the task of determining these rules to a ministerial directive but it has not been created yet. All is known is a study on the basic principles of the LRIC-methodology but it only traces the theoretical considerations behind this method and cannot function as a practical guide.

18. According to the ministerial decree operators have to calculate their unit costs by calculating relevant costs based on the LRIC-method to which they have to add the cost of capital and mark-up calculated under the directions of the ministerial directive yet to be constituted. In order to partly cover access deficit they can charge the 2.0 HUF per minute in this model either.

19. The LRIC-study already mentioned was carried out by CA and Andersen Kft. It describes the mechanism of the top-down LRIC-method as follows:

- *Creating homogenous cost categories.* The costs of an individual cost pool should possess of the same cost driver and the same cost-volume relationship and should be significant enough to be independently handled.

- *Assigning operating and capital expenditures to the homogenous cost categories formerly created.* Operating expenditures must be assigned directly or through intermediate allocation to the homogenous cost categories. If necessary they can be adjusted to the changes in prices or in technology. Capital expenditures require a more complex handling. Service providers must at first determine the so called gross replacement value of all their assets, i. e. the asset base. It can be determined by different methods – the applied method is based on the asset’s characteristics. (The recommended methods are presented in the Appendix.) Then they have to revise their depreciation policies and determine the expected useful life of every asset taking technological and economical aspects into consideration. Finally they have to calculate the amount of amortisation which equals to the gross replacement value divided by the useful life of the asset (set in years). In order to calculate the cost of capital service providers have to determine net value of their assets which is the lower of the net replacement value (the gross replacement value times the degree of amortisement) or the recoverable value. This latter is the maximum of the economic value (the present value of future cash flows generated by the asset) or the net realisable value (the value that can be realised by selling the asset). Capital costs equal to the net value times the WACC (in percentage) determined on the basis of the capital asset pricing model.
- *Determining network elements.* This in fact means the determination of the activities needed for the model’s operation.
- *Determining the costs of the network elements.* In this stage costs of the homogenous cost categories will be allocated to network elements. The total costs of a network element consists of the incremental costs of the given network element and of the allocated common costs. Incremental costs will be determined by estimating the total future quantity of the network element’s cost driver caused by future services while common costs will be taken into account by mark-ups. The procedure of determining mark-ups is not laid down yet.
- *Determining the unit costs of regulated services.* The costs of the regulated services must be calculated by allocating the costs of the network elements to services on the basis of the estimated future traffic and the estimated future use of network elements.

20. As it can be seen from the description above the model only outlines the mechanism of LRIC-costing and does not provide a practical guide, for example does not recommend any options to be applied when there are more alternates. It has to be concreted by the ministerial directive and by the service providers.

4. The 2001 Andersen Cost Study

21. The Hungarian Communications Authority and the Office for the Government Commissioner in charge of IT initiated in 2001 a “Cost Models Project” which was carried out by Andersen Kft. The Project’s main goals were to identify the unit costs of the defined interconnection and public telephone services using the further developed FDC-model originally elaborated in 2000 and to summarise the theoretical fundamentals of the LRIC-methodology. The Project covered only the fixed line voice operators.

22. The model of 2000 was a first attempt to get an overview of the fixed line operators’ cost structures and unit costs. Since service providers – on the basis of the experience from the previous year’s model – became more prepared for 2001 the model could have been further developed and approximated to the EU-terminology. The main features of the model were the following ones:

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- The FDC-model was based on the methodology of Activity Based Costing. It was a central model applicable for all operators so it could not entirely take into account the characteristics of each operator.
- According to the regulator’s decision the model did not distribute extraordinary expenditures and on the other hand expenditures on financial investments were incorporated in the model only indirectly through the cost of capital.
- The model supported both the geographic and the network element based approaches. However, the unit costs were calculated only on the basis of the geographic approach, using primary areas as geographic units. It means that the calculated costs are that of the services provided in an average primary area but the model cannot calculate either distance- or region-based unit costs. (For the list of services the costs of which were calculated see Appendix.)
- The Project started in May 2001 at the time when the new Communications Act was not adopted by the Parliament yet. Thus the definitions of services used in the costing model do not entirely correspond to the terminology of the Act so the results of the Project could be used for establishing regulated prices in January 2002 and for controlling the submitted RIOs only with reservations.
- In other respects the model complies with the principles of the FDC-model laid down by the Act and the secondary legislation. The WACC-rate was determined by the regulator univocally for all operators, the CA finally set it in 18,9%.

23. According to Andersen Kft., the project co-ordinator the results of the project as far as interconnection services are concerned were satisfactory and are applicable for regulatory purposes. Authorities can use them for controlling the prices of the RIOs while operators can establish their own costing models on the basis of the “common” costing models of 2000 and 2001. However, in the field of public telephone retail services further analysis is required since the unit costs of the operators are so different that it cannot be explained only with differences in the service structures. It seems more likely that the operators have determined their cost- and activity drivers so that the resulting unit costs confirmed their former argumentation of the profitability of the provided services. Thus only the results of costing interconnection services will be presented here comparing their unit costs with previous year’s results and with EU-benchmarks.

24. Call termination

	Call termination cost			
	2000-year model (WACC=22.3%)		2001-year model (WACC=18.9%)	
	HUF/min.	EUR/min.	HUF/min.	EUR/min.
Minimum	3.27	0.0135	3.50	0.0144
Maximum	7.52	0.0310	5.89	0.0243

In 2000 the EU average tariff for local interconnection was €-cents 0.98 per minute, for single transit €-cents 1.44 per minute. Compared with the previous year’s data the unit costs have diminished but compared with the EU-average they are still high. Furthermore the decrease is due to changes in the model rather than more efficient operating of service providers. The 2000-year model allocated to call termination retail costs as well according to the then existing revenue-sharing regulatory regime.

25. Call origination

	Call initiation cost			
	2000-year model (WACC=22.3%)		2001-year model (WACC=18.9%)	
	HUF/min.	EUR/min.	HUF/min.	EUR/min.
Minimum	9.06	0.0374	2.95	0.0122
Maximum	17.14	0.0707	4.86	0.0201

In the case of call initiation much bigger “cost-saving” can be observed though in comparison with the EU-charges these costs are still relatively high. The cause of the perceptible cost-differences was not the efficient operating either but again the new structure of the model and the new definitions of the examined services. The first factor is the elimination of retail costs (as in the case of call termination) but as it can be seen call initiation costs are lower than call termination costs though they need the same network elements for being provided. The cause of it is that at the time when the model was elaborated call origination was a non-existing service in Hungary to the effect that it was not sold. As this service was not existing under the FDC-methodology some costs could not have been allocated to it, especially concession fee and wholesale billing. As soon as call initiation will be categorized by the regulator as a wholesale service the very same costs shall apply for both origination and termination.

26. The calculated costs were subject to a cost content and a sensitivity analysis. In the costs of the services the following categories represented the biggest weight:

- depreciation and capital costs of network assets,
- personnel costs,
- other depreciation and capital costs related to non-network assets,
- subcontractor fees, outsourced services,
- fees paid to partner providers for network services.

Regarding the sensitivity of the results, unit costs of services are most sensitive to changes in the volume of cost categories and to the size of the cost of capital. The effect on unit costs of this latter appears in the big differences between 2000 and 2001 data either, as in 2000 the WACC-rate was 22.3% (as an average WACC-rate of the different operators) while in 2001 it was only 18.9% (determined arbitrarily by the regulator).

APPENDIX

Table 1: Options for determining the Gross Replacement Value under the LRIC-method

The asset's characteristics	The applied method
Unchanged technology	Adjustment to price index Detailed (absolute) revaluation of an existing asset
Effete technology	- Detailed (absolute) revaluation of a modern equivalent asset
Asset of short useful life or of little value	- Historical costs (no need for revaluation)

Table 2: The defined services of the 2001 Costing Project (bold type)

Interconnection Services			
	Termination		
	Initiation		
Public Telephone Services	Subscriber services		
		Access	
		Traffic-based services	
			Local calls
			Long distance calls
			International calls
	Calls initiated from public phones		
		Calls initiated from public coinphones	
		Calls initiated from public cardphones	