International Center for Economic Growth
European Center

The Expected Effects of the EU-Accession on The Telecommunication and IT Sector in Hungary

By: Zoltán Bán and Róbert Láng

May 2003

Budapest

Table of contents

Summary: The effects of EU accession on the Hungarian telecommunications and IT sector

It is rather difficult to distinguish between the effects of EU accession on the Hungarian telecommunications and IT sector and those of general international trends, which, even in the more developed regions of the world, often render the prospects of many market segments uncertain. The future opportunities of the sector in Hungary are influenced to a large extent by the international climate, the level of capitalisation and the prevalent vision of the future, all being factors whose positive development can only be augmented, but not assured by Hungary's accession to the EU.

Despite the expected changes, EU accession shall not bring dramatic changes in the life of the sector; it is likely that the market will only undergo a moderate restructuring, domestic market players need not expect any shocking changes while domestic consumers will clearly profit from the country's accession.

The main effects of EU accession shall be as follows:

- establishment of a regulatory environment that is consistent with EU regulations and which, in addition to the transition to the LRIC-based cost model that shall have a major effect on interconnect fees, may also promote competition and lower prices through the portability of telephone numbers, better access to the network of the incumbent provider and possibly the introduction of virtual mobile networks;

- development of livelier supply and demand conditions which may result in price cuts in some sectors and an overall improvement of the quality of services;

- increasing competition through the entrance of new providers and increased efforts by existing ones; the incumbent PSTN provider Matáv may retain its dominant position but its competitors may grow stronger;

- shifting of the focus to data services, growth of cross-border services, increasing congruence of IT and telecom services;

- harmonisation with the eEurope 2005 project, which may result in significant development of both the infrastructure and services. Thanks to government programmes, the expectations of the EU and market processes, Hungary's present particularly low internet penetration may increase significantly in the years after accession, though approximating the EU average will still present a formidable challenge;

- in the longer term, significant development in the field of modern on-line public services (e-government, e-learning services, e-health services); establishment of a dynamic e-business environment; widespread availability of broadband access at competitive prices.

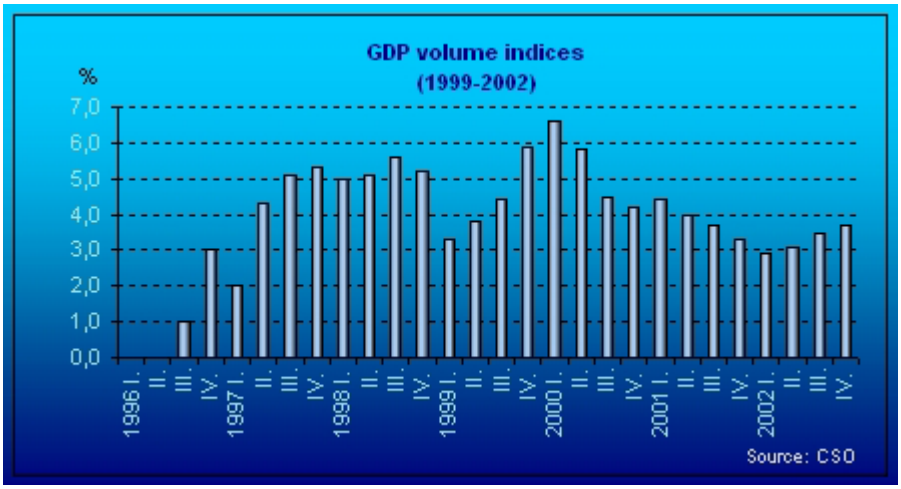
Macroeconomic background

Hungarian economy is one of the most opened in the CEE countries. Exports and imports account for approximately 110% of GDP. Because of this wide openness economy is very sensitive to external shocks.

Economic growth gradually decelerated in the last two years, but growth rate is still one of the highest in the Central European region. The reasons are somewhat clear: depression in the main export markets, worsening competitiveness because of increasing unit labour cost and appreciating forint exchange rate. In 2000 GDP growth amounted to 5.2%, last year it was only 3.3%. Investment activity in the corporate sector lowered significantly, but final consumption was very strong last year.

Growth rate of 3.3% was a serious slowdown from 5.2% in 2002, but on the other hand it exceeded much the rate of growth in the European Union and other main export markets. As mentioned above the most important driving force behind economic growth was household consumption, residental building and infrastructural investments by the government (motorway, some other huge building projects). Last year deficit of the public sector amounted to more than 10% of GDP, the expansionary impact on the demand side could be as much as 4.3% of GDP.

This year household consumption is expected to be very strong at a growth rate about 6%. Investments in the corporate sector may accelerate consistent with the recovery of external demand. Because of the uncertainties about the Iraqi conflict it is very difficult to project the intensity of that recovery. Houshold residental investments could remain strong, but dynamic decelerate, while investments in the government sector is expected to decline markedly consistent with the fiscal path drafted in the budget law and the preaccession economic programme (PEP). Exports can increase faster than last year, while dynamics in import can decrease mildly. Sum up all the expectations GDP is supposed to grow by 3-3.5% this year. Due to favourable external conditions growth can accelerate to 3.5-3.8% in 2004.



One of the most important characteristic of the last year was very dynamic wage growth both in the public and the private sector. Real wages rose as much as 13.6% last year, while productivitiy improved much lower. This resulted in increasing unit labour cost and worsening competitiveness. Purchasing power was strengthend by the increasing amount of consumer credits. According to the service sector dynamic growth in wages and purchasing power of households is very favourable despite slowing average growth rate.

Higher income level may result in higher ARPU for telecom companies and higher income for other IT firms.

According CSO data gross value added in the communications sector adds up to 3-3.3 % of total GDP. In 2001 volume indices indicated a 7% growth. GDP in that year grew 5.2%, so dynamics in the communication sector is higher. It is supposed to be the case in recent years.

Investments in the communication and IT sector account for 5% of total investments. Great volumes in the previous years related to LTO (Local Telecom Operators) and Mobile Services. Last year investment activity decreased at the traditional communications companies, but dynamics at cable TV operators and Mobile firms are still significant.

The growth rate of the telecommunications sector is to exceed that of the Hungarian GDP in the coming years. The source of its high growth rate is expected to be the huge jump in the level of telecoms and IT sevices both in quality and volume terms, which is demanded by the improving communication technologies and the increasing purchasing power of the evolving information society. In the EU the growth rate of the telecoms sector was still significant, despite the recessional economic environment.

Despite their recent weakness telecommunications and IT can be one of the most dinamically increasing industrial sectors in the coming 10 years in Hungary, which is supposed to be further strengthened by the coming EU accession.

Changes in demand and supply

In the telecommunications and IT sector, it is very difficult to distinguish between the effects of the EU from the general characteristics of the sector that have a fundamental effect on investment initiative and the directions and speed of development. The boom and the crisis of the telecommunications sector had a very pronounced effect on the Hungarian market; the cold shower that followed the heights of euphoria has been very much responsible for the present state of the sector.

The normalisation of the financial position of the sector, projected for 2004, may coincide with the country's accession to the EU, while the measures implemented prior to accession (introduction of new regulations, increasing the number of people with internet access) shall basically attempt to shift the market towards EU standards.

The favourable developments forecast for 2004 shall impact Hungary in an uneven state of preparation. In some areas (regulations, the mobile phone market) we shall be ready for the EU by 1 May 2004, but it is highly likely that the country will still be facing serious challenges in the fields of the internet economy, the information society that shall be built upon it and competition in fixed-line telephony.

With accession to the EU and the settlement of the position of the sector, significant changes are expected in both demand and supply, which shall primarily result in stronger competition, higher quality of service, lower prices and larger volumes of business.

The supply side may grow significantly stronger thanks to the major transformation of the regulatory background (primarily the interconnect fees) and the improving capital positions of potential foreign and domestic market players. Stronger supply may primarily result in lower prices, but competition in technology and quality may also play an important role in some segments. The penetration of cross-border and integrated services may grow and supply may also undergo a serious structural transformation. Current processes may be intensified in the field of data services while considerable growth may also be expected in the market of voice services.

To a considerable extent, the extension of the supply side can be traced back to a major increase of demand expected at the time of EU accession which, because a larger amount of income is being spent on telecommunications, and that may also bring a structural transformation. The increasing contribution of revenues from data services in both the mobile and the fixed-line segments shall play a very important role in structural developments. Among voice calls, very significant increases of volume can only be expected in the international calls category, although the growth will clearly be accompanied by strong competition on prices. As the contribution of fixed-line voice calls drops, the proportions of revenue within the telecommunications sector may shift radically towards mobile telephony and the Internet/data market.

Export, import, competitiveness

We do not expect significant changes in the Hungarian IT and telecommunications markets after the EU accession, as these markets are either totally opened already, or not a subject of export-import relations.

Nevertheless, competitiveness could be a key factor for these sectors as well, as in the Hungarian IT-telecoms services we expect the increased demand for cross-border services, where the competitiveness of the Hungarian companies is limited at the moment.

One of the main reasons why the EU accession will not cause a shock to the Hungarian IT-telecoms companies is that most of them are controlled by a foreign mother company, therefore the Hungarian subsidiaries do not really have too much independence anyway. EU markets for Hungarian IT companies without multinational background and with great export capacity have been already opened for some years (eg. Graphisoft). These companies have set up foreign business relationship already – in their case we can expect increased foreign activity after the accession.

One of the greatest setback of the development of the Hungarian IT industry in the last few years was, that there were many abuse in accordance with public procurements, which resulted in different kind of legal affairs. These affairs restrained organic development and very few domestic companies managed to reach the critical size level, where they can be serious competitors of multinational companies. Moreover, the current cost advantage of Hungarian companies will most probably diminish at medium-term, so they can either be the suppliers of the multis or need to act in niche markets.

The issue of the competitiveness of the Hungarian telecommunications sector is complex. The major part of the sector is in the hands of foreign professional and financial investors, so the up-to-date know-how has been assigned already. As a result, Hungarian companies are already competitive, which positions well the domestic companies in an increasingly competitive business environment. Hungarian companies set up in the last years should be prepared for more competition among both international and other, newly set up Hungarian companies. In the future high growth of international calls may increase competition in this market segment.

After the EU accession the market should be prepared to that several international companies located in Hungary will choose global suppliers instead of the Hungarians not only in the field of telecommunications but in IT as well. There is a great chance of several international companies gaining market share at the expense of their Hungarian subsidiaries.

Hungarian telecom companies have already turned their business to be highly cost effective, partly due to the expectations of foreign mother companies, or due to the lack of capital, therefore questions of competitiveness from the cost side should not be raised. However problems may come from the limits of the small market size, which could be solved by expanding abroad to the EU markets. This however can be an option only for a small number of companies, as the subsidiaries of the multinationals concentrate on the domestic market, mobile telecom companies can expand only through acquisitions, and the alternative telecoms companies struggle with the lack of capital needed for further growth. Pantel, which is active in the east European region could profit from the EU accession, but significant gain of market share is not expected for the Hungarian companies, whilst the foreign companies can generate increased

competitiveness after solving their capital problems, after issuing the new EU conform regulations this year in new segments of the Hungarian market as well.

The main target of the increased competition will be most probably MATÁV, that manages to keep its EBITDA margin over 40% most probably this year as well. This extraordinary profitability may raise the attention of some foreign competitors. The competitiveness of MATÁV depends primarily on the legal regulations. MATÁV holds significant market position in every sub-segment of the Hungarian market, and it is expected to keep its number one rank in the retail market.

The big question will be the business segment, where the current competitive market conditions may become even more competitive after the accession. In this market segment the big change can be that the smaller service providers may merge in response to the new challenges of the increased competitiveness of the market. The consolidation, that started in 2002, therefore most probably is going to continue, due to the economy of scale rule in an increasingly competitive business environment.

Capital investments, FDI

Capital investments in the Hungarian telecom and IT sector are only indirectly linked to the EU accession, as the sectors are restrained by the huge lack of capital and dark outlooks. In the past two years practically no foreign investor has brought significant amount of capital to the Hungarian telecommunications, the only deal was a takeover without fresh capital (Pannon-Telenor). This leads to the situation that Hungary was a net capital exporter in the previous years in these markets.

MATÁV was the leader in the capital export, by acquiring a controlling stake in the Macedonian Maktel for EUR 301 mn and by buying the remaining 49% stake of Westel from Deutsche Telekom for EUR 920 mn.

In Hungary in 2002 the amount of Capital Expenditures was around HUF 160 billion (2001 HUF 170 billion) dominated by the main firms (Matáv, Pannon, Vodafone).

The only significant net capital importer in Hungary was Vodafone, which spent a lot of money building its network and securing its market positions last years. (Westel and Pannon have done it from their free cash flow) It is expected, that Vodafone will keep on spending huge amounts of money on investments despite the fact, that the whole Hungarian mobile market does not need significant capital spending before the building of the UMTS networks. The free cash flow of Westel and Pannon will be extracted by parent companies end used up abroad for investments or simply debt reduction. So at the end of the money flow there are Deutsche Telekom and Telenor, while Vodafone was not able to pull money out from its Hungarian subsidiary because of low profitability and great reinvestment needs.

In the fixed line retail market the network has not been growing for years, due to increasing mobile penetration. This segment is a cash cow for MATÁV and significant capex cannot be expected.

The business segment and internet can be more exciting market fields, where international investors have not been putting money since the end of the tech boom. In this field we can expect capex in the future, but only if the sector's international financial judgement improves.

The global market is somewhat fragile following the bursting of the dotcom bubble, the global economic slowdown and over-investment in backbone capacity, combined with high levels of debt resulting from expensive acquisition strategies and the cost of the transition to third generation mobile systems. There is therefore clearly a concern that adverse conditions in capital markets will reinforce market consolidation following liberalization, possibly driving entrants from the electronic communications market.

In summary, the owners of the Hungarian telecoms companies are using the free cash flow of its Hungarian subsidies to pay off its own debt, therefore we can rather expect net capital outflow from the sector in the near future.

The liberalization may attract some fresh money to a more competitive Hungarian telecoms market, but this will not offset the huge capital outflow to Deutsche Telekom and Telenor in the coming years.

The capital outflow can be offset by only an improving investment climate, where the growth of the broadband internet penetration and the introduction of the UMTS system may lead.

The labour market

The EU accession shall have no significant effect on the labour market of the telecommunications sector; salaries in the industry are already above average in Hungary. However, that does not mean that we do not need to prepare for a possible transformation of the structure of the job market. The number of jobs on the fixed-line segment is likely to drop further while new jobs may be created in the field of data communication.

No explosive growth of salaries is to be expected after accession, but there is a definite possibility of migration in some areas, the technical specialists of the mobile operators will clearly have good chances of employment at the foreign operators that operate identical technical equipment.

The position of Hungarian employers may be more difficult in the IT sector; on account of the higher levels of pay available in Western Europe and the standardised nature of the work involved, they may have to face significant migration of their employees, who are more mobile than the Hungarian average, in the case of an international economic boom.

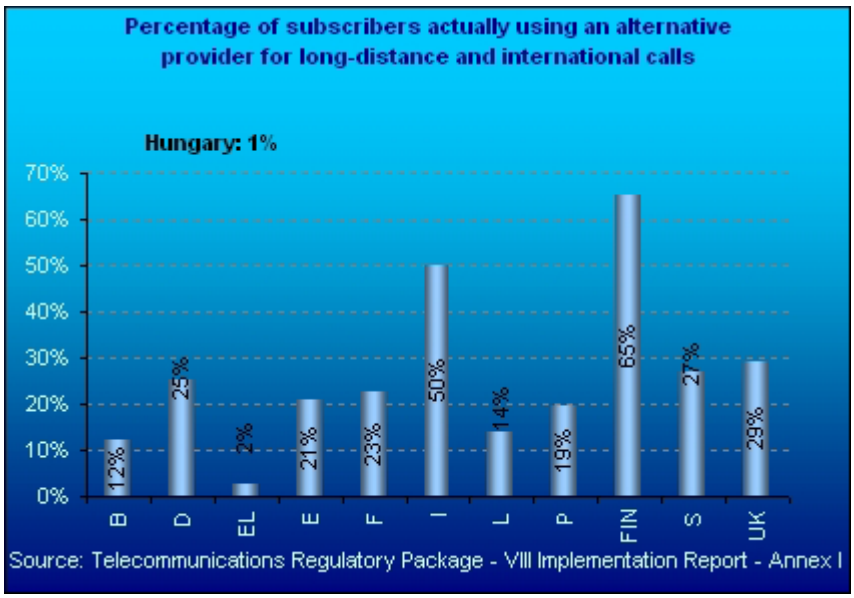
Therefore the balance of supply and demand shall be characterised by a slight domination of supply, but that shall not generate serious losses for Hungarian firms. The employees of international companies are already receiving exceptionally high remuneration and they already have the opportunity to seek employment abroad, while those working for smaller companies are probably less mobile, anyway.

The most important set of issues in IT shall be the education and training of a suitable labour supply; unless significant reforms are introduced, the present system is unlikely to be able to meet the demand for more and better qualified IT human resources.

In the foreign counries IT and telecoms sector demand less employees than before, however in mid-term the demand is expected to increase. The Hungarian education has to be ready to meet the potentially increasing demand. Salaries of Hungarian top managers are close to the levels in the EU, nevertheless general salaries are still far below the EU level. For the time being the deficit in salaries has been compensated by special tax-friendly solutions, but in the mid term the Hungarian State will not allow these methods, so the competitivness of the Hungarian small and mid size companies may decrease.

Telecommunications: Regulation in the focus

In the Hungarian telecommunications sector the EU accession results a serious challenge concerning regulations. The Communications Authority of Hungary, which is the centre of the telecom regulation, seems to be prepared for the accession, the regulatory framework on many fields meets the EU standards. The first phase of the market liberalisation has already been done. After the first uncertain steps, market participants are expecting significant changes from the introduction of LRIC (Long-Run Incremental Costs) model which will change the current FDC (Fully Distributed Costs) cost model in the interconnection market. From that change , interconnect prices decrease . The introduction of the LRIC with the decrease of the interconnection fees and other EU regulatory means (eg. number portability) may help to invigorate competition, which besides the decrease of MATÁV's market position would lead to lower retail prices, of which the customers would benefit the most. The Communications Authority of Hungary undoubtedly plays a key role in the regulatory work, which is in line with the EU guidelines, but it has a limited power to enforce its interests and very vulnerable to the lobbying power of the Hungarian telcos, on which field MATÁV was very succesful in the past. Though the Communications Authority is prepared to the EU accession, the final proof of its work will be the result of the liberalization. In the past the organization was known as doing favor mainly for MATÁV, which practically resulted in an unsuccessful liberalization. The EU accession may change the authority's current stance, which may result a more competitive market. Though the Communications Authority is independent from the Government in its operation and its financing as well, independence doesn't really materialize in practice.



The other key organisation of the Regulation is the Competition Office, which made a report in the near past about the mobile telecom market, which however was sharply criticized by market participants.

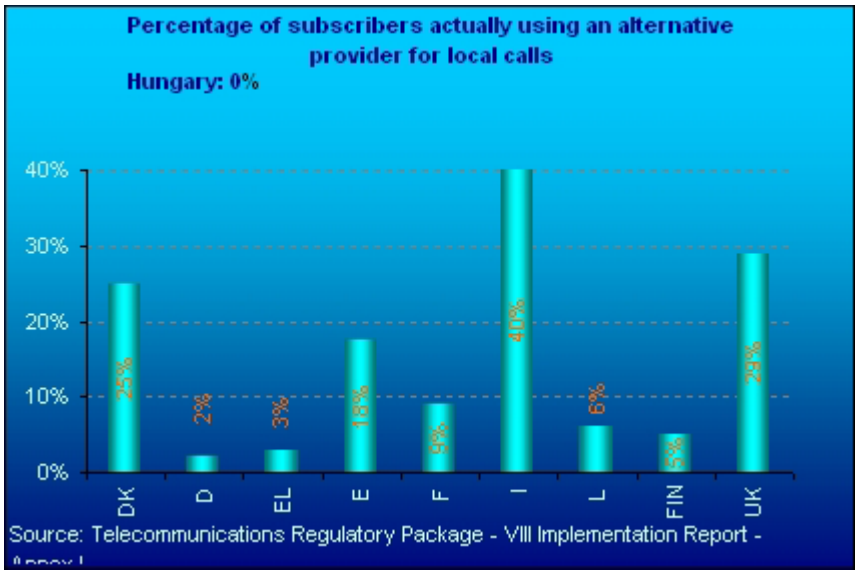
The other key factor of the Regulation is the Government itself, which in theory is engaged with impartiality, but in practice the results of lobbying activities can be seen in its work.

The modified Telecoms Law is scheduled to come into effect by Jan. 1, 2004. The draft of the new law is to be discussed by the Parliament in the fall, and is expected to overhaul the existing Telecoms Law of December 2001 that sought to liberalize the market.

Analysts and industry executives agreed that the existing law fell short of expectations. In addition, a number of EU directives have to be adhered to, necessitating a radical overhaul of the existing legislation.

One of the missed targets of the current Telecoms Law was that number portability in the fixed-line segment was not in place by Jan. 1, 2003. The alternatives have campaigned for this step for a long time, which allows customers to change service provider without changing phone number. This will come into effect only from Jan. 1, 2004, as part of the new law. Number portability will have to be available in the mobile sector by May 1, 2004 - the date of Hungary's accession to the EU.

The new Telecoms Law will also address the reform of financing of the Universal Access Telecom Services Fund, as well as narrowing the range of those eligible to use its resources. The fund has been set up to finance the net losses telecoms accrue while providing universal services - a defined minimum set of services that they legally must provide at an affordable price to end users with special social needs.'

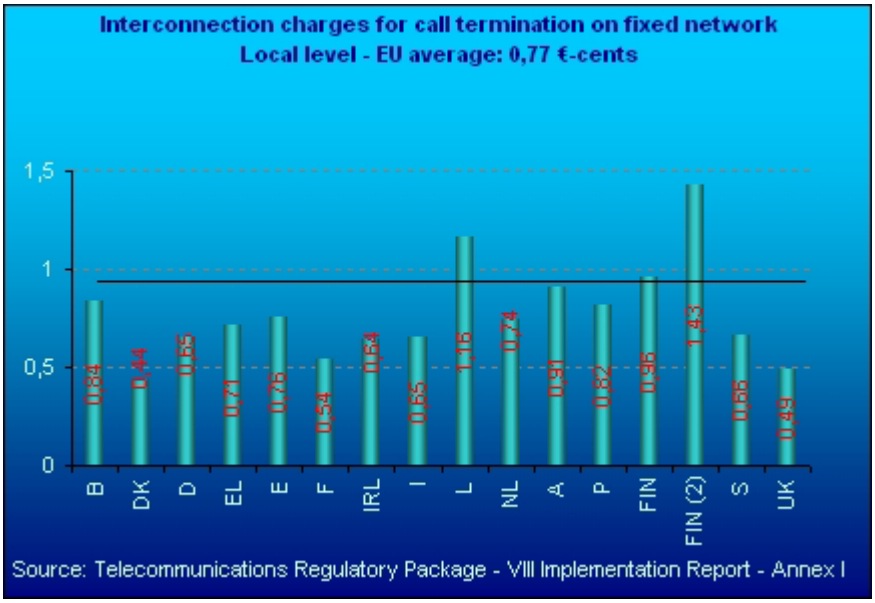


Regulation in the EU

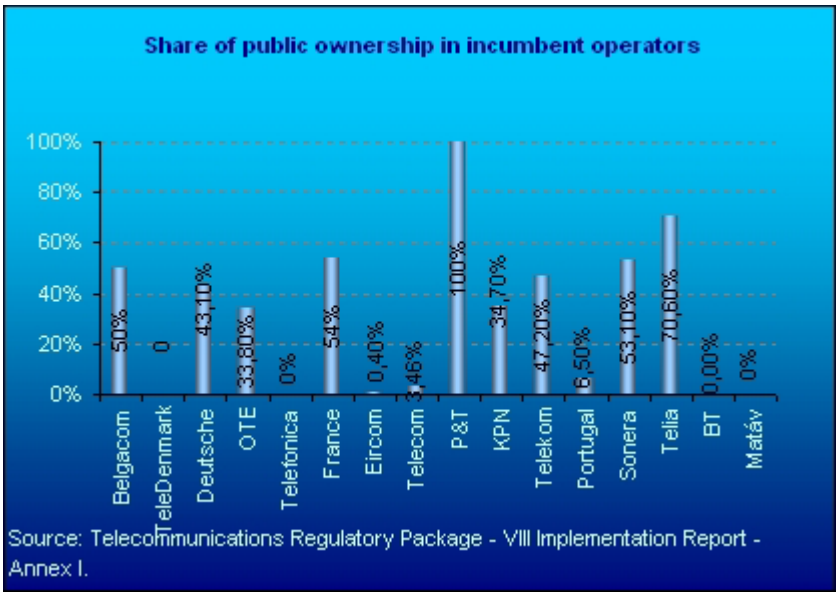
The EU Parliament and Council adopted in March 2002 the new package of sector specific regulation designed for more competitive markets and converging electronic communications technologies. The new framework links the imposition of regulatory obligations to the absence of effective competition. The new regulatory environment will enable regulators to focus their powers to promote competition, protect the citizen and consolidate the single market, while taking account of the need for innovation and the long-term sustainability of the sector.

National regulatory authorities (NRAs, in Hungary: Communications Authority of Hungary/HIF) will clearly play a major role in the new regulatory regime, together with the national competition authorities. (In Hungary GVH). They will also have an important role under the new regime in helping to ensure that rules are applied consistently in all (currently and potentially) Member States, in cooperation between themselves and with the Commission. NRAs will in particular have to assess the degree of effective

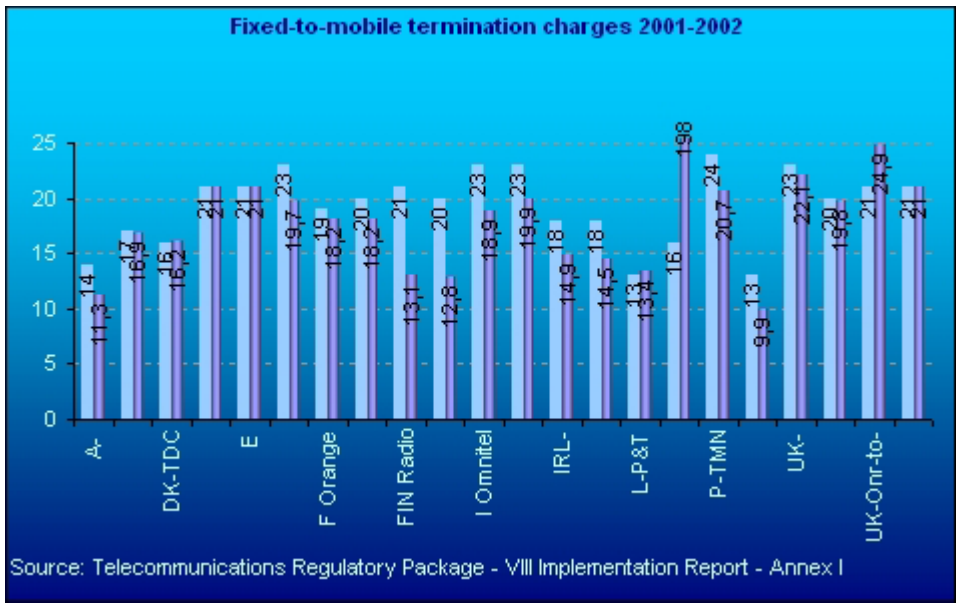
competition in relevant markets, and decide the regulatory obligations to be imposed on players with significant market power.



National regulatory authorities in all Member States have the independence, skills and authority to regulate markets as required under the directives. Some are still hampered by heavy national procedures, which may adversely affect their ability to enforce obligations under the new regulatory framework.



Interconnection regimes have provided for the conclusion of a large number of interconnection agreements, to complement large-scale market entry. However, there are delays in the approval of reference interconnection offers in some Member States. Moreover, while overall the prices charged for interconnection allow market entry, there are complaints in a small number of Member States that reciprocity requirements imposed are damaging new entrants, or that price squeeze exists in the fixed market.


Fixed-to-mobile termination charges 2001-2002
25
20
15
10
5
0
14
11,3
17
16,9
16
16,2
21
21
21
21
23
19,7
19
18,2
20
18,2
21
13,1
20
12,8
23
18,9
23
19,9
18
14,9
18
14,5
13
13,4
16
19,8
24
20,7
13
9,9
23
22,1
20
19,8
21
24,9
21
21
A-
DK-TDC
E
F Orange
FIN Radio
I Omnitel
IRL-
L-P&T
P-TMN
UK-
UK-Onr-to-
Source: Telecommunications Regulatory Package - VIII Implementation Report - Annex I

1. Organisations with significant market power (SMP)

EU: Status as on 1 October 2002

	Fixed operators Voice Telephony	Fixed operators Leased Lines	Mobile operators Mobile services	Mobile operators National market for interconnection
Hungary	Matáv Local operators	Matáv	Westel Pannon	Westel Pannon*
Austria	Telekom Austria	Telekom Austria	none	none
Belgium	Belgacom	Belgacom	Belgacom Mobile Mobistar	Belgacom Mobile
Denmark	TeleDanmark	TeleDanmark	TeleDanmark Sonofon	none
Finland	Sonera Local operators	Sonera Local operators	Sonera Radiolinja Oy Alands Mobiltelefon	none
France	France Télécom	France Télécom	Orange France SFR	Orange France SFR
Germany	Deutsche Telekom	Deutsche Telekom	none	none
Greece	OTE	OTE	Cosmote Vodafone	none
Ireland	Eircom	Eircom	Vodafone O2	Vodafone O2
Italy	Telecom Italia	Telecom Italia	TIM Omnitel	TIM Omnitel
Luxembourg	EPT	EPT	EPT Millicom	None
Netherlands	KPN Telecom	KPN Telecom	KPN Mobile	None
Portugal	Portugal Telecom	Portugal Telecom	TMN Telecel	None
Spain	Telefónica	Telefónica	Telefónica Móviles Airtel Móvil	Telefónica Móviles Airtel Móvil
Sweden	Telia	Telia	Telia Vodafone Tele2	Telia Vodafone * Tele2*
UK	BT Kingston Commun.	BT Kingston Commun.	Vodafone O2	none

*suspended

2. Cost methodologies for calculating interconnect and unbundling charge

	Cost accounting system actually in place for int. by SMP op.		Cost ac. S.actually in place for unbundling by SMP op.	
	Cost base	Cost standard	Cost base	Cost standard
B	Historic/Current	FDC	Historic	Retail minus for full unbundling
DK		LRAIC		LRAIC
D	Forward-looking costs	LRAIC	Forward-looking costs	LRAIC
EL	Current	LRAIC	Current	LRAIC
E	Multistandard	Multistandard		
F	Current	LRIC + others	Current	LRIC + others
IRL	LRAIC	LRIC	Historic	FDC
I	Current	FDC	Historic	FDC
L	Historic	FDC		
NL	Current	EDC for orig., B-up LRIC for term.	Current	EDC
A*	Current	FDC	Current	FDC
P	Historic,FL and current	FDC		
FIN	Historic/Current	Company specific	Historic/Current	Company specific
S	Historic	FDC	Historic	FDC
UK	Forward-looking/current	LRIC + FDC	Forward-looking/current	LRIC + FDC

*The regulator uses forward-looking LRAIC bottom-up model

Telecommunications Regulatory Package - VIII Implementation Report - Annex II – 7

Interconnect fees in focus

In the elaboration of new interconnection fees EU experience can be very important, which at the moment only partly justify the current trend of the increasing lobbying activities. In the EU the interconnection fees, which generally determines how competitive a market can be, are different from country to country. In Hungary fixed-to-fixed and mobile-to –fixed interconnect fees are in general higher than the EU average, while mobile-to- fixed interconnect fees are at around the EU average.

EU average prices should not be set as targets for Hungary because of the local specialities, but the recommended framework of market regulation should be taken into account. As the weight of competition is getting to be between the mobile and fixed line networks instead of between the fixed line operators, relative interconnection fees are getting higher importance, which are affected by the different lobbying activities.

According to the Competition Office, the price level of mobile telecommunications services is still higher than that of the fixed-line services. The Competition Office analysis of the competitive situation of both sectors led the authority to assert that mobile and fixed-line services could not substitute each other, and therefore the difference between the price levels of the two sectors in themselves could not be considered as a symptom of market failure.

On May 22, 2003 The Communications Authority has approved its new, long run incremental cost based reference interconnection and leased line interconnection offer replacing the earlier, fully allocated cost based reference interconnection offer.

Matáv filed the new reference interconnection offer (MARIO) on November 4, 2002. Having been identified as a significant market power in the leased line market, Matáv amended its offer to include reference leased line interconnection services. The new fees are to be applied retrospectively from January 1, 2003, or as provided for in bilateral network agreements concluded between Matáv and other operators.

The framework of the model: :

- The model is based on three tiers: local, regional and national. Interconnection rates are structured accordingly to differentiate between local, regional and national origination and termination fees.

- In order to qualify as a National Network Operator (NNO), an operator must have at least three points of interconnection in 3 out of the 10 secondary switches placed in the regional zones, ensuring that infrastructure-based competition is supported. In the case of non-NNO competitors, Matáv can request the Arbitration Committee to allow a maximum of 20% upper divergence from RIO based interconnection (IC) fees.

- If a service provider has direct access to a local area within a region (Budapest is divided to 14 local areas), it may interconnect there at local interconnection fee. However, other areas without direct access are accessible at regional or national interconnection fees.

- Some access services such as blue- and green number services do not fall within the scope of the reference offer.

Leased Line Services

Interconnection leased line services encompass the following types of services:

- Two types of IC leased line links with a bandwidth of 2 Mbps, with which the two service providers (Matáv and the eligible service provider) interconnect their core leased line networks.

- Half-circuit leased line IC services are differentiated according to three different distances (local, regional and national); providing 2 Mbps bandwidth on Matáv's existing leased line network.

Traffic pricing

The table below sets out the new and former per minute interconnection rates excluding VAT.

IC traffic services HUF/min	Peak - new	Off peak - new	Peak - old	Off peak – old
Local origination fee	4.48	1.65	5.44	2.03
Regional origination fee	5.94	2.19	6.46	2.41
National origination fee	6.89	2.54	8.32	3.11
Local termination fee	3.93	1.45	5.07	1.90
Regional termination fee	5.38	1.99	6.09	2.27
National termination fee	6.34	2.34	7.95	2.97

As of February 15, 2003, the access deficit surcharge additionally applicable to the above listed origination and termination interconnection fees decreased to HUF 1/min from HUF 2/min. According to the Decree 3/2002 of the Ministry of Informatics and Communications, this surcharge will be eliminated by 2004.

The combined impact of the recently approved interconnection fees and the change in the access deficit surcharge will be a 18%-37% decrease in tariffs compared to the former levels. Matáv estimates the combined average tariff reduction to be around 29%.

The cost based regional and national transit fees decreased to HUF/min 1.18 and HUF/min 1.92, respectively, for both peak and off peak from HUF/min 1.21 and HUF/min 2.41.

Pricing of related services

- The monthly fees for the IC link have decreased by 11%-18%, meanwhile the IC link one-off installation fee increased by 120%. Cabinet charge decreased by 17%.

- The average of the monthly and the one-off charges for collocation remains practically unchanged with an increase in some of the charges such as operating costs, and a decrease in others including several collocation monthly fees.

- The one-off interconnection test fees decreased by 4% and 11%.

- Fees for pre-selection and call-by-call services decreased (except for the general pre-selection investigation fee). The one-off installation fee decreased by 81%, the monthly fee by 12%, and the one-off pre-selection installation fee per subscriber decreased by 4%.

- With respect to reference leased line services, installation fees are HUF 93,602 and HUF 59,444, respectively. Monthly fees for the different services vary between HUF 64,000-303,000.

Interconnection fees will continue to move towards the corresponding benchmark of the European Union until Hungary joins to the EU. Interconnect fees ara still higher than the EU avarage, but the decreasing cost of capital (WACC) and the New Telecom Act can help in the further decline.

According to the alternative telco providers, the RIO falls way short of expectations. The price reduction is too small; in some areas it may be more than 20%, but in many others it's just 8-10%. According to alternatives, despite the newly approved RIO, interconnection fees are still too close to retail prices to enable fair competition.

Number Portability – support to mobile market competition

Acceptance of EU trends does not mean the acceptance of its cost models, but also those regulations which ease liberalisation, like number portability. In the EU the possibility of number portability has been made everywhere, which may have strong effect especially in the Hungarian mobile market.

When discussing increased competition in the mobile market, the mobile number portability (MNP) is of high importance. Several European markets already have this possibility in place, but they experienced all kind of difficulties in the introduction. Overall, the interest from users is high with thousands of monthly changes in each country. In Hungary the mobile number portability could give support to mobile market competition, but the dominant market players opposite this reform regarding to the high cost of introducing and maintenance of the system. The Hungarian government and the Communications

Authority play key role in this area, introduction of new systems needs only decision. The expansion of EU would support introducing of mobile number portability, however the lobby force of Pannon and Westel (Matáv) is much stronger than usual in EU. In case of Mobile Number Portability the big market players should focus on retaining their existing customers, while Vodafone could be upgraded from its current marginal position. While MNP price competition will be stronger, the brand loyalty will decrease. Without MNP the market environment for Vodafone will stay tough, and third largest Hungarian mobile operator can improve only on the strength of its parent company.

It is very difficult to forecast the situation on the Hungarian mobil market in case of number portability, but the market leaders are going to prepare to the new "threat" from regulation. The number portability will have to be available in the mobile sector by May 1, 2004 - the date of Hungary's accession to the EU

In the area of fixed lines it appears, that Matav is not forced to complete its network digitalisation (presently at 87.1%) to be able to offer full-scale access to its network. The number portability is not required at the moment, but the EU can support this as well. In the area of fixed lines the number portability will become reality from Jan. 1, 2004, as part of the new law.

Introduction of number portability in the fixed line networks is rather a theoretical issue in the residential market, as in this market segment we expect the current situation to prevail, as with significant unbundling the fixed line number portability does not really make sense.

Availability of operator number portability by type of number

	B	DK	D	EL	EL	F	IRL	I	L	NL	A	P	FIN	S	UK
Geographic	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Non-geographic	Y	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y
Mobile	Y	Y	Y	7/1/03	Y	6/30/03	Y	Y	N	Y	N	Y	8/1/03	Y	Y

Source: Telecommunications Regulatory Package - VIII Implementation Report - Annex II

Mobile Virtual Network Operators (MVNOs) – real opportunity in Hungary?

MVNOs are starting to find their way in the mobile markets bringing in a new dimension to competition, as they give users more choice between operators and services. There are very few MVNOs in Europe, and only Virgin Islands in the UK provide real competition. Currently, most mobile operators have ownership in their infrastructure, but the high costs of 3G network buildup and lack of investment is showing, that this model may not be sustainable for much longer. There are market expectations, that there will be a consolidation among service providers in Europe, so the number of companies, which are owners of the infrastructure should decrease. Recently there is only a few holders of infrastructure that give network access to competitors. The provision of access to Mobile Virtual Network Operators is not mandated by the current EU regulatory framework, but may be by individual NRA's under the new one. While in most EU countries the MVNO model remains subject to commercial negotiation alone, there are a number of Member States which have incorporated provisions into their national telecommunications law to govern such access. Though the Ministry of Informatics and Communications in Hungary supported the model of MVNO, we don't expect the introduction of the system in the mid term.

There is another type of mobile operator now appearing in Europe. This is a small scale operator, that rents capacity on existing mobile networks to serve a specific client base. In Hungary it is not real to be more than 3 mobile operators. We do not think, the market is big enough for 4 competitors, so the existing structure of the mobile market should be stable.

Starting up UMTS Vodafone wants to have an own network worldwide That can result redundancy in the form of parallel network in some Hungarian cities, but network sharing could be the real alternative solution because of high investment needs. There are several examples of cost reduction in the form of parallel use of the infrastructure even in GSM services (Westel and Pannon have already had a network sharing in the underground)

Preparation for transposition of the new framework in EU

In EU the directives making up the main -elements of the new regulatory framework for electronic communications networks and services are required to be transposed into national law by no later than 24 July 2003. The new framework also stipulates that Member States shall apply those national transposition measures from 25 July 2003 whereupon the Community instruments forming part of the existing regulatory framework which are to be superseded by those elements of the new framework, will be repealed. All the Member States are therefore in a period of intensive preparation of the legislative measures needed to transpose the new framework into national law. Most Member States have now launched public consultations on the implementation of the new framework and have published or are shortly to publish draft laws designed to achieve this. The legislative models which can be used to transpose the new framework range from the adoption of a comprehensive new communications law to the making of the necessary amendments to the existing communications laws . The Commission believes it is of the utmost

importance for the orderly transition to the new framework that the necessary national transposition measures be adopted in time to ensure their application on 25 July 2003.

Once these measures are in place, it will then be possible for national regulatory authorities to complete the process of market analysis and assessment of effective competition which is needed to adjust existing *ex ante* regulation to the principles of the new framework. It is anticipated that this process of adjustment will continue over a period of months following the "date of application" referred to above, but it is a precondition for that process that the underlying administrative structures and legislative framework are in place. Some national regulatory authorities (for example those in Denmark, Greece, Spain, Ireland, Luxembourg, Finland, Sweden and the United Kingdom) have indicated that they should be able to carry out their market analyses in anticipation of the July 2003 application date, while others (such as in Germany and the Netherlands) have stated that they do not have the legal power to perform this function under national law until the new framework has been transposed.

The effect of accession on the structure of the market

Hungary's accession to the EU shall not bring any major changes in the structure of the telecommunications market. The balance of power is clear, with Matáv in a secure leading position. In 2002, Matáv's sales revenue reached HUF 523 billion with an addition HUF 68 billion from its business in Macedonia. The number 2 market player, Pannon GSM, reported HUF 159 billion in sales revenue, followed by Vivendi Telecom Hungary (around HUF 43 billion) and Vodafone (approx. HUF 36-37 billion). The sales revenue of Pantel, the largest purely alternative provider hardly exceeded HUF 20 billion, and a significant part of that wasn't even earned in Hungary.

Although we may expect EU accession to cause a certain degree of market restructuring, the above figures dictate caution as regards predictions of any major changes. However, it is worthwhile to look at expected changes of the market in individual segments in order to detect some revealing details.

Profitability conditions are favourable for the development of the telecommunications sector, and accession to the EU has rendered the Hungarian market more attractive; we can predict that those factors will result in improving supply conditions. The entry of new fixed-line, ISP market players shall engender stronger competition and as a result, the market shall develop in the direction of lower prices and a larger choice of services. There is a good chance that the rate of growth of the telecommunications sector shall exceed that of the national economy as a whole for an extended period.

The fixed-line market

We believe that despite the marked efforts at liberalisation and the expected major reduction of interconnect fees, the residential fixed-line market shall only undergo minor changes as a result of Hungary's accession to the EU. New players will probably enter the market, which may result in livelier competition, but that will have little effect on the distribution of market shares. The critical question may concern the fate of Vivendi, the only company so far that has attempted to break into the liberalised residential market, in the hands of its new owners (the company was bought out last year by a consortium formed by AIG and GMT). Can we expect the company to become more active, or will the no. 2 LTO merely attempt to maintain its position? It would be mistaken to predict competition in the market of local calls, so increased competition can only be expected in the segments of long-distance and international calls within the residential fixed-line voice market. Access fees, which contribute a considerable proportion of the sales revenue in that segment, and the market of local calls are practically protected.

The fate of LTOs other than Matáv and Vivendi is another open question. At present, those companies are practically running at idle in Hungary, so considerable consolidation of the market is to be expected, though the owners of the companies concerned may well find that prices they envisage differ greatly from those offered by potential buyers. The question is whether those small LTOs, which are only marginally viable even in the present regulatory environment, will be able to survive as independent companies or whether it will be a more favourable solution for all concerned for one of the large fixed-line providers (Matáv or Vivendi) to buy them out.

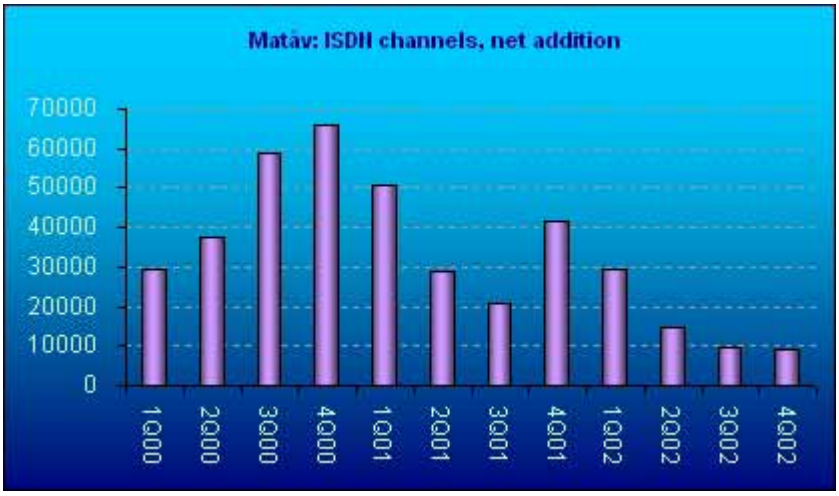
After EU accession, the residential fixed-line market may contract further; only data services may withstand assault of increasing competition from the mobile market. The predicted growth of Internet penetration

may stabilise the position of the infrastructure required for its use to some extent, but that factor in itself is unlikely to be powerful enough to cancel the downward trend.

According to our estimate, in the 5 years after our accession to the EU, the number of subscriber lines (total number of subscribers) may drop by 10 percent in Hungary, though the number of ISDN lines may almost double in parallel. The current 36% fixed-line penetration may drop below 33% by the end of 2008, indicating the diminishing role of the segment. In addition to the doubling of the number of ISDN lines, the effects of dropping fixed-line penetration on business may also be alleviated by the increasing role of DSL lines (some three to five hundred thousand DSL lines are expected to be in operation in five years). Accordingly, within fixed-line telecommunications, the focus of emphasis shall increasingly shift from voice to data services.

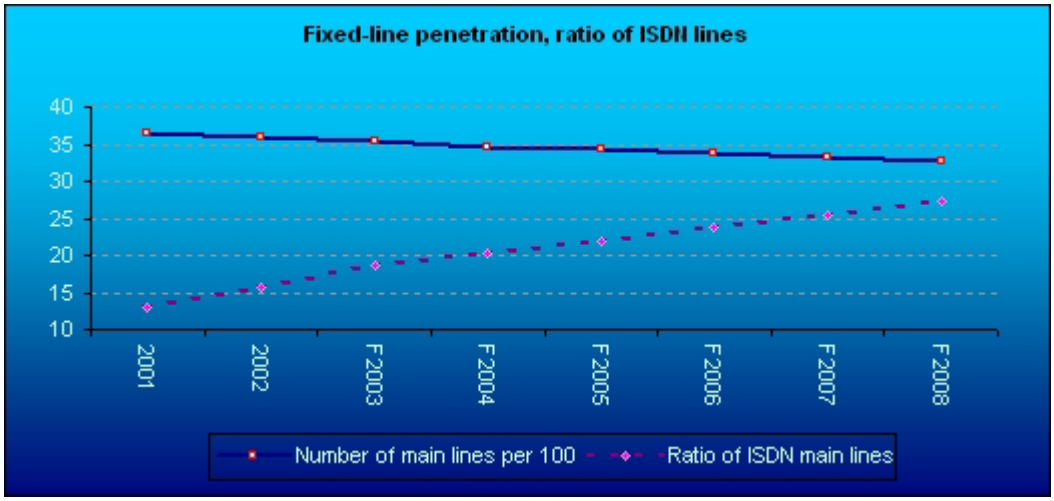
While in the residential fixed-line segment it is primarily the reduction of penetration and the dropping intensity of voice usage, rather than competition that shall cause problems for current market players, in the commercial fixed-line segment we can clearly expect competition to grow stronger, which, in addition to the appearance of new providers, may also bring about the consolidation of existing market participants. In that segment, the extension of supply may be followed by growing demand.

The situation in the commercial fixed-line segment is very different from that in the residential market. Although mobile telephony's presence as a competitor is also increasing here, internal competition has much greater significance. In this segment, Matáv can only aim to retain its existing clients, but competitors shall have considerable opportunities when the regulatory environment becomes more favourable. This market may even shift in the direction of consolidation prior to Hungary's EU accession; after the Pantel-Novacom deal, the new shareholders of Vivendi Telecom Hungary will probably wish to acquire further allies. Antenna Hungária, a company that is basically open to all possibilities, may play an important role in the consolidation process. It is a very important fact that the projected growth of supply will be accompanied by increasing demand as, in addition to voice services, commercial clients increasingly make use of data services as well.



In this field, the present market players must give serious consideration to the market entry of new competitors and the strengthening of some companies with foreign backgrounds. Improving market opportunities and the mid-term capital position of the telecommunications sector may raise the interest of foreign investors, which may result in increasing market competition in the medium term. The domination

of Matáv in the commercial fixed-line telecommunications segment is expected to diminish gradually, while consolidation may result in the appearance of a significant competitor in the market.

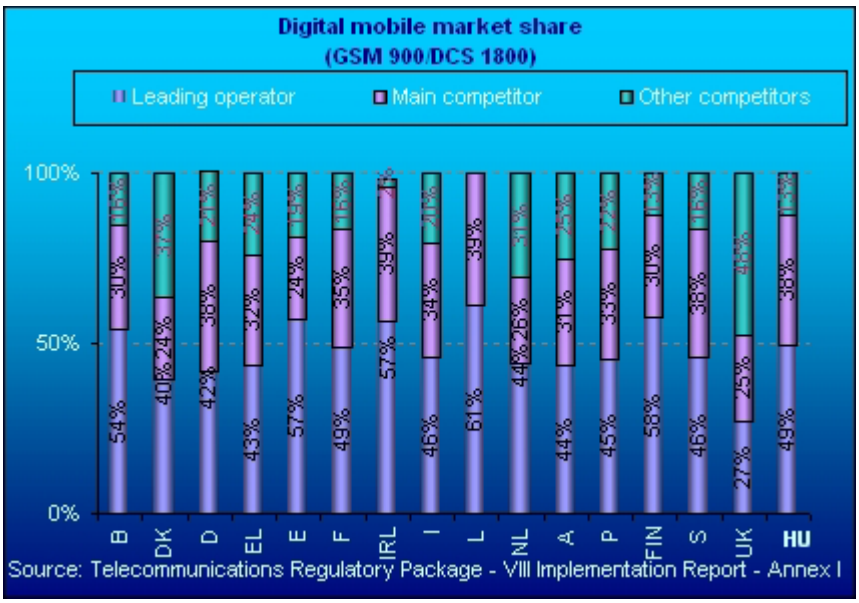


Along with data services, international calls may constitute the most interesting segment of the fixed-line market. There, a large growth of volume may induce very strong competition, although the battle for market shares has already been fierce. All in all, the most important aspect of that development shall be the equal importance of price and quality competition in the following years. Cross-border services may grow, so assessing actual market shares will become increasingly problematic.

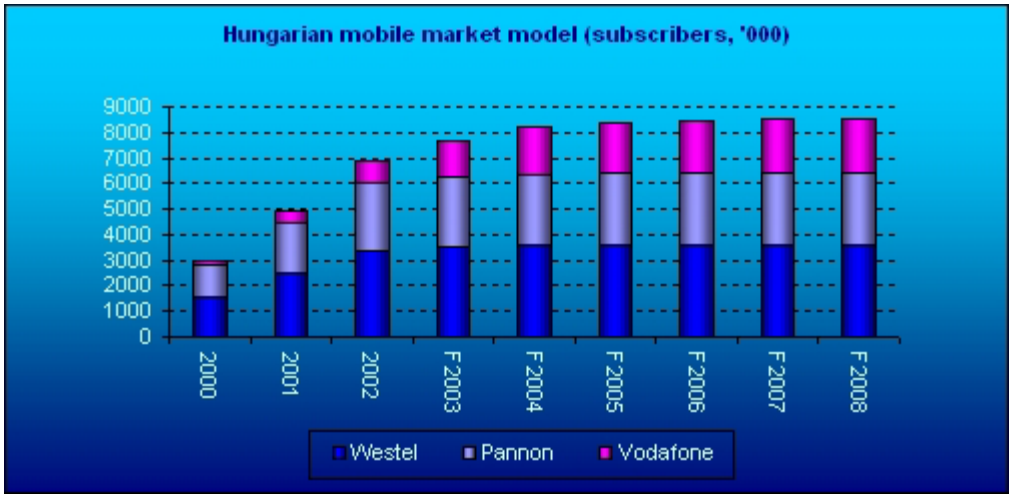
In general, we are not expecting the fixed-line market to contract after our accession to the EU, as the reduction of residential voice services shall be counterbalanced by residential data services and corporate voice and data services. It is probable that prices will drop while the quality of services shall improve.

The mobile market

The mobile market should be regarded as a separate segment of the telecommunications market, which, unlike the fixed-line one, is characterised by competition. The market leader Westel has a market share of 49.4%, followed by Pannon GSM at 38.1%. Vodafone is the number 3 provider with a market share of 12.5% which is still growing, but the large breakthrough has not materialised. Westel 450 has a marginal market share, the analogue mobile provider has grown entirely insignificant.

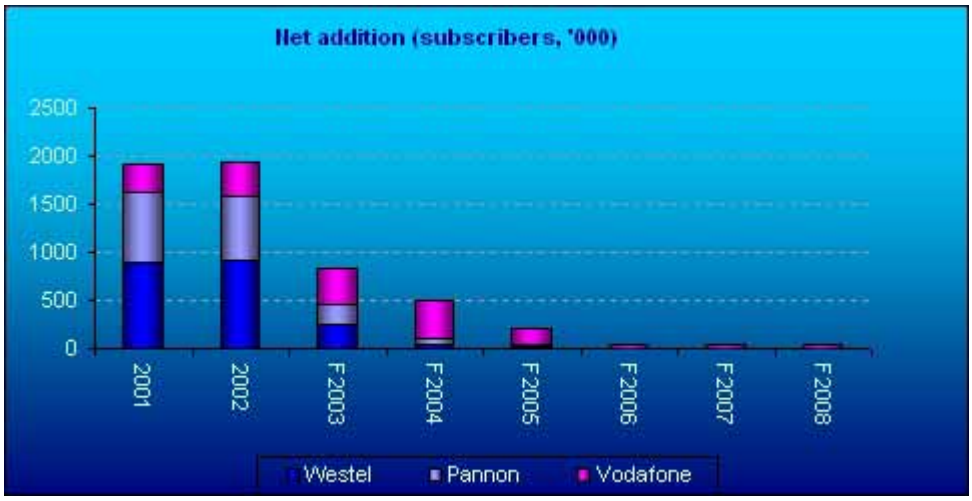


The most important change in the mobile market associated with EU accession shall be the introduction of the portability of mobile phone numbers, which may improve the position of Vodafone considerably, but it would be a mistake to expect that factor in itself to cause a breakthrough. Hungary's smallest GSM provider is likely to profit more from its initiatives concerning the introduction of uniform services across the EU (uniform services, branding and to some extent pricing) than from portable mobile phone numbers, but increasing its market share significantly may still require a protracted period. The introduction of virtual mobile services could also make competition more intense, but the present market and international environment are not sufficiently mature to support the commercial conditions required for such services. The situation is similar with respect to UMTS; it would be a mistake to hope that anyone other than those already present in the market would express an interest in the concession in the next two years. The appearance of a virtual service provider is conceivable in the longer term, but at this time it would be pure speculation to entertain the notion of a fourth market player.



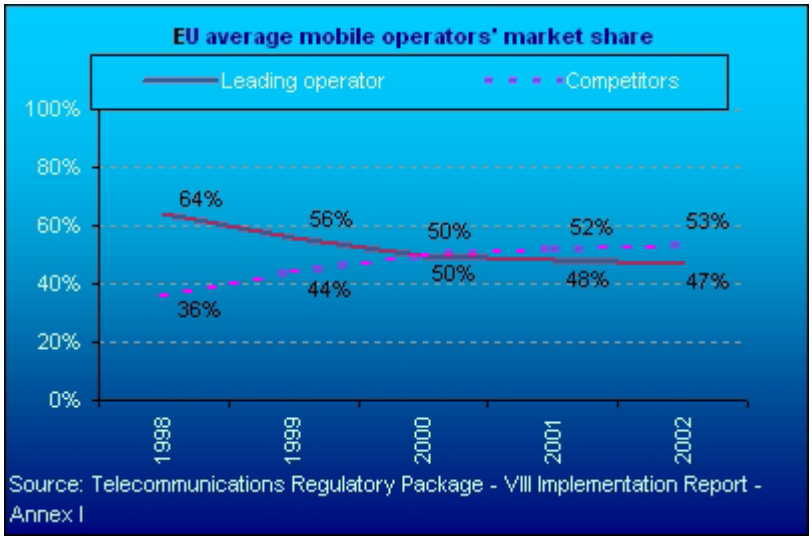
It is probable that last year saw the last significant increase in market penetration (which reached 67.6%), and although we estimate that in 5 years penetration may exceed 85%, current market shares are expected to remain stable. It is generally the case in the European Union that the largest local provider has a market share similar to that of Westel, what's more, the decisive majority of those market leader firms are

associated with the previous state monopoly. Although penetration may still increase marginally after our accession to the EU, the primary concern of providers shall no longer be the discovery of any remaining blank – and practically insolvent – spots in the market; instead, they shall devote special attention to keeping existing clients.



Therefore, the general outlines of the Hungarian mobile market shall only shift very slowly until 2008. Although we forecast that Vodafone will be able to increase its market share to exceed 24%, that shall not be sufficient for a move up from its present third position. The battle shall be certainly the fiercest in the market of commercial clients, where competition will focus on integrated services and prices. Westel shall maintain its leading position as there is nothing to jeopardise the top rank of this Matáv subsidiary.

In the next few years, the most important task of the mobile market shall be to increase average revenue per user (ARPU). In addition to maintaining prices and voice usage, this may be primarily achieved through increasing revenue from data services.



So far, the mobile sector has been the child prodigy of Hungarian telecommunications, it is practically the only area where Hungary occupies a world-class position. Our deficit in penetration will practically disappear by the time of EU accession while the technological quality of our service providers is certainly among the best in international comparison. Let us recall that Westel was the 1st provider worldwide to

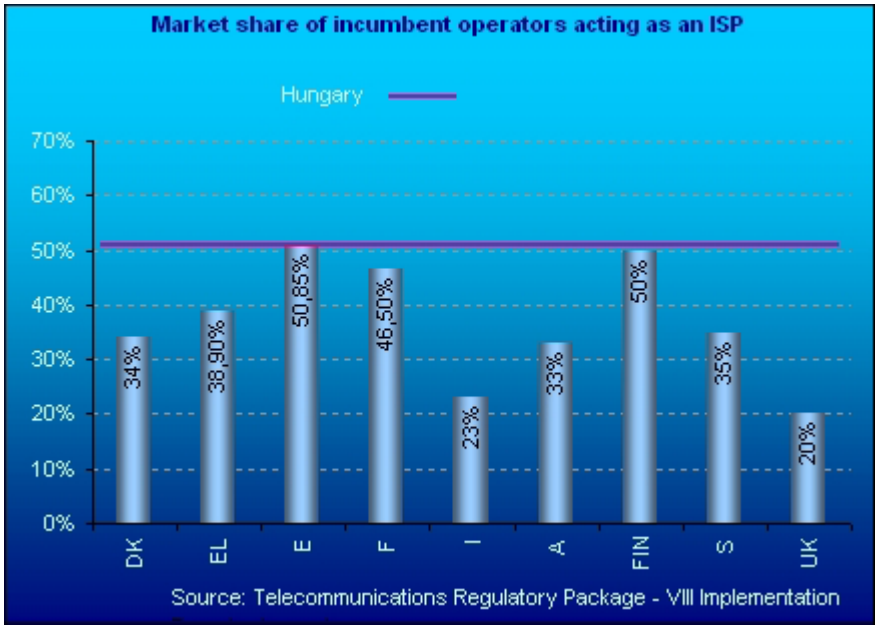
introduce a commercial MMS service and that in many cases its developments are even ahead of T-Mobile, the mobile subsidiary of DT. Vodafone has practically implemented the entire range of its international services and quality of service of Pannon GSM is also among the best in the world (1st public EDGE test). Indeed, the Hungarian companies have exploited all the inherent opportunities of the GSM systems, the next step would have to be the introduction of the 3rd generation services which are still more or less in the test phase around the world (with the exception of Japan).

The Internet market

Greatest interest with respect to the EU accession may be accorded to the Internet market which, thanks to government support, is likely to undergo tremendous development in the next two years. Last year, under 10% of all households had internet access, which is a very low figure. Growth in the next few years may totally reshape market shares in the internet service provider market while Matáv is expected to maintain its domination of the associated infrastructure.

However, it is probable that the strong position of Matáv in infrastructure shall not carry over to the ISP market as the large increase of volume may be accompanied by sharpening competition. Axelero, the ISP of Matáv, has a 43% market share of the dial-up market at present. The high share shall come as no surprise to the EU, where incumbent providers have acquired very strong positions in the ISP market as well.

After several failures and liquidations, competition, supply and demand are all expected to increase considerably in relation to our accession to the EU. The inevitable internationalisation of the market and the harmonisation requirements that attach to accession, the fast growth of the communications requirements of the business, government and residential sectors and the economic growth and increased standard of living that shall be possible as a result of accession will establish favourable background conditions for the development of the Internet in Hungary.



Matáv-Axelero is expected to maintain its decisive advantage in the ISP market after Hungary's accession to the EU. The key question shall be which service provider will be able to reach and stabilise a market share of over 10%.

eEurope-eHungary – short-term measures of economic policy

eEurope 2002, 2005

eEurope is the EU's scheme for guiding this process of change and for modernizing the education and vocational training systems to ensure digital literacy at school and in the workplace. Digital technologies have proved to be a powerful engine for economic growth and competitiveness. In the 1990s, businesses and consumers in the United States were quick to take advantage of this digital revolution. As a result, American businesses became much more competitive and the US economy enjoyed spectacular and unprecedented growth. At the Lisbon Summit in March 2000, European heads of state and government recognised that Europe too must become a much more digital economy. Indeed, they set a new goal for the European Union - to become the most competitive knowledge-based society in the world by 2010.

eEurope is not only about making European industry more competitive: it is also about ensuring that all European citizens, especially those with special needs, have access to modern communications technologies to improve their quality of life. They must have direct and interactive online access to knowledge, education, training, government, health services, culture and entertainment, financial services and much more. In today's society, Internet access has become a fundamental right for all citizens and responsible governments have a duty to provide it.

At Lisbon in March 2000, EU leaders acknowledged these facts. In their summit conclusions they stressed that

- businesses and citizens must have access to an inexpensive, world-class communications infrastructure and a wide range of services,
- every citizen must be equipped with the skills needed to live and work in this new information society and
- a higher priority must be given to lifelong learning as a basic component of the European social model.

Action Plan 2002 cast its net very wide and successfully put the Internet at the top of the European political agenda. Action Plan 2005 narrows the focus, concentrating on effective access, usage and the ready availability of the Internet.

One main result of eEurope2002 was the huge increase in Internet penetration. By mid-2002, 40% of EU households had Internet access, according to the eEurope Benchmarking Report for 2002, up from 18% in March 2000. This staggering improvement means that there are roughly 150 million web users in Europe - on a par with the US.

Progress during eEurope 2002

- Internet penetration in homes has doubled
- Telecom framework in place
- Internet access prices have fallen
- Almost all companies and schools are connected
- Europe now has world's fastest research backbone network
- e-commerce legal framework largely in place
- More government services available online
- A smartcard infrastructure is emerging
- Web accessibility guidelines adopted and recommended in Member States.

The second Phase ofther Action Plan, eEurope 2005 was approved by EU leaders in Seville in June 2002.

The eEurope action plan is based on two groups of actions which reinforce each other. On the one hand, it aims to stimulate services, applications and content, covering both online public services and e-business; on the other hand it addresses the underlying broadband infrastructure and security matters.

By 2005, Europe should have:

- modern online public services
    - e-government
    - e-learning services
    - e-health services
- a dynamic e-business environment and, as an enabler for these
- widespread availability of broadband access at competitive prices
- a secure information infrastructure

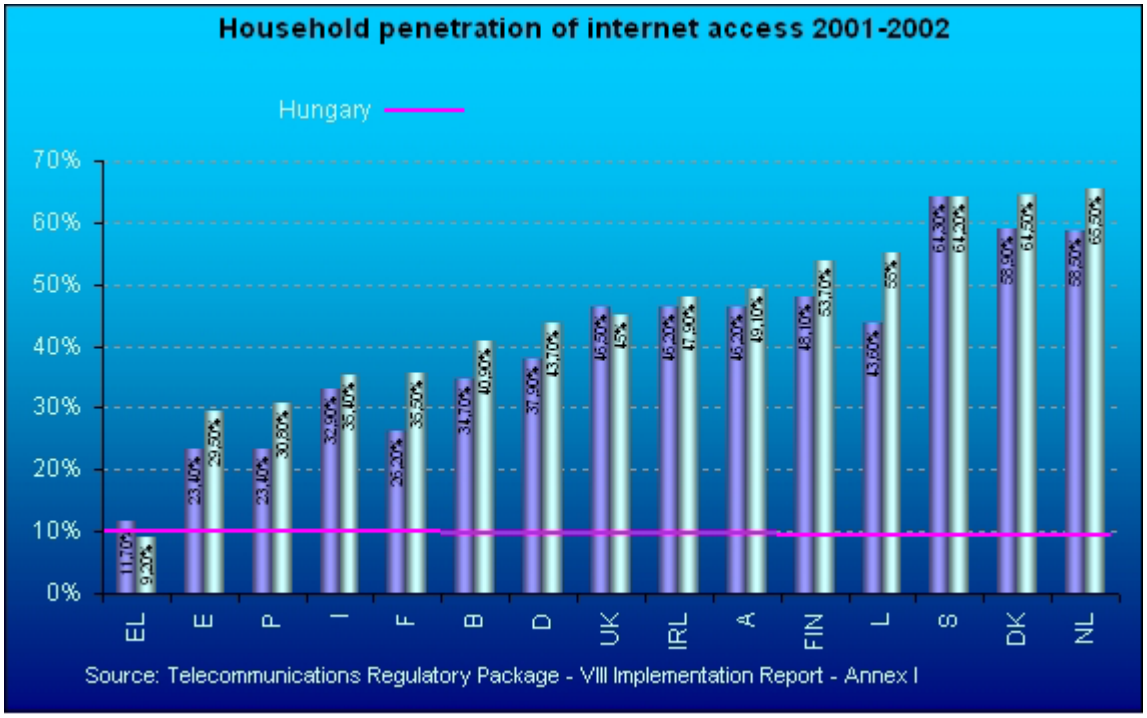
Some key targets are:

- Connecting public administrations, schools, health care to broadband
- Interactive public services, accessible for all, and offered on multiple platforms
- Provide online health services
- Removal of obstacles to the deployment of broadband networks
- Review of legislation affecting e-business
- Creation of a Cyber Security Task Force

eEurope-eHungary

In the light of the eEurope 2005 programme we must acknowledge that Internet penetration in Hungary and the public side of the Internet economy that ought to be established on that infrastructure are both severely underdeveloped. According to a regional survey performed last year, household Internet

penetration in Hungary was only 9%, which is significantly lower than not only the EU average but also our competitors in the region. The figure of 9% is particularly astonishing in view of the following facts: 3 years ago, when the eEurope 2002 programme was launched, the average residential penetration of Europe stood at 18%; today, the only member state of the EU where penetration is below 30% is Greece, a country where the market was opened particularly late. It is clear from the above that in Hungary the factor determining the future of the market is still Internet penetration and not use.



After the change of government, preparations commenced at the government level to realise some of the objectives set by the EU, but it seems that the results shall fall dramatically short of the levels targeted and largely already achieved by the EU. Among the short-term measures implemented by the government, improving residential Internet penetration plays a central role, with Internet subsidies introduced as the centrepiece of policy. In addition to the favourable taxation regulations introduced for DSL services, it has been recently announced that government subsidies shall be disbursed to cut the costs of using the Internet by 25%, which may also stimulate demand somewhat.

Yet the degree of success that the price reduction will achieve is still in question. Service providers have certainly become more active, but gross monthly fees are still high relative to the income of the population. The recent increase of incomes may well help to promote Internet access, but such incentives to stimulate the demand side will probably be insufficient to catch up with even the average of EU member states within 5 years. Matáv, the largest provider of broadband Internet infrastructure, has 34 thousand ADSL lines at present and intends to reach 100 thousand by the end of the year. If we add the other broad-band options (cable, Vivendi), that means that 4% of all households may have broadband Internet access by the end of the year, which is still a very low figure but at least shows a positive development. The government also intends to introduce initiatives to increase the PC penetration that is also a requirement for Internet use, but it is probable that those efforts shall have little success.

The commitment of the government is attested by the fact that through tenders that have already been completed, thirty thousand teachers, public servants, judges and prosecutors shall receive unlimited

Internet access subsidised by the Ministry of Informatics and Communications. In addition to the infrastructure, the government also disburses financial subsidies to projects that are in line with the objectives of the EU in the areas of eContent, R&D and eHealth, for example. Setting more moderate objectives but in a manner analogous to the eEurope 2005 programme, the government has launched a project entitled eHungary 2004-2006, which is primarily an instrument for closing the gap between Hungary and the EU.

Despite the positive government measures, we cannot expect Hungary to catch up with the EU average fast if the service providers persist in their current business policies. Matáv and its subsidiary Internet service provider are achieving the growth in the number of broadband users by eating away at the dial-up market; what's more, explosive growth of the total number of subscribers would require significant investment which does not guarantee suitable returns. It is probable that even persistent government pressure shall be insufficient to quadruple Internet penetration; that would certainly require the attraction of Internet-based investments to rise again along with the reorganisation of the international financial background of the sector and the completion of the liberalisation of telecommunications in Hungary. As long as those conditions are not in place, our deficit relative to Western Europe will be impossible to work off despite the resolute efforts of the government, and the effects of that deficit may eventually reach many other areas of the economy as well.

Over the next few years, closing the gap in Internet penetration quickly may be the key issue in Hungary. Accession to the EU may furnish a great deal of support for the establishment of the information society, which in turn may provide a basis for the development of the domestic IT economy. The present shortage of access is a serious limiting factor whose elimination may be of key importance for the development of the information society.

One of the most significant internal conflicts of the Hungarian government is that it is unable to resolve the tensions inherent in its policies that have been traditionally accommodating towards foreign investors. On the one hand, Deutsche Telekom, one of the largest foreign investors in Hungary, is right in demanding infrastructure-based competition, that is to say regulations that show a preference for the owners of the infrastructure in order to recover its tremendous capital expenditure: the company argues that otherwise nobody would have invested in Hungary. On the other hand, the government does not wish to present the other, foreign and domestic companies attempting to break into the liberalised market with a hostile environment, either.

The argument of the DT-Matáv duo would be sound if the company were still undertaking intensive capital expenditure projects today, but the difficult financial position of the parent company is putting constraints on development. In 2002 and 2003, Matáv primarily generated public interest by its production of free cash-flow; its EBITDA-CAPEX ratio was around 25%, which indicates that its level of capital expenditure is low compared to its profitability. In the meantime, the spread of DSL is considerably constrained by insufficient geographic coverage. The EBITDA-CAPEX ratio of Pannon GSM, the second largest market player, was 14% last year. The only other player making significant profit (EBITDA) in the sector was Vivendi, but the rest of the market could not reach considerable EBITDA margin.

Establishing its independence from the lobbying power of Matáv and finding a balance of measures that recognise investments in infrastructural development while they also support alternative

providers so as to generate competition to promote significant improvements of quality and lower prices in telecommunications may be among the most important tasks of economic policy until Hungary's accession to the EU.

Conclusion

By May 1, 2004 the Hungarian Telecoms and IT industry in general will be ready to the EU accession. The regulatory framework (telecoms) will be modernized and it will be in line with the EU standards. There will be less tension in the area of regulation, but it will be challenging to appease the demand of different market players. One out of the main issues is the permanent change in the sector, that doesn't allow the finalizing of the regulatory framework. As a result of that, the Hungarian telecoms sector has to be prepared to more change in the regulatory systems with decreasing lobby force.

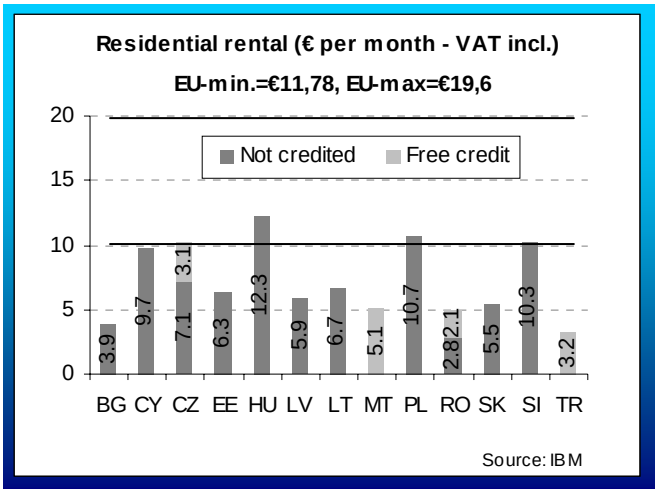
The Hungarian economy needs to spend a huge amount of money to build the information society, and the major beneficiary would be the IT/Telco sectors. The most important goal of the local companies is to gain share from this growth. This will be challenging for the small and mid size enterprises. The EU Accession seems to extend the growth potential of the Hungarian economy and parallel the IT/Telco sector. However the expansion and the EU enlargement attracts more players to the Hungarian market,which results in increasing competition and decreasing prices, and that the local IT companies can get more chance to expand abroad.

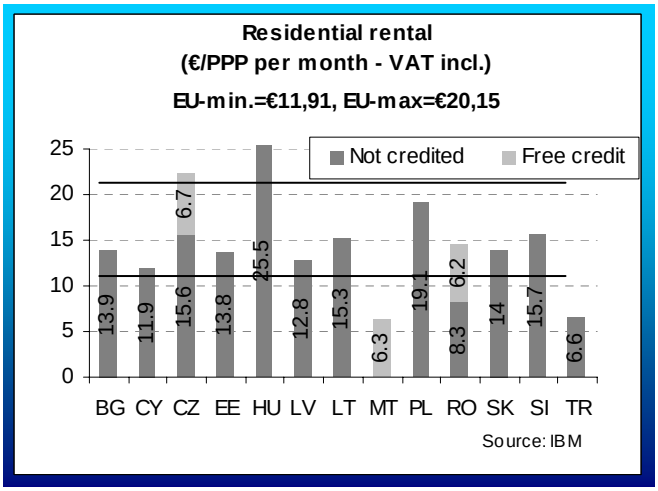
The competitiveness of the industry is good enough and depends more on the global sector trends than on the issue of the EU enlargement. One of the main issues in the area of competitiveness is the human resource, so the educational system has many challenging tasks, mainly in quality. If Hungary can improve its position in this area, the country has good chance to participate in the EU projects, and can stabilize its role in the region.

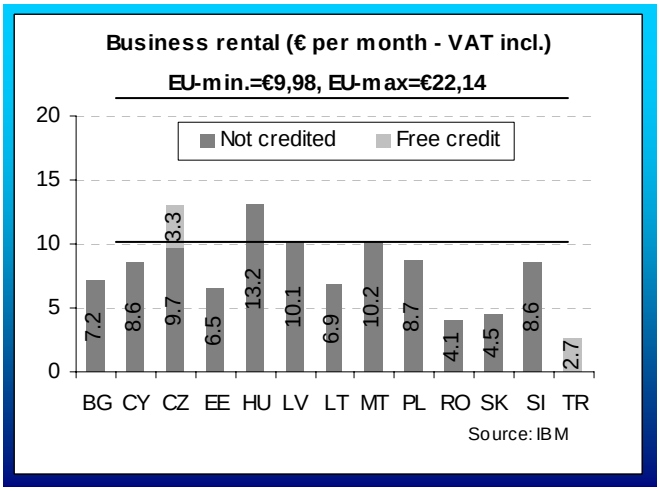
The structure of the telecoms market will be stable in the next couple of years, the major players (mainly Matáv group) will hold their position. The concentration of the market will decrease, for the small and mid size companies the competition will be harder. The future of the small LTOs is questionable. There will be the deficit and abundance of capital simultaneously on the market, the big companies have turned to be cash-cows, while the small enterprises need additional capital to expand their market power.

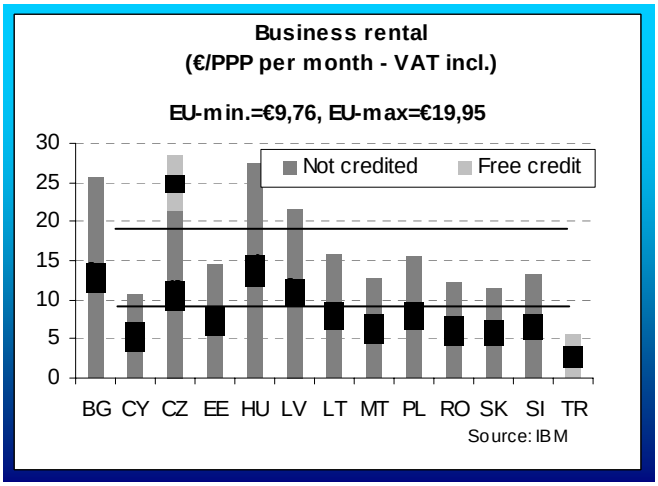
By summarizing we can conclude that the potential impacts of the EU accession are limited in the area of IT and telecoms, as the sector moves mainly in line with the general industry trend. In the long run the EU accession is a definitely positive step for the industry mainly due to the higher growth potential. With the assistance of the EU the accession will be an improvment for companies, for customers and for employees as well and the IT/telecoms sector can be a winner of the process.

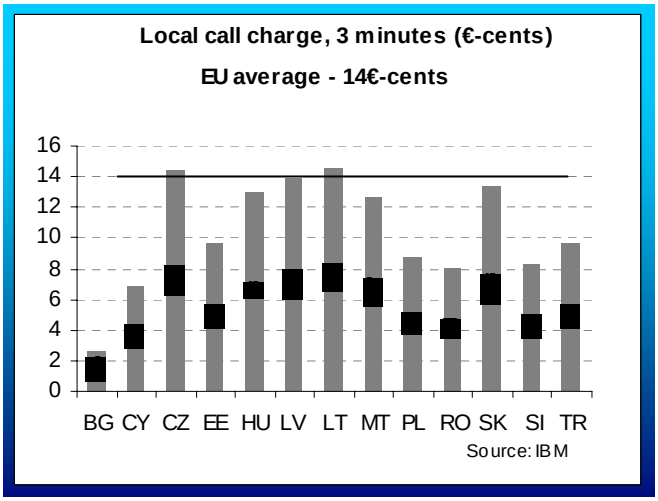
Appendix I. – Telecommunications sector of EU Candidate Countries

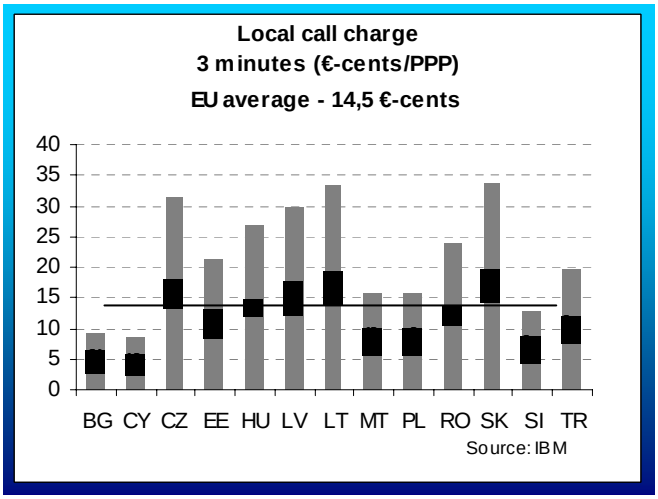


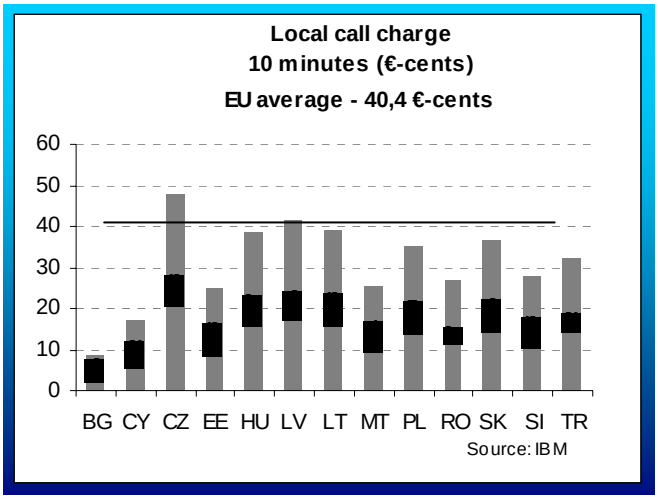


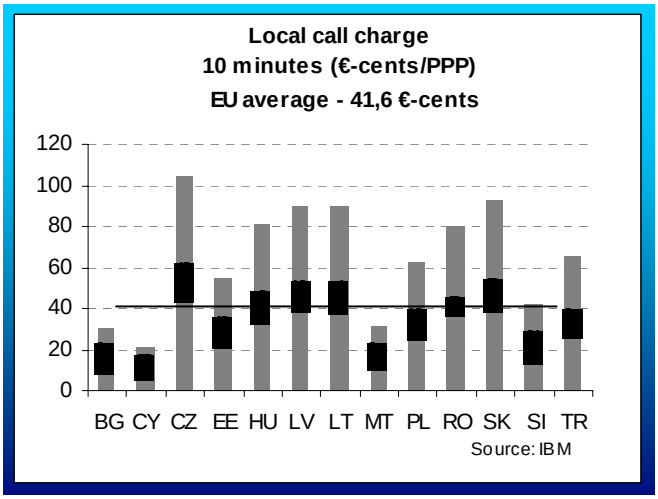


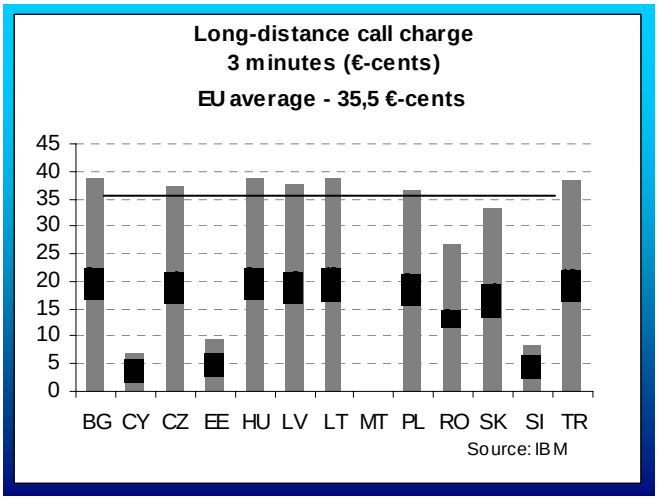


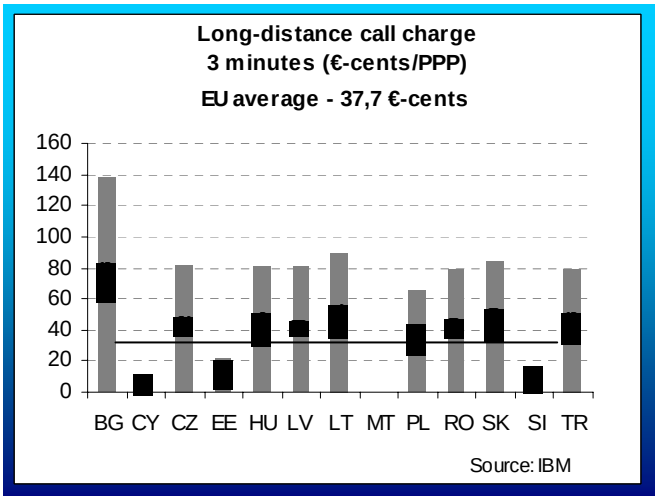


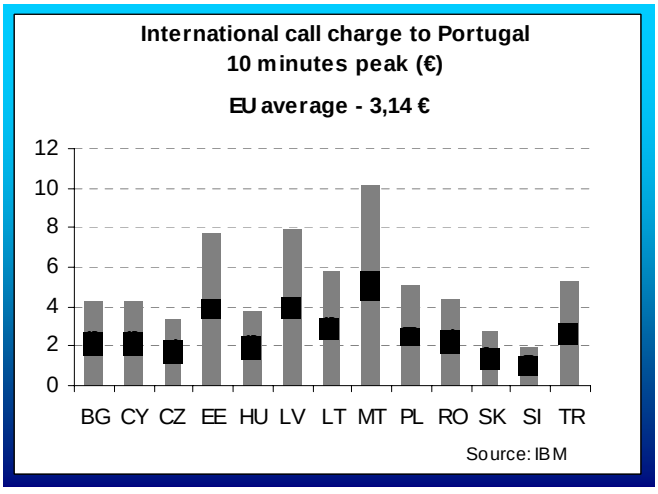


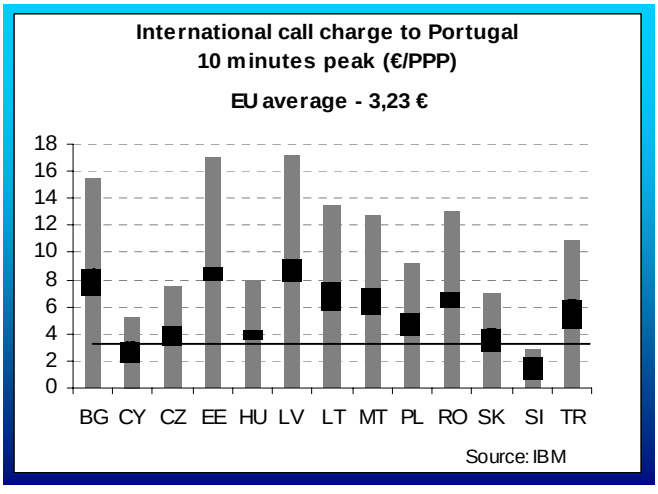

Local call charge
10 minutes (€-cents)
EU average - 40,4 €-cents
60
50
40
30
20
10
0
BG CY CZ EE HU LV LT MT PL RO SK SI TR
Source: IBM

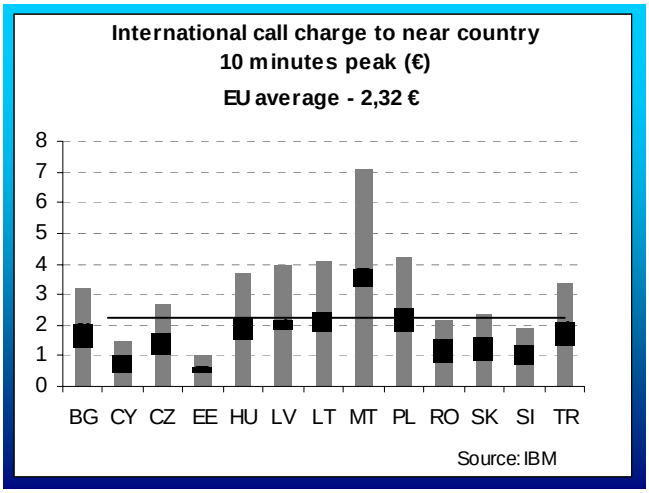

Local call charge
10 minutes (€-cents/PPP)
EU average - 41,6 €-cents
120
100
80
60
40
20
0
BG CY CZ EE HU LV LT MT PL RO SK SI TR
Source: IBM

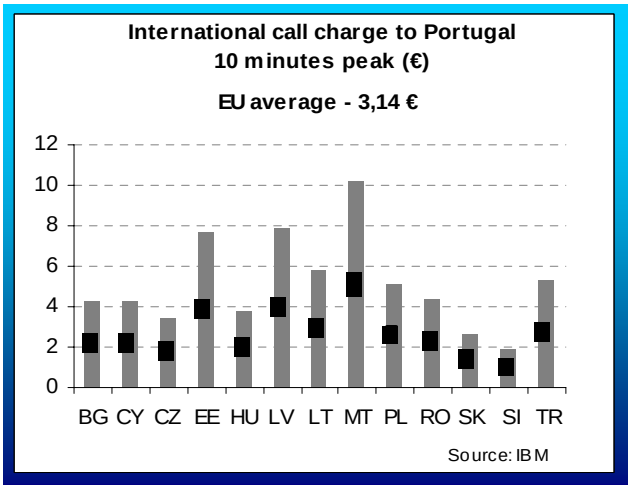

Long-distance call charge
3 minutes (€-cents)
EU average - 35,5 €-cents
45
40
35
30
25
20
15
10
5
0
BG CY CZ EE HU LV LT MT PL RO SK SI TR
Source: IBM

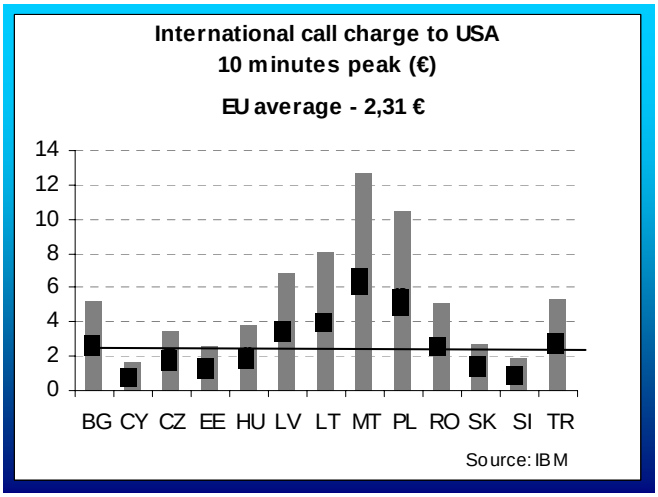

Long-distance call charge
3 minutes (€-cents/PPP)
EU average - 37,7 €-cents
160
140
120
100
80
60
40
20
0
BG CY CZ EE HU LV LT MT PL RO SK SI TR
Source: IBM

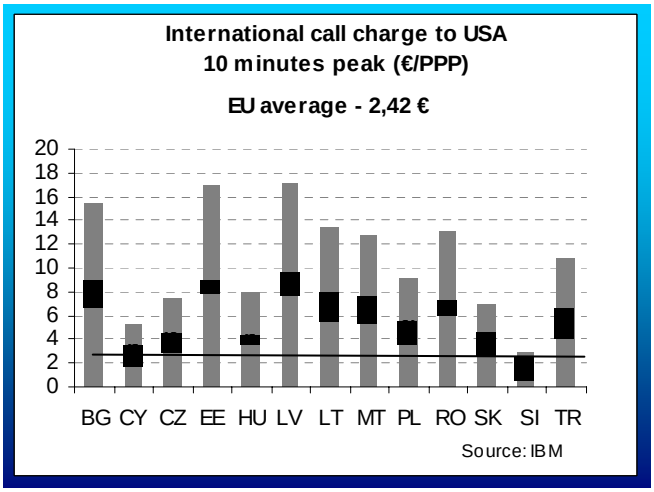

International call charge to Portugal
10 minutes peak (€)
EU average - 3,14 €
12
10
8
6
4
2
0
BG CY CZ EE HU LV LT MT PL RO SK SI TR
Source: IBM

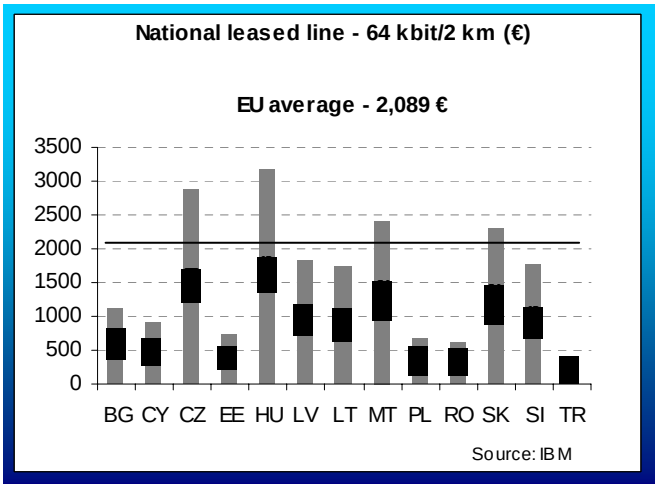

International call charge to Portugal
10 minutes peak (€/PPP)
EU average - 3,23 €
18
16
14
12
10
8
6
4
2
0
BG CY CZ EE HU LV LT MT PL RO SK SI TR
Source: IBM

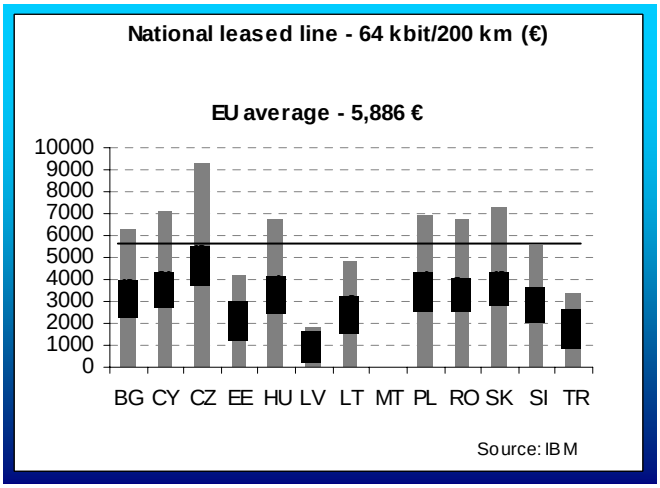

International call charge to near country
10 minutes peak (€)
EU average - 2,32 €
8
7
6
5
4
3
2
1
0
BG CY CZ EE HU LV LT MT PL RO SK SI TR
Source: IBM

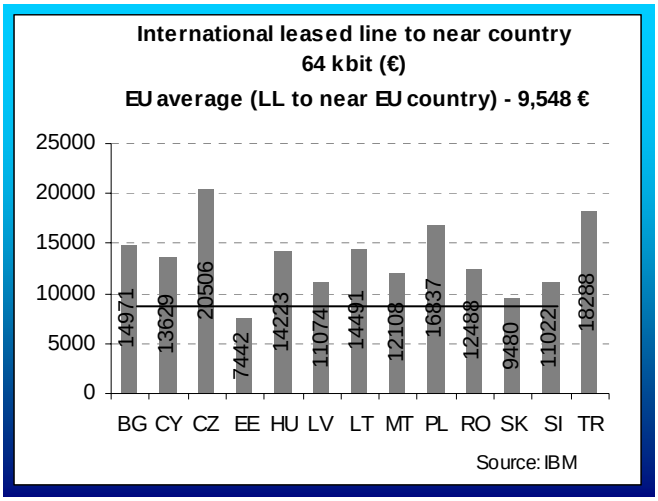

International call charge to Portugal
10 minutes peak (€)
EU average - 3,14 €
12
10
8
6
4
2
0
BG CY CZ EE HU LV LT MT PL RO SK SI TR
Source: IBM

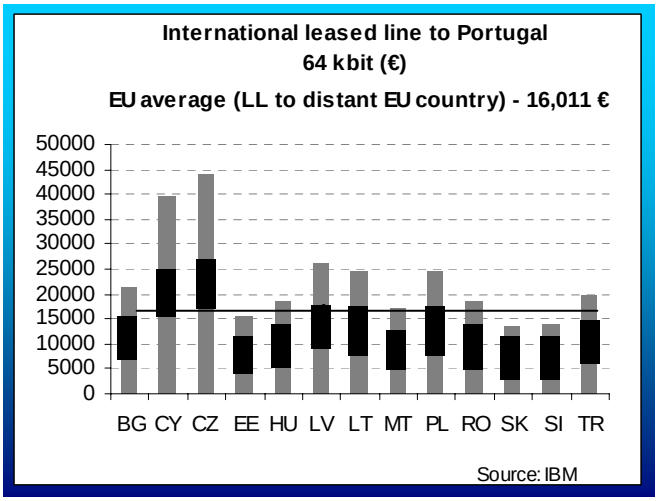

International call charge to USA
10 minutes peak (€)
EU average - 2,31 €
14
12
10
8
6
4
2
0
BG CY CZ EE HU LV LT MT PL RO SK SI TR
Source: IBM

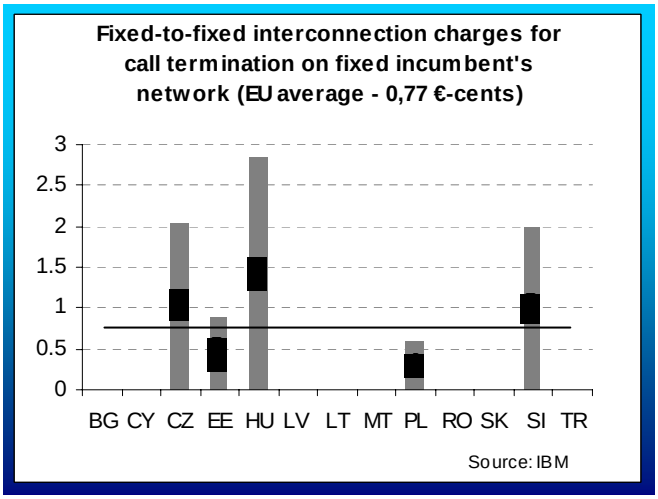

International call charge to USA
10 minutes peak (€/PPP)
EU average - 2,42 €
20
18
16
14
12
10
8
6
4
2
0
BG CY CZ EE HU LV LT MT PL RO SK SI TR
Source: IBM

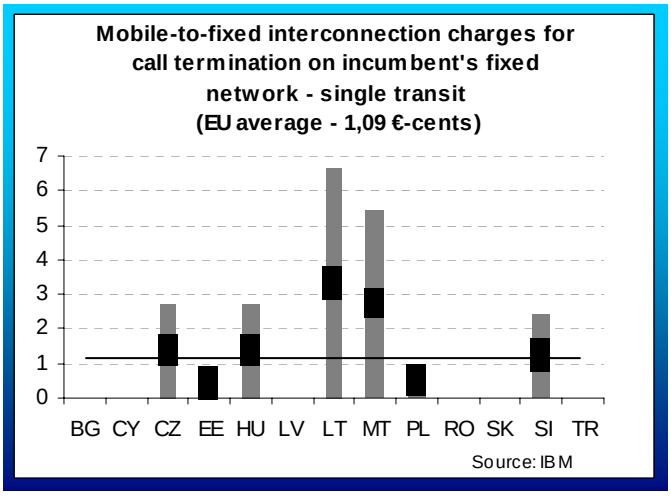

National leased line - 64 kbit/2 km (€)
EU average - 2,089 €
3500
3000
2500
2000
1500
1000
500
0
BG CY CZ EE HU LV LT MT PL RO SK SI TR
Source: IBM

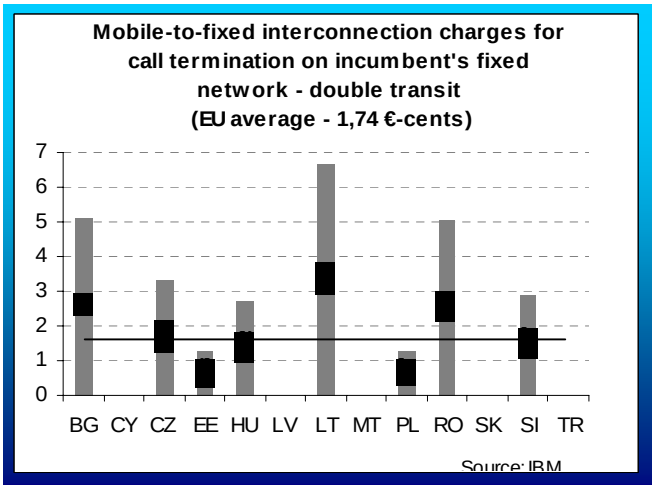

National leased line - 64 kbit/200 km (€)
EU average - 5,886 €
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
BG CY CZ EE HU LV LT MT PL RO SK SI TR
Source: IBM

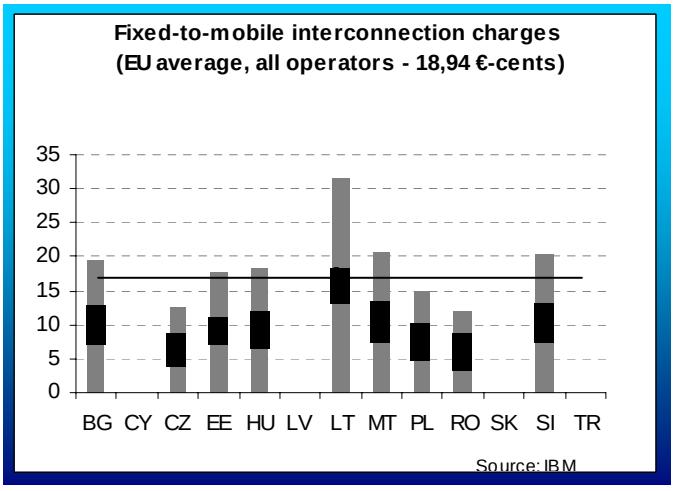

International leased line to near country
64 kbit (€)
EU average (LL to near EU country) - 9,548 €
25000
20000
15000
10000
5000
0
14971
13629
20506
7442
14223
11074
14491
12108
16837
12488
9480
11022
18288
BG CY CZ EE HU LV LT MT PL RO SK SI TR
Source: IBM

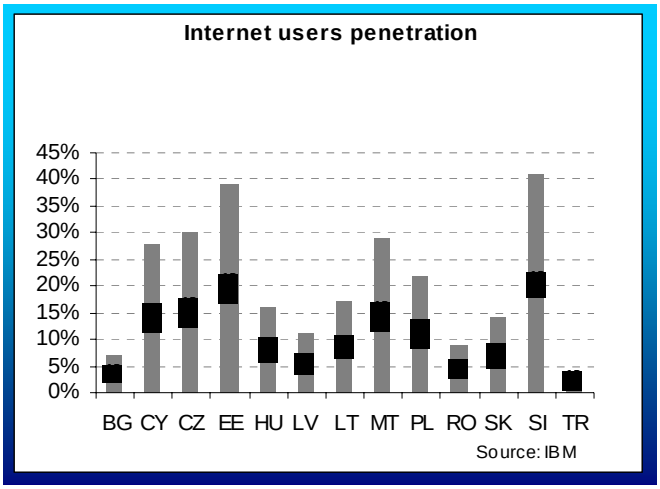

International leased line to Portugal
64 kbit (€)
EU average (LL to distant EU country) - 16,011 €
50000
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
BG CY CZ EE HU LV LT MT PL RO SK SI TR
Source: IBM

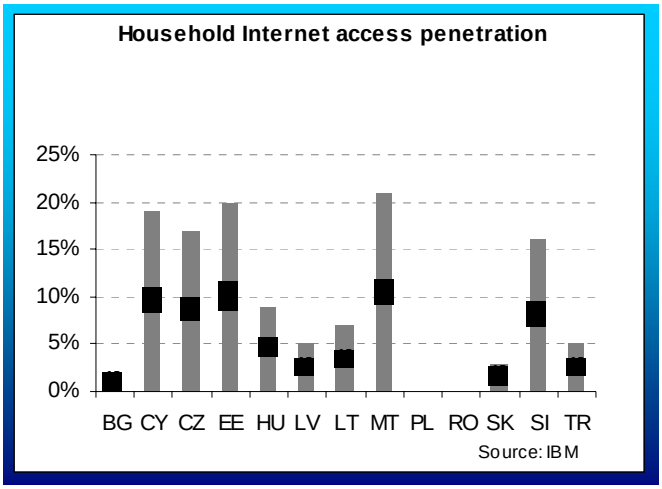

Fixed-to-fixed interconnection charges for call termination on fixed incumbent's network (EU average - 0,77 €-cents)
3
2.5
2
1.5
1
0.5
0
BG CY CZ EE HU LV LT MT PL RO SK SI TR
Source: IBM


Mobile-to-fixed interconnection charges for call termination on incumbent's fixed network - single transit
(EU average - 1,09 €-cents)
7
6
5
4
3
2
1
0
BG CY CZ EE HU LV LT MT PL RO SK SI TR
Source: IBM


Mobile-to-fixed interconnection charges for call termination on incumbent's fixed network - double transit
(EU average - 1,74 €-cents)
7
6
5
4
3
2
1
0
BG CY CZ EE HU LV LT MT PL RO SK SI TR


Fixed-to-mobile interconnection charges
(EU average, all operators - 18,94 €-cents)
35
30
25
20
15
10
5
0
BG CY CZ EE HU LV LT MT PL RO SK SI TR
Source: IBM


Internet users penetration
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
BG CY CZ EE HU LV LT MT PL RO SK SI TR
Source: IBM


Household Internet access penetration
25%
20%
15%
10%
5%
0%
BG CY CZ EE HU LV LT MT PL RO SK SI TR
Source: IBM

Appendix II. -Hungarian telecom market model

4. Hungarian Mobile Market (Subscriber data collection)

in 000	2000	2001	2002	F2003	F2004	F2005	F2006	F2007	F2008
Westel									
Total subscribers	**1599**	**2494**	**3403**	**3654**	**3704**	**3724**	**3729**	**3734**	**3739**
Net adds		895	909	251	50	20	5	5	5
Market share	**53.2%**	**50.6%**	**49.6%**	**47.5%**	**45.2%**	**44.3%**	**44.1%**	**43.9%**	**43.7%**
Market share in net adds		46.6%	46.9%	30%	10%	10%	10%	10%	10%
Pannon GSM									
Total subscribers	**1220**	**1953**	**2628**	**2837**	**2887**	**2907**	**2912**	**2917**	**2922**
Net adds		733	675	209	50	20	5	5	5
Market share	**40.6%**	**39.7%**	**38.3%**	**36.8%**	**35.2%**	**34.6%**	**34.5%**	**34.3%**	**34.2%**
Market share in net adds		38.2%	34.8%	25%	10%	10%	10%	10%	10%
Vodafone									
Total subscribers	**184**	**477**	**832**	**1209**	**1609**	**1769**	**1809**	**1849**	**1889**
Net adds		293	355	377	400	160	40	40	40
Market share	**6.1%**	**9.7%**	**12.1%**	**15.7%**	**19.6%**	**21.1%**	**21.4%**	**21.7%**	**22.1%**
Market share in net adds		15.3%	18.3%	45%	80%	80%	80%	80%	80%
Total Market									
Total subscribers	**3003**	**4924**	**6863**	**7700**	**8200**	**8400**	**8450**	**8500**	**8550**
Net adds		1921	1939	837	500	200	50	50	50
Mobile penetration	**29.6%**	**48.5%**	**67.6%**	**76.0%**	**81.1%**	**83.3%**	**83.9%**	**84.6%**	**85.2%**
Market share of pre-paid			78.90%	79.20%	78.50%	76.50%	74.50%	72.50%	70.50%

Source: Communications Authority, own estimates

5. Hungarian Fixed-line Market (Subscriber data collection)

Fixed-line market	2001	2002	F2003	F2004	F2005	F2006	F2007	F2008
Number of connected main lines	**3736040**	**3652525**	**3572525**	**3492525**	**3432525**	**3372525**	**3312525**	**3252525**
Matáv's lines	2936441	2882386	2832386	2787386	2747386	2707386	2667386	2627386
Number of main lines per 100	36.6	36	35.4	34.7	34.2	33.8	33.3	32.8
Ratio of ISDN main lines	**13%**	**15.70%**	**18.6%**	**20.3%**	**22.0%**	**23.7%**	**25.5%**	**27.3%**
Duration of originated calls per main lines [minutes]	270.3	237.4	237.4	237.4	237.4	237.4	237.4	237.4
Average duration of originated calls	3.2	3	3	3	3	3	3	3
Ratio of households with connected main lines	75%	73%	71%	70%	69%	67%	66%	65%

Source: Communications Authority, own estimates

References

EIGHTH REPORT FROM THE COMMISSION: on the Implementation of the Telecommunications Regulatory Package, European telecoms regulation and markets 2002

GUIDE TO THE CASE LAW of the European Court of Justice in the field of Telecommunications

eEurope 2005: Action Plan - May 2002

Manuscript for information brochure for the general public, European Commission, Directorate General for Press and Communication October 2002

Towards a knowledge-based Europe, The European Union and the information society

Sanders & Dempsey L.L.P.: Market Definitions for Regulatory Obligations in Communications Markets, May 2002

Chancery House: Cost Structures in Mobile Networks and their Relationship to Prices Europe Economics, 28 November 2001

Lang Robert: European Telecommunications Services Hungarian economic growth highly decelerated last year, Luxembourg 2002

IBM: 2st Report on Monitoring of EU Candidate Countries (Telecommunication Services Sector), 16 December 2002

PwC-IBM 1st Report on Monitoring of EU Candidate Countries (Telecommunication Services Sector), July 25th 2002

Communications Authority of Hungary: Monthly Digital Mobile Phone Market Reports

Communications Authority of Hungary: Monthly Fixed Telephone Market Report

Deloitte Touche Az LRIC alapú költségszámításokban alkalmazandó tőkeköltség számításának módszertana (presentation) - http://www.hif.hu/menu3/m3_1/tokekoltseg.pdf

http://europa.eu.int/information_society/index_en.htm

www.hif.hu

www.ihm.hu

corporate reports