

# Closed shop?

The Hungarian Telecommunication Service Market 2006/2007



goetzpartners



goetzpartners and Consolidus would like to thank  
Sandor Dobe, Birgit Gelsdorf, Sandra Hörmann, Dr. Andras Kapolnai and Manuela Nikui  
for their contributions to this study.

## Dear Executives,

Within a few years after being liberalized, the Hungarian telecommunication services market has reached a remarkably high level of maturity:

- With penetration rates of 67% (fixed line) and 99% (mobile), the provision of basic telecommunication services meets international standards.
- The market is highly consolidated with only three to four providers dominating the various market segments.
- Overall market growth is limited with EITO projecting a CAGR of 3% from 2003 to 2007.

Despite this maturity, the Hungarian telecommunication services market is about to become more dynamic with regulation being one of the key drivers behind future competition.

Convergence between cable TV (introducing Internet and VoIP services) and fixed line operators (introducing IPTV) is increasing cross-segment competition. The same applies for fixed line and mobile operators (substituting fixed line services at considerable rates).

However, competition seems to be limited to the existing players in the market, with market leaders strengthening their positions.

New business models that have been launched (long distance service providers) or that might be launched in the future (IP-based service providers, resellers) will foster a new type of competition that will focus exclusively on the marketing layer. The first prominent new player was Telez, which successfully competed against established operators in the first few years.

This increased competition will provide attractive prospects for both new and established service providers in the future. At the same time, serious threats will evolve especially for fixed line operators.

We would be pleased to share our expertise in the telecommunications sector to support you in exploiting opportunities and managing risks in this changing market environment.

Sincerely yours,



Frank Ewerdwalbesloh  
Managing Director  
goetzpartners



Armin Raffalski  
Partner  
goetzpartners



Dr. Zoltán Zsoldos  
Managing Director  
Consolidus



# Content

|  |    |
|--|----|
| <b>Management Summary</b>  | 6  |
| <b>The Downturn in Fixed Line Telecommunication Services</b><br>Overview of the Hungarian telecommunication services market            | 8  |
| <b>Fixed-Mobile Integration</b><br>Is the merger between Magyar Telekom and T-Mobile Hungary a showcase for other European incumbents? | 25 |
| <b>Breaking up the Value Chain</b><br>Could reselling models boost competition in the Hungarian market?                                | 32 |
| <b>The IP Threat</b><br>To what extent are IP-based services a threat to established telecommunication service providers?              | 38 |
| <b>All Wireless</b><br>Do future mobile technologies provide a mechanism to challenge the incumbent's dominant position?               | 42 |
| <b>Leveraging the Cable</b><br>Will cable operators play a dominant role in the Hungarian telecommunication services market?           | 45 |
| <b>Closed shop?</b><br>Is there room for new telecommunication service providers in the future?  | 49 |
| <b>Appendices</b>  | 52 |
| <b>Table of Figures</b>  | 54 |

## Management Summary

- With a population of 10.1 million and a GDP of EUR 88.9 billion, Hungary is one of the larger Eastern European markets.
- At 4%, GDP growth was relatively high in 2006, but is expected to decline in following years since the government will have to reduce its significant state deficit (9.7% of the GDP in 2006).
- In preparing to join the European Union on May 1, 2004, Hungary adapted its economical framework to European Union standards and liberalized its telecommunication market accordingly.
- Since the telecommunications infrastructure was poor, this process has attracted primarily international investors like Deutsche Telekom, Telenor, Vodafone, Tele Danmark and UPC, which made significant investments in the country's infrastructure.
- Today, penetration and service levels have reached Western European standards with Hungarian households spending a significant share of their income on telecommunication services (3.8% of the GDP is spent on telecommunication services).
- Competition is basically limited to three to four major players in the various market segments with Magyar Telekom as the largest provider having defended market shares of 79% (fixed line), 44% (mobile), 19% (cable) and 43% (Internet).
- Competition will intensify in the future since mobile penetration is moving towards saturation and growth potential for broadband Internet services is limited due to limited PC penetration.
- In this context, goetzpartners and Consolidus believe that various trends will further drive competition:
  - Mobile technology will influence existing market structures significantly. Fixed-mobile substitution is already taking place at considerable rates with fixed line penetration having decreased from 97% to 87% within only four years (2002 to 2005). New technologies (UMTS, EDGE, and WiMAX) as well as new business models (mobile resellers and MVNO) might provide new business opportunities for new entrants in the mobile market, thereby fostering additional competition.

- Also, reselling business models in other market segments might further intensify competition. In Germany for instance, DSL resellers that attach VoIP services to their broadband access services (e.g. United Internet) or VoIP services providers that piggy-back off other providers' infrastructures (e.g. Skype) are tremendously successful.
- Cable operators that experience limited growth and increasing competition by satellite services upgrade their networks and enter the telecommunication market with triple play services (voice, Internet and video). Fixed line operators launched a counter-strike by upgrading the bandwidth in their networks and providing similar services on DSL infrastructure.
- Established operators are responding to this changing, converging market environment by re-aligning (and streamlining) their operating models: Magyar Telekom for example, the leading incumbent in the market, has integrated its mobile operations to provide fixed, mobile and Internet services from a single organization, thereby opting for a customer- instead of a technology-oriented approach.
- So far, the above trends have led to increased competition among the established operators, but have not attracted major new entrants (except for Tele2, which got off to a successful start, but has had to fight off established players recently).
- As a result, the Hungarian market seems to resemble a closed shop these days by locking out new players.
- However, goetzpartners and Consolidus see two mid-term prospects for new entrants:
  - A change in Hungarian regulations might pave the way for new technologies (e.g. 450 MHz frequencies) or business models (in particular DSL and mobile reselling) to get a foothold in the market.
  - A realignment of international investors' strategies might provide the opportunity for a major acquisition in the market (e.g. Magyar Telekom, Pannon or HTCC).

# The Downturn in Fixed Line Telecommunication Services

## Overview of the Hungarian telecommunication services market

### 1. Macroeconomic Framework

Hungary has a sound market economy and a stable political system. The country has been a member of the European Union since May 1, 2004. The total population stands at 10.1 million spread out among approximately 3.8 million households. The population is well urbanized, with 67% living in cities. Almost 20% of the population (1.8 million people) live in the capital, Budapest, which is representative of a highly centralized economy and urban structure.

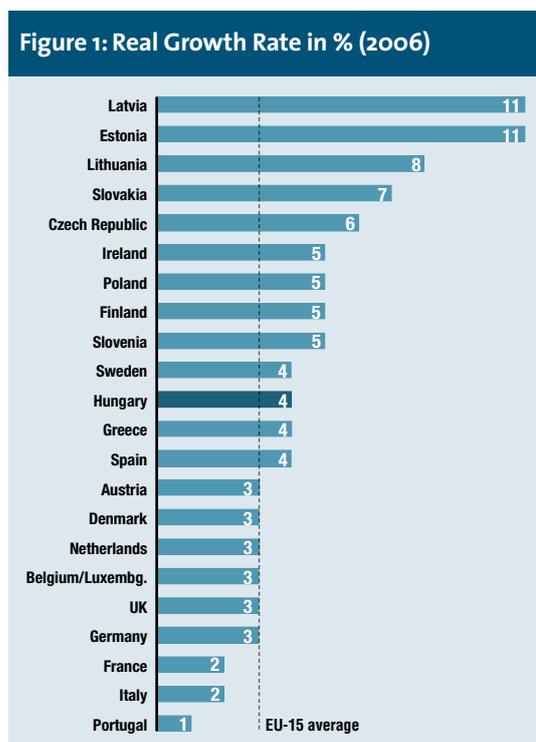
In 2005, Hungary's total GDP was around EUR 88.9 billion in current terms (EUR 145 billion based on PPP) and is estimated to have grown to EUR 91.2 billion in 2006. In the last several years, the 4% real growth rate of Hungary's GDP has exceeded the average growth rate of the EU-15 (around 3%). Steadily advancing growth is expected to drop in the next two to three years as Hungary attempts to reduce its very high government deficit (9.7% of GDP in 2006), which is the highest among the EU countries. The government's efforts to achieve a mid-term balance, the so-called Convergence Program, have recently been accepted by the EU. (Figure 1)

The structure of the Hungarian economy is similar to that of developed countries. Services generate more than 44% of the GDP, while the agricultural sector contributes less than 4%.

Poor in natural resources, Hungary has an open economy with high levels of external trade whose volume is constantly increasing. Exports amounted to about EUR 57.8 billion and its year-on-year change was up by 16% (in EUR) in 2006.

The 3.9% annual inflation rate in 2006 is predicted to increase to about 6.5% in 2007. After the HUF/EUR exchange rate experienced relatively high volatility in 2006 peaking at 284 last summer, it is expected to stabilize around the current HUF 257 per EUR in 2007.

In 2005 the Hungarian GDP per capita in PPP slightly exceeded EUR 8,800. This value made ca. 63.7% of the EU-25 average and ranked the country 4th among other nations that joined in 2004. (Figure 2)



(EUROSTAT; goetzpartners; Consolidus)

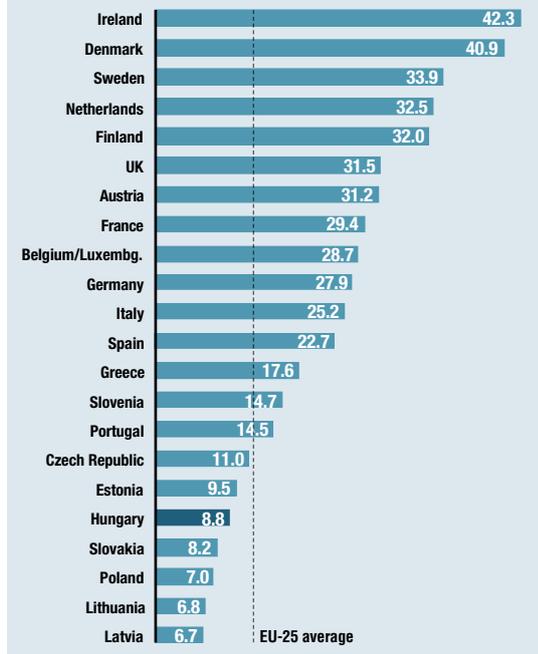
## 2. Liberalization and Privatization

In the late nineteenth century, Budapest became the fourth city in the world to have an operating telephone network, which in fact also became the first one to feature a telephony exchange invented by the Hungarian Tivadar Pus-kás. As recently as the late 1980's, residents had to wait 10 – 15 years to get a subscriber line. Today, one can get a line in a few weeks or even minutes depending on the technology available locally. Presently, fixed line penetration has increased four-fold since 1990, taking into account that the level of mobile communications penetration has reached 99%. Such rapid growth was achieved by completely changing the models pertaining to both the regulatory framework and the ownership structures. In other words, there has been a shift from a state-owned monopoly to a competitive market.

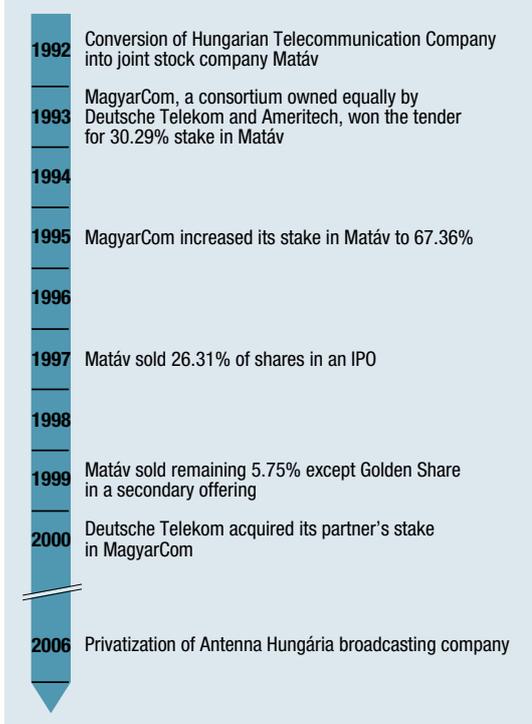
Apart from possible political reasons, Hungary's underdeveloped telecommunications system prior to 1989 when reform took place was the product of a long-term lack of capital in the country. It was also coupled with state ownership and a central planning system that resulted in one state-owned, monopolized "service" company, the Hungarian Post. By early 1989, it became clear that the development of such an infrastructure-heavy industry required a very significant amount of capital that could not be provided by the state. In this situation and parallel to ongoing political changes, there seemed to be no other solution to speed up development than to open the market to privatization – and this could only happen through direct foreign investments. Immediately after major changes swept through the political system in 1989-90, a well paced series of actions paved the way for the liberalization and privatization of the telecommunications sector:

- 1989: **Split of the regulatory and operating functions** and establishment of new regulatory bodies to supervise postal and telecommunication services as well as to manage frequency assets.
- 1990: Division of the Hungarian Post into three autonomous units: the Hungarian Telecommunication Company, the Hungarian Broadcasting Company (today known as Antenna Hungária) and a third company responsible for postal services.
- 1991: Implementation of the Concession Act, which created the legal framework for privatization.
- 1993 (July 1st): Opening of the market by The Telecommunication Act of 1992. The new act differentiated between two types of telecommunication services. Concession-based services included public fixed-line voice, mobile telephone, and nationwide public paging services as well as national and regional broadcasting services. Other services like VoIP, leased lines, data transmission, Internet services and cable television were defined as competitive services. Concession services required a concession (an exclusive license) while competitive services required a

Figure 2: GDP per capita in thsd. EUR (2006)



(EUROSTAT; goetzpartners; Consolidus)

**Figure 3: Privatization process**

(goetzpartners; Consolidus)

license granted by local or regional authorities. A single regulatory body, the Chief Communication Commission (CCC), was created to enforce the regulation.

The **privatization** process started as follows: (Figure 3)

- January 1, 1992: Conversion of the Hungarian Telecommunication Company into a joint stock company named Matáv.
- December 1993: MagyarCom, a consortium owned equally by Deutsche Telekom and Ameritech, won the tender issued by the government for the sale of 30.29% stake in Matáv in July 1993, with a bid of US\$ 875 million. The privatization contract included a requirement to intensively develop telecommunications, tariff regulation with price caps, and service level obligations.
- 1995: MagyarCom paid an additional US\$ 852 million to raise its stake to 67.36%. Based upon the combined value of the two transactions, Matáv's privatization was the largest privatization transaction in the Central and Eastern European region up to that point in time and the largest foreign investment in Hungary.
- 1997: Matáv sold an additional 26.31% in an IPO, when shares were first listed on the Budapest and New York Stock Exchanges.
- 1999: The remaining government holding of 5.75%, except a Golden Share, was sold in a secondary offering.
- July 2000: Deutsche Telekom acquired its partner's stake in MagyarCom (the partner at that time was SBC Communications which acquired Ameritech in October 1999). Today, it indirectly owns a 59.63% stake in Hungary's largest incumbent telecommunication service provider known as Magyar Telekom since 2005. The remaining 40.37% of the company's stock is publicly traded.
- 2006: Privatization of the Antenna Hungária broadcasting company, holding a license for nationwide terrestrial broadcasting. In May 2007, the French TDF, a leading provider of wireless infrastructure services in Europe, agreed to acquire Antenna Hungária from Swisscom Broadcast, who has wholly owned the company since 2006.

Still fully state-owned, the Hungarian Post is currently preparing for the liberalization of the postal services markets in accordance with EU directives.

Principally, the Telecommunication Act granted concession rights that shaped the basic structure of today's telecommunications industry in Hungary.

- The development of the **fixed line** segment, however, was also closely linked with Matáv's privatization and requirements to ensure vigorous growth. At the time of its privatization, Matáv was granted an 8-year exclusive concession right (with an additional 17 years on a non-exclusive basis) to operate international and national long-distance telephony services. In addition to that, Matáv held the concession right to operate local telephony services in 36 out of the total 54 regions (where local municipalities opted to stay with Matáv rather than seeking other partners and bidding for local licenses themselves) under the same conditions. The remaining 18 concession areas were awarded to 13 local telecommunications operators (LTOs) in 1994. After undergoing considerable consolidation, Magyar Telekom today controls directly or indirectly (via its subsidiary, Emitel) 39, HTCC (Hungarotel and the newly acquired Invitel, the former Vivendi) 14, and Monortel (the subsidiary of UGC) 1 region of the fixed line incumbent telecommunication infrastructure. Until the end of Matáv's exclusivity period, public telephone operators in other local areas were allowed to connect to other local or international networks only through Matáv's national backbone network. The mobile operators were also required to use Matáv's facilities as their point of interconnection with the fixed network.

For various liberalized telecommunication services, a significant number of licenses (239 in all consisting of 156 national and 83 local ones, excluding CATV) were issued by July 2001. These figures also point to the activity of alternative service providers just prior to lifting the incumbents' monopolies. It was a clear sign of liberalization when in May 1999 alternative service provider PanTel (established to utilize the internal telecommunication networks of the Hungarian State Railways (MÁV) and the Hungarian oil and gas company (MOL) in 1998) received the first license in Hungary to provide a long distance and international voice service based on Internet Protocol (IP).

- **CATV** services were declared a public telecommunications service by the 1997 amendment to the 1992 Telecommunications Act. Since then, some 400 licenses have been issued. CATV licenses are granted upon request if predetermined requirements are fulfilled. An amendment passed in June 1999 restricted a telecommunications operator from simultaneously controlling a cable network in the same geographic area. It was intended to facilitate competition after Matáv's exclusive concession for local voice services had expired. The provision of CATV service also falls under the 1996 Media Act that primarily regulates content. Beyond that, however, it also declared that a cable company cannot own and operate a CATV network whose aggregate coverage exceeded any geographical area where one sixth or more of the country's population lived. This "1/6" rule was later amended to be 1/3. Since this last condition has not been complied with yet, the EU has initiated proceedings against Hungary for failing to fulfill the requirement to fully liberalize its CATV market in March 2007.

- Hungary was the first country in Central and Eastern Europe to introduce **mobile** cellular service:

- October 1990: Start of the analogue NMT service. It was provided by WESTEL 450 Radiotelephone, a company owned by US WEST (later known as MediaOne and now part of AT&T, 49%) and the Hungarian Post (51%) whose stake was later transferred to Matáv. NMT services along with paging services were discontinued in 2004.
- 1994: Start of digital GSM (900MHz) service. In an effort to promote competition, two 15-year concessions were awarded to the winners of a competitive tender opened in 1992 and closed in 1993. One license was sold to Westel 900, a consortium comprised of Matáv (51%) and MediaOne (49%), and the other was sold to Pannon GSM, a venture of KPN (26.79%), Nortelinvest (23.43%), Tele Danmark (23.20%), Sonera (20.90%), Telia and four Hungarian partners.
- Late 90s: Sale of three 15-year DCS (1,800 MHz) concessions. The tender for the third mobile concession was won by Primatel, (also known as V.R.A.M.), a consortium led by Airtouch (US) and RWE (Germany) in June 1999. It launched its services in November 1999. After changes in the ownership structure, this third mobile player today is Vodafone Hungary, a member of the Vodafone Group. Two additional licenses were sold to Pannon GSM and Westel 900. All three companies were providing DCS (Diversified Communication System) services by March 2001. WiMAX frequency licenses (3.5GHz) were tendered and sold to 5 bidders: Matáv, Invitel (today: HTCC), Pantel (today: HTCC), Antenna Hungária and GTS-Datanet in 2002.

Though the availability of UMTS (3G) mobile concessions was first announced in 2000, the related tender was not released and closed until 2004. The three 15-year concessions were won by the three active mobile service providers, T-Mobile (formerly Westel), Pannon and Vodafone. The tender was said to generate more than HUF 52 billion in net revenue for the Hungarian state. A fourth 3G license is still held by the Hungarian state due to lack of interest.

- In regard to another telecommunications network, a license for providing **TETRA** service (Terrestrial Trunked Radio) for public safety organisations was sold to Pro-M in a competitive bid in late 2005. The company is a 100% subsidiary of Magyar Telekom. TETRA service provision started regionally in 2006, with full nationwide coverage expected to begin in early 2007.

Hungary's telecommunications-related regulatory regime, according to which 8- and 15-year exclusive rights (concessions) respectively were issued, needed to be changed with the emergence of alternative service providers. Change would also benefit Hungary's international aspirations and obligations. Preparations for joining the EU required that regulatory frameworks for telecommunications be brought in line with EU directives. In addition, as a signatory to the 1997 WTO agreement on telecommunications, Hungary is required to adopt the agreed regulatory principles.

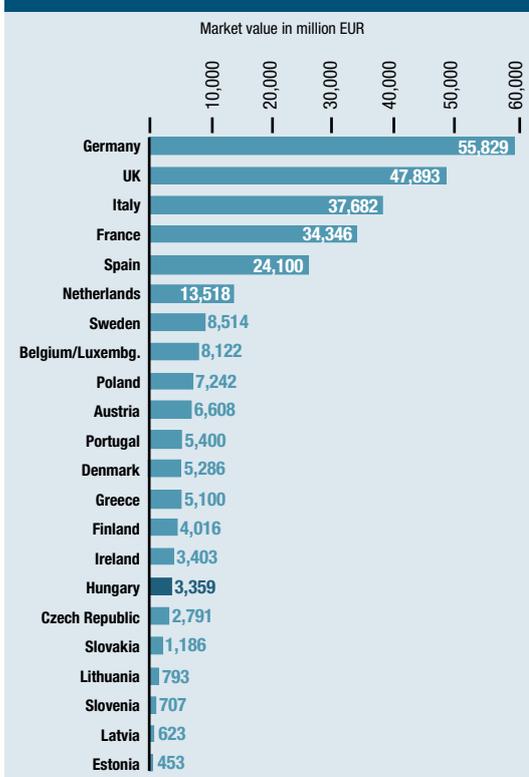
As a result, Hungary reformed its telecommunications policy in two steps. In 2001, the Communication Act (XL/2001) was created that unified three former acts, namely the Telecommunication Act (LXXII/1992), the Frequency Management Act (LXII/1993) and the Postal Services Act (XXXV/1992), which were all amended several times between 1996 and 1999. According to the Communication Act, 18 distinct types of telecommunication markets were defined together with the players having significant market power (SMP) in each. To promote and control fair pricing, the SMP companies were required to submit their calculations for Long Run Incremental Cost (LRIC), Reference Interconnection Offers (RIO) and Reference Unbundling Offer (RUO) for review and approval to the regulatory body, the Chief Communication Commission (CCC).

In a second step, the 2001 Communication Act was further split into two acts in 2003: the new Electronic Communication Act (ECA, C/2003) and the new Postal Services Act (CI/2003). The ECA went into effect on January 1, 2004 and Hungary joined the EU on May 1, 2004. Together with the Media Act (I/1996), the E-Signature Act (XXXV/2001) and the E-Services Act (CVIII/2001), the ECA constitutes the main framework for current telecommunications-related legislation in Hungary.

The ECA fully complies with relevant EU directives and the New Community Regulatory Framework that went into effect on July 25, 2003 in all EU member states. Accordingly, it covers all three areas of the EU regulation: the info-communication society/company (content), info-communication services (voice, data etc.) and info-communication networks. A new unified regulatory body, the National Communications Authority Hungary (NCAH), was set up based on the configuration of the former regulatory body, the CCC. The NCAH's key objectives are to promote competition, to foster growth of the infrastructure, especially the Internet, as needed by an information society, and to fulfill consumer interests. In the latter context, the NCAH's main efforts focus on ensuring affordable prices, high quality and a wide choice of services and products offered in the telecommunications market.

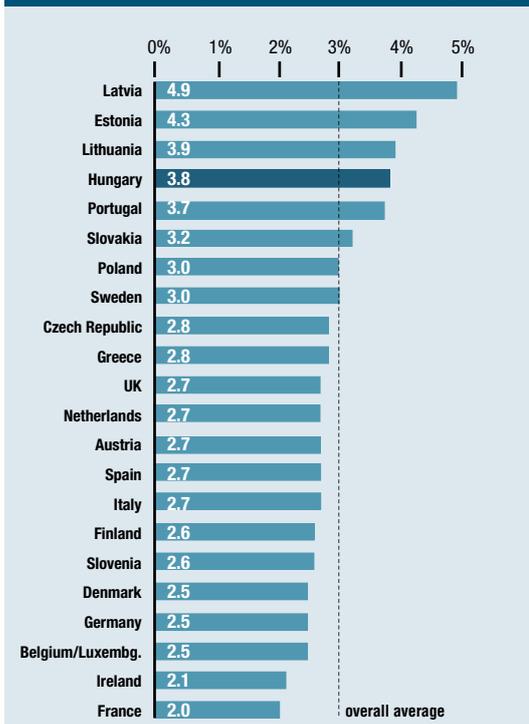
The NCAH's efforts to fulfill its objectives and eliminate competition bottlenecks were demonstrated in various ways. From the beginning of 2004, all fixed line service providers with SMP (all the former concession holders) were also required to provide carrier selection which was to be maintained in 2007. Due to competition in the mobile market, which is considered to be sufficiently intensive, no similar obligations apply to the mobile companies. The government decree on number portability also came into effect in March 2004. The RIOs of the incumbent companies were approved in May 2006, which significantly lowered the fees associated with carrier selection, number porting and call termination. The unbundling of the local loop (ULL) is subject to the approval of the RUO of the fixed line companies with SMP. Although the RUOs had first been submitted as early as 2001, NCAH did not approve them until September 2006. The approved offers significantly decrease the "entry barrier" facing alternative service providers in the broadband Internet market and more ADSL offers without voice service ("naked" ADSL) are expected to be available. International roaming fees – in

Figure 4: Market size carrier services (2005)



(EITO 2006; goetzpartners; Consolidus)

Figure 5: "Share-of-Wallet" – Carrier service expenditure as % of GDP (2005)



(EITO 2006, EUROSTAT; goetzpartners; Consolidus)

accordance with the EU regulation – as well as the relatively high mobile termination fees have also been reduced in several steps and the NCAH is expected to continue to decrease these significantly in 2007.

## Summary

Transforming a fully state-owned telecommunications industry with an underdeveloped infrastructure into a high-performance, competitive market required a well-paced series of actions in Hungary's dramatically changing political and economical environment. The fundamental structures of the telecommunications market were formed by the inevitable privatization coupled with the need to vigorously develop a robust infrastructure and the awarding of mid-term concession rights in the fixed line and mobile markets. The result is the current situation that pitches incumbents vs. alternative providers. Further developments are expected to be driven by regulations that stimulate effective competition and ensure fair pricing in both wholesale and retail markets. Such measures are critical in the price-sensitive Hungarian market that reflects the country's relatively low GDP.

### 3. Market Overview

After Poland, the Hungarian telecommunication services market is the second largest market in Eastern Europe. (Figure 4)

At EUR 333, the annual telecommunication service spending per capita is significantly lower than in Western European countries, but still the third highest in Eastern Europe (after Slovenia and Estonia). However, in terms of share-of-wallet, Hungary ranks fourth among all European countries, indicating that the country's overall wealth is one of the key drivers (or limitations) behind the growth of the telecommunication services market. (Figure 5)

With the Hungarian telecommunications market having already reached a certain level of maturity, growth (CAGR) is expected to be a moderate 3% for the years 2003 to 2007, leading to an estimated increase in market volume from EUR 3.3 billion in 2003 to EUR 3.6 billion in 2007. However, growth rates are expected to vary significantly between the market segments: while cable TV and Internet services are anticipated to drive market growth with CAGRs of 10% and 18% respectively, mobile services are expected to grow in line with the total market. Fixed line (voice) services are projected to decrease by 7% per annum, thereby reducing their market volume to less than one third of the mobile segment market volume. (Figure 6)

## Summary

The relatively high “share of wallet” in Hungary provides only limited growth opportunities for the overall telecommunications market. In contrast to other markets, Internet and cable TV services are driving growth in the Hungarian market, since fixed line and mobile services have already reached maturity. Product bundles consisting of content/ Internet/voice (cable TV providers) and Internet/voice (Internet service providers) will fuel growth in these segments, but also accelerate substitution of conventional fixed line services.

### ■ Fixed Line Sector

Before the liberalization of the Hungarian telecommunication services market, supply with fixed line services was fairly poor. In 1990, less than 20% of households were equipped with telephones, with several hundred thousand applicants on the waiting list.

The situation changed significantly in successive years with the penetration rate increasing to more than 95%. In recent years though, penetration is decreasing again as mobile and – to an increasing degree – voice over IP (VoIP) services replace fixed line services. While penetration of ISDN services remains at a fairly constant level, penetration of analog lines has fallen significantly from 97% in 2002 to 87% in 2005. (Figure 7)

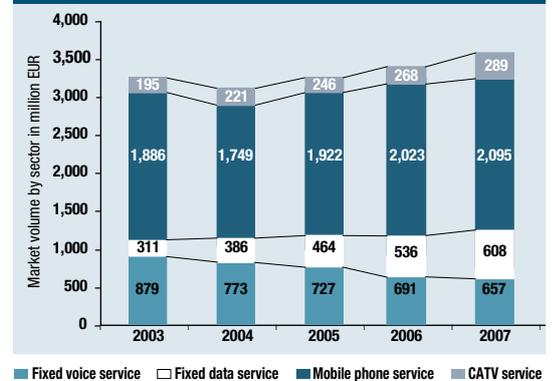
At the same time, ARPUs (average revenue per user) came under pressure. While ARPUs increased from the Eastern European average of EUR 23 in 1999 to EUR 31 in 2001, ARPUs decreased back to EUR 22 in 2003, reflecting growing competition in the fixed line sector. (Figure 8)

Nevertheless, competition in the fixed line segment has been rather moderate so far. The market is dominated by regional incumbents that benefited from regional monopolies until 2002 and later successfully held their ground in their respective markets.

– **Magyar Telekom**, operated as Matáv until 2005, is the largest among the regional incumbents. The company serves 39 out of 54 local regions (36 directly and three via its wholly-owned subsidiary Emitel) that represent 70% of the country’s area and 72% of the population. In addition to the fixed line segment, Magyar Telekom plays dominant roles in the mobile (T-Mobile), Internet (T-Online), cable TV (T-Kábel) and system integration (T-Systems) sectors.

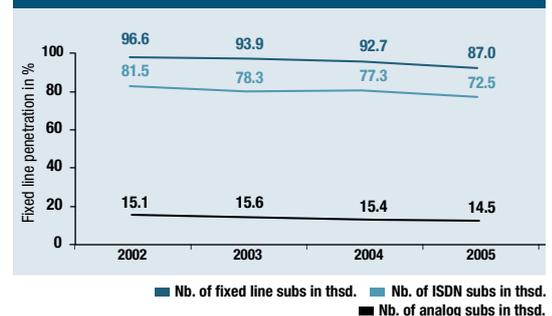
The company is continuously expanding its business internationally (acquisition of a majority stake in Maktel, Macedonia, in 2001; establishing Combridge in Romania in 2002; acquisition of a majority

Figure 6: Market volume by sector in million EUR



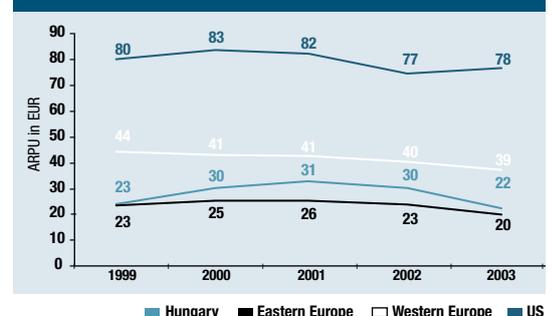
(EITO 2006; goetzpartners; Consolidus)

Figure 7: Fixed line penetration in % of households

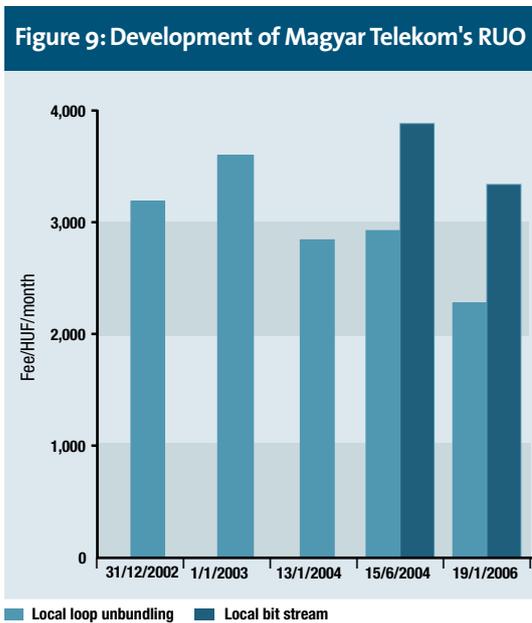


(National Communications Authority Hungary; goetzpartners; Consolidus)

Figure 8: Fixed line – ARPU in EUR per month



(ITU; goetzpartners; Consolidus)



(National Communications Authority Hungary; goetzpartners; Consolidus)

stake in Montenegro Telekom, Montenegro, and Orbitel, Bulgaria, in 2005), strengthening its positions in growing market segments (acquisition of KFKI, an IT company, Dataplex, a server farm, and IWIW, an Internet community portal, in 2006) as well as launching new products (introduction of digital video, voice and Internet services via cable in 2005; IPTV launch in Budapest in 2006) to compensate for declining activity and stagnation in its core markets.

- **Hungarotel** is the second largest regional incumbent in Hungary. The company along with its subsidiary Invitel (the former Vivendi Telecom Hungary, which was acquired in the beginning of 2007 for EUR 470 million) serves 14 out of 54 local regions, which account for 23% of the country's surface area and 19% of the population. The company is a 100% subsidiary of the AMEX-listed Hungarian Telephone and Cable Corporation Company that is majority owned by Tele Danmark, the Danish incumbent.

Hungarotel acts as a full service provider in its core market. Furthermore, the company provides services to the wholesale and large-scale company sectors throughout the country via Pantel, a company that was acquired in 2004. As a result of Invitel's acquisition of Euroweb Hungary and Euroweb Romania in 2006, the company is also active in the Internet segments in Hungary and Romania nationwide.

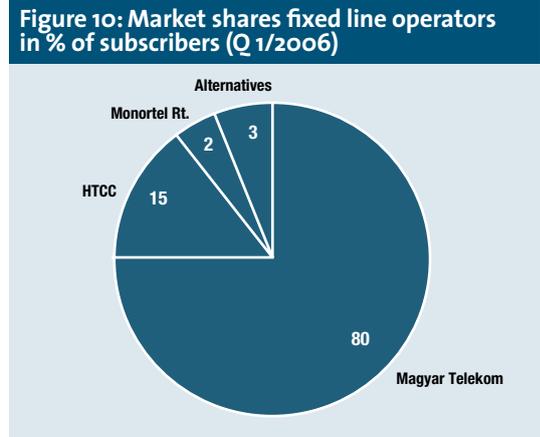
- **Monortel** is the smallest of the regional incumbents (LTO) in Hungary. The company serves a single local region that accounts for 2% of Hungary's surface area and less than 1% of its population. As a full service provider in its core market, the company is a wholly-owned subsidiary of UGC Europe that also owns UPC, the largest cable TV operator in Hungary.

The unbundling requirement imposed by the Hungarian regulating commission in 2001 triggered competition primarily between regional incumbents. However, due to the initially defined Reference Unbundling Offer (RUO) levels, overall competition remained at a manageable level with Magyar Telekom acquiring its first customer via unbundled local loops of Invitel's network in June 2005. Regulatory efforts significantly reduced the RUO level in late 2006, which resulted in alternative company Pantel introducing a "naked" ADSL service product in early 2007. (Figure 9)

Competition started to increase when **Tele2**, an international provider with comprehensive financial resources, entered the picture in April 2004 as a reseller for the residential market. The reduction of interconnect charges imposed by the Hungarian regulator in June 2004 allowed Tele2 to introduce aggressive tariff schemes (low prices and simple plans) that put pressure on pricing levels in the market.

However, incumbents reacted to Tele2’s success by lowering retail prices, which diminished Tele2’s significance.

As illustrated below, the three remaining LTOs still share 97% of the fixed line market<sup>1)</sup>. (Figure 10)



(National Communications Authority Hungary; goetzpartners; Consolidus)

### Summary

- In contrast to other markets, competition in the fixed line sector has been driven not by alternative fixed line service providers, but primarily by mobile operators substituting fixed line with mobile services. In recent years, intrasector competition increased with Tele2 entering the market with aggressively priced resale offers.
- Competition will continue to intensify with the increased penetration of broadband Internet services that will trigger VoIP services to be made available on a larger scale. Since VoIP services typically include free on-net calls, they may pose a threat to the viability of business models offered by traditional, circuit-switched voice providers.

### Mobile Sector

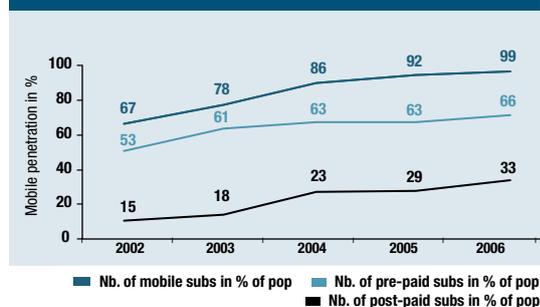
The mobile sector experienced continuous growth over recent years. Penetration rates grew from 67% in 2002 to 99% in 2006. In comparison to Western European markets, most subscribers signed up for pre-paid services in the early years. Although growth was primarily driven by post-paid subscriptions from 2003 to 2005, prepaid subscriptions still had a clear lead over postpaid ones in 2006. (Figure 11)

As in other markets, postpaid subscribers generate significantly higher ARPUs than prepaid subscribers. Hence, all mobile operators have pushed postpaid subscriptions since 2003 to increase overall ARPUs.

Despite the increasing share of postpaid subscriptions, ARPUs fell significantly in recent years as a result of increased market penetration (toward “lower ARPU” customer segments) and competition: While the ARPU even exceeded Western European and US levels in 1999, it fell below the Eastern European average in 2003. (Figure 12)

To offset this decrease, Hungarian mobile operators introduced a number of value added services, including mobile games, WAP, and so on.

Figure 11: Mobile penetration in % of population



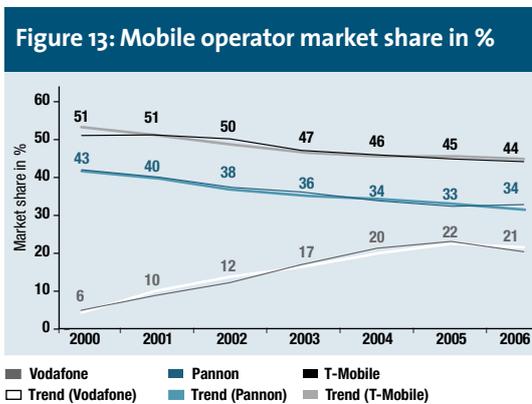
(ITU; National Communications Authority Hungary; goetzpartners; Consolidus)

Figure 12: Mobile – ARPU in EUR per month



(ITU; goetzpartners; Consolidus)

1) In addition, Antenna Hungária, the national broadcast service provider, entered the telecommunication services market with microwave backbone access, as well as leased line, VoIP and IP VPN services for business customers. Since 2006, the company has been wholly owned by Swisscom, the Swiss incumbent. In the same year, the company launched “Clip”, a VoIP service for residential customers. In May 2007, Swisscom agreed to sell 100% of its stake in Antenna Hungária to the French TDF. However, Antenna Hungária’s share in the telecommunication services market is fairly limited. Therefore, the company is not considered in detail in this section.



(National Communications Authority Hungary;  
 goetzpartners; Consolidus)

While some of these value added services, e.g. SMS services, caught on (subscribers send an average of 40 SMS/quarter), others, like the world's first MMS service introduced by Westel, had only limited success.

In 2006, Vodafone and T-Mobile managed to increase ARPU's back to levels of EUR 19/month and EUR 18/month, respectively.

The market is subdivided among three mobile operators, all owned by international telecommunication groups: T-Mobile, Pannon and Vodafone. (Figure 13)

- **T-Mobile**, part of Magyar Telekom and operated as Westel until 2005, started GSM operations in 1994. The company is the largest provider of mobile services in Hungary.

It has suffered from competition coming primarily from Vodafone, but managed to stabilize its market share in the 44% range.

- **Pannon** was founded as a joint venture of Telenor, KPN, Sonera and Tele Danmark. The company launched GSM services in 1994 at the same time as T-Mobile. In 2001, Telenor bought out the other members of the Pannon consortium, making the company a wholly-owned subsidiary.

Pannon is the second largest mobile network operator in Hungary. The company struggled against considerable competition, but managed to stabilize its market share at 34%.

- **Vodafone Hungary**, operated as Primacom/V.R.A.M. until June 2003, was founded as a joint venture between Vodafone/Airtouch, RWE Telliance, Antenna Hungária and Hungarian Post in 1999. Today, the company is a wholly-owned subsidiary of the Vodafone Group.

Entering the market as a follower, the company managed to establish a 22% market share in 6 years, stripping 10% from each of T-Mobile and Pannon's market shares.

All operators offer a complete portfolio of services including SMS, MMS, WAP and GPRS services. EDGE services were launched by T-Mobile and Pannon GSM in 2003. Furthermore Pannon GSM carried out a HSDPA trial in Budaörs in 2005.

T-Mobile also provides push-to-talk services that were developed in cooperation with the National Civil Guard Association. In 2005, the company was selected to set up and operate a separate Professional Mobile Radio (PMR) network based on TETRA technology for public safety organizations.

All operators have been awarded UMTS licenses and commercial UMTS services were launched in August (T-Mobile), October (Pannon) and December (Vodafone) 2005.

Since a fourth UMTS license was not awarded due to a lack of interest, the oligopolistic structure in the Hungarian mobile sector seems to be solidifying as market shares level off.

### Summary

- The Hungarian mobile sector has reached maturity. The market is growing in line with the total telecommunication services market and market shares of the three existing mobile network operators are leveling off. UMTS services were launched in 2005, but are not expected to boost market volume or to impact the equilibrium established among these operators.
- As no reselling obligation exists in the market, it is unlikely that new kinds of providers will enter the market.
- However despite the increasing churn of fixed-to-mobile services, the situation existing mobile network operators are facing is not pleasant as declining growth rates lead to intensified competition and the regulator drives retail prices (e.g. roaming) and interconnect charges (in particular fixed-mobile) even lower.

### Internet Sector

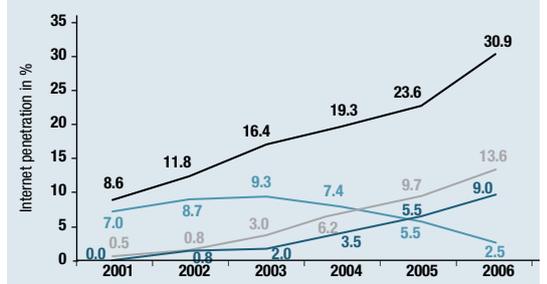
Growing continuously at an average rate of 16% (CAGR 2001 – 2005), Internet penetration reached 30.9% in 2006. While narrowband connections have dominated in the early years, broadband connections, in particular via xDSL and cable technologies, have been driving penetration growth since 2003. (Figure 14)

Simultaneously, ARPUs grew from EUR 13 in 2001 to EUR 23 in 2005. Driven by demand for higher bandwidth and new services, in particular VoIP, Internet ARPUs currently exceed fixed line and mobile ARPUs. (Figure 15)

Reflecting the respective prevalence of Internet access technologies, the Internet market is dominated by the leading fixed line and cable TV operators. (Figure 16)

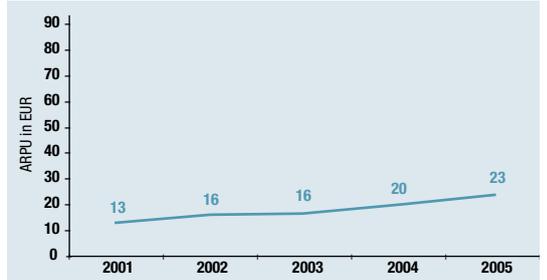
- **Magyar Telekom** has established its wholly-owned subsidiary T-Online, which operated under the name of Axelero until 2005, as the market’s leading Internet service provider (market share: 43%). Being the incumbent operator in 39 out of 54 local regions and own-

Figure 14: Internet penetration in % of households



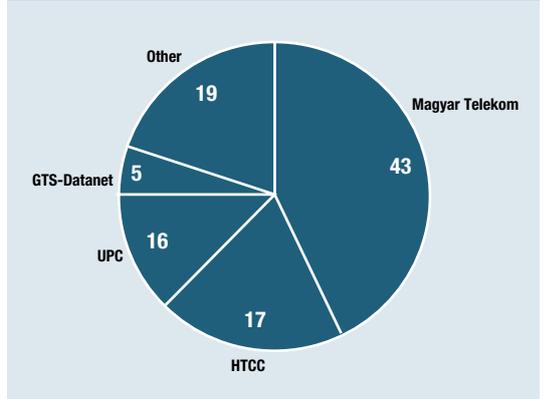
(Central Statistical Office Hungary; goetzpartners; Consolidus)

Figure 15: Internet – ARPU in EUR per month



(ITU; National Communications Authority Hungary; goetzpartners; Consolidus)

Figure 16: Internet market shares in %



(goetzpartners; Consolidus)

ing the second largest cable TV operator in Hungary, Magyar Telekom is in the unique position of being able to operate two separate infrastructures suitable for broadband Internet services.

- **Hungarotel (HTCC) Group**, which now includes Pantel and the newly acquired Invitel, together with Euroweb Hungary, which is owned exclusively by the latter, is ranked second in the Hungarian Internet sector with an estimated 200,000 customers and a market share of 17%.

It is interesting to note that Euroweb Hungary, the ISP-member of the group that strengthened its position by acquiring Elender, the first Internet service provider in Hungary in 2004, is now in a group with its former owner, Pantel<sup>2)</sup>.

- **UPC**, Hungary's largest cable operator, launched broadband Internet in 2000 and VoIP services via cable in 2004. With about 185,000 broadband Internet (and 130,000 VoIP) subscribers (company data as of September 30, 2006), UPC has established a market share of 22% and 16% respectively in the broadband and total Internet markets.
- **GTS-Datanet**, the wholly owned subsidiary of GTS Central Europe, was established in 1993 as GTS Hungary that acquired Datanet in 1998. The company completed its own optical backbone network by 2000. It provides IP-based phone (call-card and VoIP) and Internet services, including "naked" ADSL since July 2006, for its 60,000 business and private customers. This corresponds to a market share of 5%.

Although they each have different business models, all providers are following the strategy of replacing conventional voice, data and broadcast services with IP-based services. While those providers targeting the residential market launched VoIP and IPTV services, those providers addressing primarily business customers focused on implementing integrated voice and data networks (IP-VPN).

In this context, fixed line operators find themselves in a dilemma as IP-based services cannibalize their existing business. If these IP-services do not combine new service components with new revenue potentials (e.g. IPTV), this cannibalization will lead to a loss in revenue and profitability, since IP-based services are typically priced substantially below conventional voice and data services.

---

<sup>2)</sup> Euroweb Hungary was founded as a joint venture between PanTel and Euroweb International (34% owned by KPN). In 2004, Euroweb International bought out PanTel, making Euroweb Hungary a wholly-owned subsidiary. In May 2006 Euroweb International sold Euroweb Hungary (together with Euroweb Romania) to Invitel.

## Summary

- Internet services have evolved to become a major driving force for the telecommunication services market and a major threat for fixed line operators.
- The market is dominated by the leading fixed line and cable operators. IP services provide a new, complementary area of business for cable operators. Fixed line operators, however, are challenged to develop an optimal migration strategy and to compensate for losses in revenue with new services like IPTV (countering the attacks of cable operators).

### ■ Cable Sector

Cable penetration is high in Hungary relative to other CEE countries: out of 3.8 million households, about 78% have access to cable TV service (not including the ubiquitous satellite services). Actual penetration is about 55% countrywide, with penetration growth averaging 5.2% between 2000 and 2004. (Figure 17)

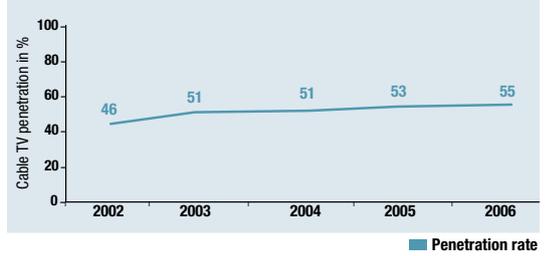
ARPU and revenues have not decreased in recent years, despite the fact that the market is moving towards saturation; on the contrary, the period between 2002 and 2005 saw dynamic growth (16% CAGR). ARPU growth was about 2.5 times higher than inflation. This favorable situation is explained by the unique characteristics of the cable investments: once a service provider covers an area and connects the subscriber, there is little room for competitors to do the same. Thus, cable providers enjoy a quasi-monopolistic position that is further enhanced by the unattractive option of 3 channels provided by the free terrestrial broadcasting stations and the high cost of premium satellite offers (UPC Direct). In fact, the cable providers' high profitability reflects their advantageous position which, however, may change with the advent of a few new developments, like IPTV and low-price satellite service of DigiTV.

Although a wave of acquisitions swept through in 2001, there are still several hundred cable TV providers in Hungary. (Figure 18)

Nevertheless, the cable TV market is dominated by UPC and T-Kábel that account for more than half of the market, followed by other country-wide networks like FiberNet and EMKTV. (Figure 19)

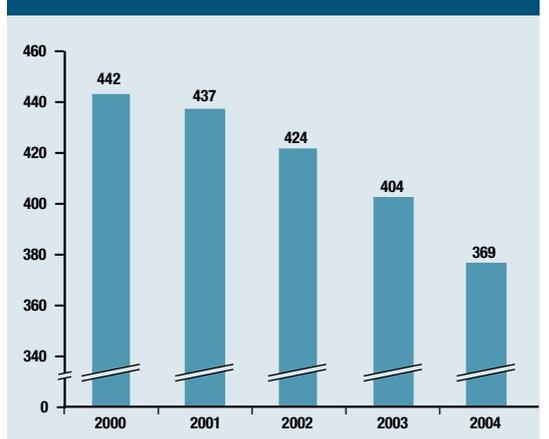
- With an estimated market share of 35%, **UPC** has established itself as a market leader in the Hungarian cable TV market. The company serves 733,000 cable customers (source: company data as of Sept. 30, 2006) and 173,000 satellite customers (DVB-S, under its brand, UPC Direct). Besides TV services, the company also provides broadband Internet

Figure 17: Cable TV penetration in % of households



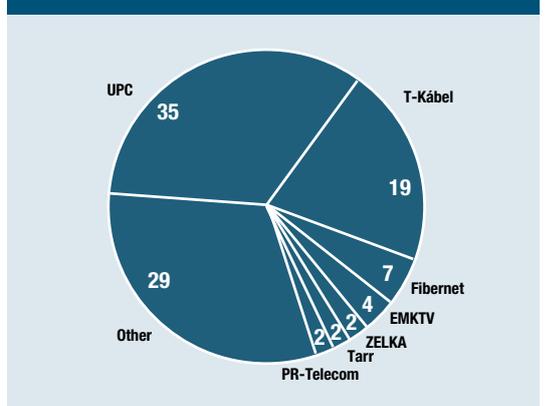
(ITU; Central Statistical Office Hungary; goetzpartners; Consolidus)

Figure 18: Number of CATV companies



(National Communications Authority Hungary; goetzpartners; Consolidus)

Figure 19: Cable TV market shares in %



(National Communications Authority Hungary; goetzpartners; Consolidus)

and VoIP services (“triple play”). By the end of 2005, more than 10% of UPC’s subscriber base had opted for bundled TV, broadband Internet and VoIP products.

The company is a wholly-owned subsidiary of United Global Com, which is a member of the Liberty Media group.

- The largest regional incumbent, Magyar Telekom, established its wholly owned subsidiary **T-Kábel** in 1998, which operated as Matáv-kábelTV until 2005, and is the second largest cable TV operator in Hungary. With an estimated 350,000 subscribers, the company holds a market share of approximately 19%.

Although it cannibalized Magyar Telekom’s fixed line business, T-Kábel launched VoIP services in 2005. According to reports, the number of subscribers for these services exceeded 10,000 within the first 4 months of operation, thereby demonstrating the market’s interest in bundled products. To supplement its existing broadband Internet service, the company launched digital CATV services in 2005.

- **FiberNet** was established by its CEO Andras Feuer in 1999. By the end of 2006, the Budapest-based company was providing cable TV services in Central and Eastern European communications markets to approximately 500,000 cable and 75,000 broadband Internet subscribers.

The company operates mainly broadband networks to deliver cable TV, Internet and VoIP based telephony services to its subscriber base.

Warburg Pincus led a secondary buy-out of the business in 2004 and committed new equity for the further development of the business. During 2005-2006, Fibernet extended its activities to other Central Eastern European markets with the acquisition of Eurocom Cable, the largest cable television operator in Sofia, Bulgaria, as well as Eurocom Plovdiv in Plovdiv, Bulgaria, and Falstap in Dnepropetrovsk, Ukraine.

At the end of 2006, the company had approximately 180,000 CATV subscribers in Hungary, 200,000 CATV subscribers in Bulgaria, and 125,000 CATV subscribers in Ukraine, making it the third largest provider in the Hungarian market.

- **EMKTV** was created by merging 6 local cable operators in Budapest and its vicinity in 2000. Today, 92% of the company is owned by RDS&RCS, a Romanian telecommunications company that is indirectly controlled by Zoltan Teszari, a Romanian businessman.

EMKTV provides cable and satellite TV, Internet and voice services. In February 2006, EMKTV launched DigiTV in Hungary, a satellite

TV service of its parent company RDS&RCS. With its very aggressive pricing scheme – no monthly fee in the first year and only approx. EUR 10 per month thereafter – DigiTV services expanded extremely quickly and are reported to have reached approximately 170,000 subscribers by November 2006. Its fast growth made the company a target of various complaints filed with the Hungarian Competition Office and the Communication Authority, NCAH.

Among the large providers, UPC's presence is fairly scattered in the country, while the others show some geographical concentration. In many cases, independent firms still play a significant role in some villages, towns and even in large cities.

Digitalization had not been a major trend for cable operators until recently. T-Kábel introduced theme-based digital packages in 2005 but the high-priced "luxury" positioning attempt seems to be more of a differentiating move than a mainstream step towards overall digitization.

All players currently strive to provide the telecommunication services market with bundled product offers in order to address new growth potential (given the fact that further growth perspective is limited).

At the same time, fixed line operators are preparing to penetrate the TV market. Magyar Telekom launched an IPTV trial in Budapest in April 2006 followed by a commercial launch of services on November 6, 2006.

## Summary

- Cable operators have established a relatively comfortable position that is, however, being currently attacked by the aggressively priced DigiTV satellite service.
- In the telecom arena, cable operators have established themselves as serious competitors to fixed line operators. While expansion on their home turf is limited, broadband Internet and VoIP services provide attractive growth potential at the expense of fixed line service providers.
- However, fixed line operators are preparing a counter-offensive: based on new broadband Internet technologies (ADSL2+ and VDSL), they may launch IPTV services as part of a triple play bundle to attack cable TV operators on their home turf.

## 4. Outlook

In terms of size and telecommunications spending per capita, the Hungarian telecommunication services market is one of the most attractive telecommunication services markets in Eastern Europe.

However, penetration rates are moving towards maturity and the various providers in the fixed line, mobile, Internet and cable TV segments have established solid positions in their market sectors.

Growth opportunities exist in the mobile segment and, to a larger extent, in the cable and Internet segments. Should the current regulatory framework remain unchanged, one can expect that these growth opportunities will be shared primarily among existing providers in the market.

However, two mechanisms exist to re-intensify competition in the market:

- **Reselling** requirements for providers with dominating market power might provide a path for new providers to enter the market. In particular DSL resale and MVNO business models might intensify competition for the customer's benefit.
- **IP-based service providers** will benefit from improved broadband infrastructures. They will introduce new voice (e.g. Skype) and content (e.g. Movielink) services that compete with services provided by infrastructure-based providers.

The effectiveness of both mechanisms depends on the Hungarian regulatory authorities:

- The **first** measure requires the regulatory authority to impose requirements on the market's dominant providers.
- The **second** measure requires the regulatory authority to avoid discriminatory terms pertaining to access for IP-based service providers.

## Summary

- The Hungarian telecommunication services market has developed into a mature, established structure.
- The market is being re-shaped as mobile and IP-based services replace conventional voice, data and TV services. However, growth potential is hardly accessible to new providers since the market is shared among a small group of established providers.
- Reseller and IP-based business models might give the market a jolt by re-intensifying competition and further improving the supply of telecommunication services. However, these new business models would need a boost from the Hungarian regulatory authority.

# Fixed-Mobile Integration

## Is the merger between Magyar Telekom and T-Mobile Hungary a showcase for other European incumbents?

### 1. Service-Oriented vs. Customer-Oriented Market Strategies

Before the liberalization of the European telecommunication services markets, most of the European incumbents operated under a single brand.

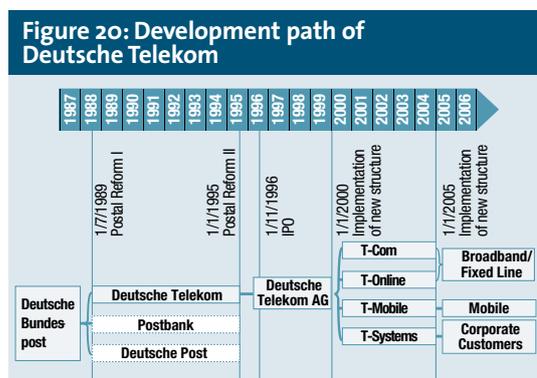
As new technologies evolved (Internet) or developed from a niche service to a commodity (mobile), incumbents founded separate legal entities to market these new services under separate brands (typically as part of a brand family). In the late nineties, most incumbents operated three-pillar organizations consisting of a fixed line, an Internet and a mobile entity. In some cases, additional entities existed for system integration and cable TV services.

The reason for this set-up was two-fold:

- The various services were associated with different **types of corporations**: While fixed line services were provided by public-type organizations dominated by civil servants, rolling out mobile and in particular Internet services required flexible, fast growing organizations driven by young, flexible and skilled employees. In consequence, most incumbents opted for separate legal entities for developing and marketing these services.
- In the late nineties, **capital markets** were bullish and the climate for IPOs was ideal. As a consequence, many incumbents separated their growing mobile and Internet activities to be able to list them separately on the various stock markets.

In recent years though, many incumbents decided to re-integrate their different pillars and to focus on customer segments instead of services.

This separation and re-integration process is exemplified by Deutsche Telekom, the German incumbent, as described below:



(company information; goetzpartners; Consolidus)

As a result of the first postal reform (Postreform 1) that became effective on July 1, 1989, Deutsche Bundespost was separated into three legal entities, Deutsche Telekom (telecommunication services), Postbank (banking) and Deutsche Post (postal services). In a second postal reform (Postreform II), Deutsche Telekom was transformed into a private limited company (Aktiengesellschaft) and subsequently went public on November 1, 1996.

In 2000, Deutsche Telekom implemented a four-pillar structure with T-Com (fixed line), T-Online (Internet), T-Mobile (mobile) and T-Systems (system integration). On April 17, 2000, T-Online went public.

On October 9, 2004, Deutsche Telekom announced a new structure that replaced the four pillars with three strategic business units: Broadband/Fixed Line (serving residential customers), Mobile (serving business and residential customers) and Corporate Customers (serving business customers). In implementing this new structure, Deutsche Telekom started a process to have T-Online go private to subsequently merge it with its T-Com entity. At the same time, Deutsche Telekom transferred its fixed line business customer base from T-Com to T-Systems. Although challenged by some of T-Online's minority shareholders, this merger was finally approved on April 29, 2005. (Figure 20)

It is obvious that the new structure represents a combination of customer- and service-based orientation. To implement a consistent structure, T-Mobile would have to be integrated in Deutsche Telekom's new residential and corporate business units.

Four major trends cause incumbents to reshape their structures from a service-oriented to a customer-oriented organization:

- **Technical convergence:** While fixed line, Internet and mobile services were provided on separate technical platforms in the past (although the fixed line entity served all other entities at least in terms of backhaul and backbone networks), the Internet protocol has led to a full convergence of technical platforms.

In the past, Internet access was a service provided by an Internet subsidy based on the fixed line entity's network. First, Internet services were provided based on a dial-in platform. In recent years, DSL services have been marketed on a large scale, thereby replacing narrowband dial-in services. Since DSL services provide sufficient capacity for voice services to be transmitted in standard quality, the Internet has evolved to become a competitive option to the circuit-switched fixed line platform.

As mobile operators are increasing bandwidths of their Internet services, VoIP will become a competing service in this sector, too. In fact, Skype, the leading VoIP service provider, has already introduced mobile clients for handsets for use by customers to further expand its service capabilities.

- **Commercial convergence:** In the early years of the mobile markets, mobile services were priced at a significant premium compared to fixed line services. Today, as a result of competition, this premium has decreased significantly. Consequently, an increasing number of customers are replacing their fixed line connections with mobile ones.
- **Integrated market approach:** In the past, mobile and Internet pillars within incumbent operators showed only limited interest in co-operating with the fixed line pillar. They were successful, boosting subscribers and revenue, and subsidizing the suffering fixed line operation. In many cases, they even started competitive services, thereby jeopardizing the fixed line business (e.g. fixed line substitution services and VoIP services). (Figure 21)

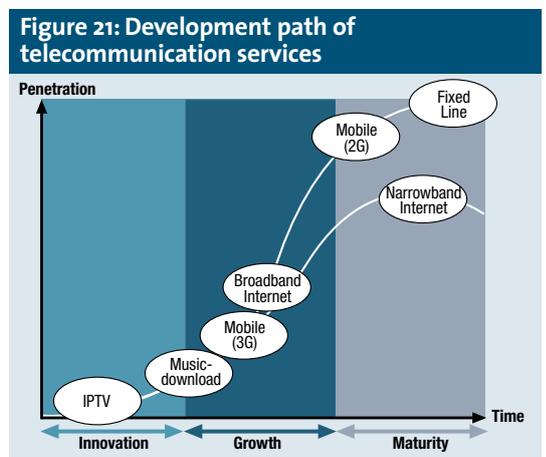
As the situation at many incumbents became serious and as mobile and Internet businesses started facing the same challenges confronting the fixed line business, incumbents started to address the market by offering bundled products that consisted of voice/Internet (“double play”), including TV (“triple play”) and mobile services (“quadruple play”).

In this context, aligning the organizational structure towards a customer-centric organization makes it easier to implement this type of a strategy.

- **Cost pressure:** As a result of decreasing growth rates, competition in the various markets has increased significantly. To remain competitive and to allow for further price reductions, incumbents are forced to exploit savings potential by harmonizing operational platforms and generating economies of scale. While operations within the pillars have already been optimized to a certain degree, optimizing operations across the various pillars may provide additional potential.

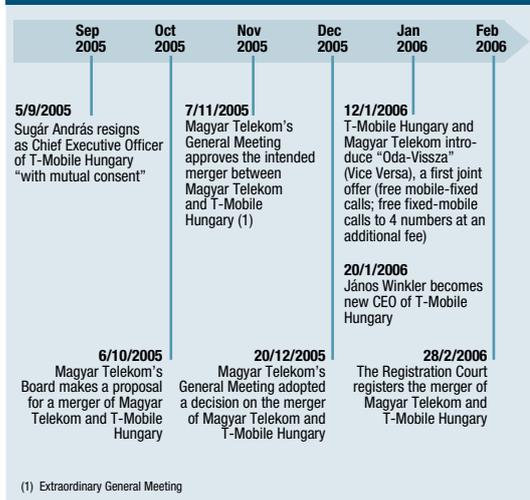
## Summary

- As the various market segments move towards maturity, incumbents are reshaping their structures from service-oriented to customer-oriented ones.
- By combining fixed line, Internet and mobile operations, incumbents can differentiate themselves through attractive product bundles, while simultaneously tapping substantial synergies on an operational level.



(goetzpartners; Consolidus)

**Figure 22: Merger process between Magyar Telekom and T-Mobile Hungary**



(company information; goetzpartners; Consolidus)

## 2. Merger between Magyar Telekom and T-Mobile Hungary

### Merger Process

In Hungary, Magyar Telekom followed the international trend by evolving into an integrated telecommunication services provider. In fact, the company took integration one step further by operationally re-integrating its mobile unit, T-Mobile Hungary, into the group: (Figure 22)

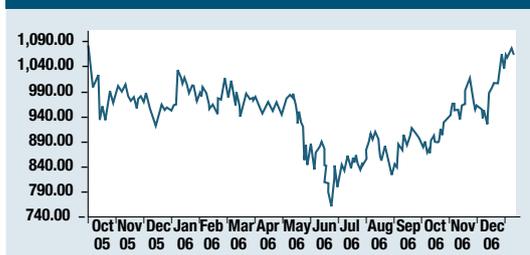
The merger between Magyar Telekom and T-Mobile Hungary was proposed by Magyar Telekom's board in October 2005, one month after the resignation of Sugár András, the Chief Executive Office and "founder" of T-Mobile Hungary.

The merger was approved quickly in two extraordinary general meetings in November and December 2005 and subsequently registered at the Registration Court in February 2006.

On the stock market, the merger did not lead to major reactions. In contrast, other events affected Magyar Telekom's stock performance (and resulted in a slowed down operational integration until recent months): (Figure 23)

- The CFO was appointed as the new CEO of Deutsche Telekom's Polish investment on September 5, 2006.
- The CEO of Magyar Telekom resigned on December 5, 2006.
- The CHRLO resigned on January 24, 2007.
- Magyar Telekom was subjected to SEC investigations over dubious consulting contracts in Montenegro; as a result, the 2005 financial statements could not be finalized until December 21, 2006.

**Figure 23: Magyar Telekom stock price in HUF BUD (3/10/2005 - 31/12/2006) - Data**



(thomson; goetzpartners; Consolidus)

In terms of transaction technique, the merger was executed in a very professional manner with the new company being registered only five months after Magyar Telekom board's merger proposal had been announced. However, the operational integration is proving to be more challenging than the legal integration.

### Expectations

Magyar Telekom called the merger to be "... in line with the medium-term strategy [...] with the use of group-level synergies as one of the key pillars." (Magyar Telekom press release, 6/10/2005)

The expectations associated with the merger were high:

“The merger will facilitate capitalizing on the Magyar Telekom Group’s value creation possibilities that can be sustained also in the long term, with special regard to **keeping and extending the customer base, optimizing efficiency and cost levels and using** the advantages offered by **new innovative technologies**. As a result, the combined annual financial **benefit is expected to reach several tens of billions HUF<sup>3)</sup> within a few years.**”

*(Magyar Telekom press release, 6/10/2005)*

### Results

Up to now, Magyar Telekom has not published any financial results generated by this merger, which indicates that realizing synergies is obviously a difficult task. However, it may be assumed that over time the company will move towards a structure with centralized service functions and will benefit from the merger in the mid- to long-term.

## Summary

The merger between Magyar Telekom and T-Mobile Hungary was expected to lead to synergies on both the cost and revenue side. As no results of the merger have been published so far, it may be assumed that the task of re-aligning structures has turned out to be a difficult one. One can expect that structures will be re-aligned over time to exploit operational synergies. Although revenue-side integration has already begun as demonstrated by the emergence of the first mobile-fixed line product (MobileHome in late 2005) as well as standardizing the retail T-Point chain, the key challenge lies in integrating service development.

### 3. Implications for Other European Incumbents

Magyar Telekom’s situation is similar to that of other European incumbents. The company has managed to defend a leading position in all relevant sectors: fixed line, mobile, Internet and – in addition – cable TV, but is facing increased competition.

In this competition, re-integrating fixed line and mobile activities provides two major opportunities:

3) As of May 2006, HUF 1 billion equal approx. EUR 3.8 million or US\$ 4.8 million.

- By merging and streamlining operations that were previously run separately, substantial **cost synergies** can be realized:
  - Increased purchasing power (de facto better coordination of procurement activities) will lead to lower purchase prices.
  - Integrated sales will lead to higher efficiency and provide a one-stop shop for customers.
  - Joint call centers supported by a joint CRM system will increase both effectiveness and efficiency.
  - Joint shared services supported by common systems will result in uniform processes and higher economies of scale.

Although these synergies could also be realized by more closely coordinated entities or a shared services center, a merger promises the highest efficiency in realizing cost synergies with the group having direct control over the integration process.

- In most markets, incumbents are the only providers that operate both fixed line and mobile networks. Bringing these networks together puts incumbents in a unique position of being able to provide truly integrated fixed-mobile products and to differentiate themselves in the market with a **unique product portfolio** (as long as they are not required to provide these services to their competitors). As a result, this product portfolio could support revenue growth or at least slow down decreased revenue trends.

However, developing these integrated products might turn out to be difficult since mobile and fixed line operations have typically been run separately for over a decade and both operations have developed different cultures that may be difficult to reconcile.

Apart from these rather soft aspects, two hard facts will represent true challenges in the integration process:

- Cannibalization of existing products  
One can expect that integrated and bundled fixed-mobile products will add only limited value to the customer (one bill, one voice mail etc.). Consequently, these products will have to be sold at a discount compared to existing products.

As a result, incumbents may end up cannibalizing their own revenue base with every customer that switches from separate fixed line and mobile products to an integrated or bundled product.

- Interconnection charges

Today, mobile operators benefit from a significant difference between fixed-mobile and mobile-fixed interconnection charges. In fact, a substantial share of revenue and profit is generated by fixed-mobile interconnection charges.

This structure hinders the introduction of a truly integrated fixed-mobile product since incumbents would give away substantial revenue (a fact that the customer might not even appreciate since costs for fixed-mobile calls are borne by the calling party). Furthermore, incumbents would put themselves in the regulation's spotlight since regulators are already pushing mobile operators to lower fixed-mobile interconnection charges.

## Summary

- While it may be assumed that merging fixed line and mobile operations will lead to significant cost benefits, benefits on the revenue side are hard to predict.
- Nevertheless, goetzpartners and Consolidus recommend re-integrating the various operations of incumbents and re-shaping corporate structures from service- to customer-oriented structures since
  - optimizing cost structures is a “must” for incumbents (as well as for all other service providers).
  - incumbents have a unique combination of fixed and mobile assets that allows them to push for fixed-mobile convergence (that will happen anyway).
  - one can expect the market to honor efforts focusing on customers rather than on services.

# Breaking up the Value Chain

## Could reselling models boost competition in the Hungarian market?

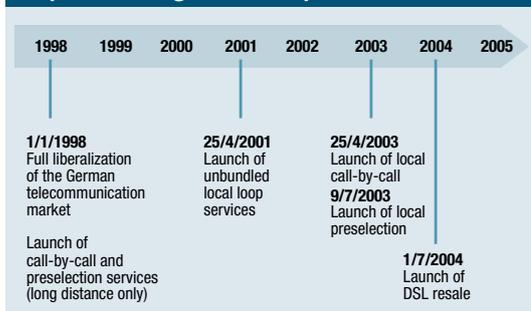
### 1. Case Study: Reselling Models in the German Market

In Germany, two fundamentally different types of new entrants compete with Deutsche Telekom, the German incumbent: infrastructure-based service providers and resellers<sup>4</sup>).

- **Infrastructure-based service providers** provide services based on their own infrastructures without routing traffic via a third party's network (except for off-net traffic). In the fixed line and Internet segments, they build up their own national networks and connect their customers either directly or via unbundled local loops (building up metropolitan networks and accessing the customers via a leased copper line at an infrastructure level). In the mobile segment, they operate complete mobile networks (mobile network operators) or build up mobile networks except for radio access networks, purchasing access capacity from mobile network operators (virtual mobile network operators).

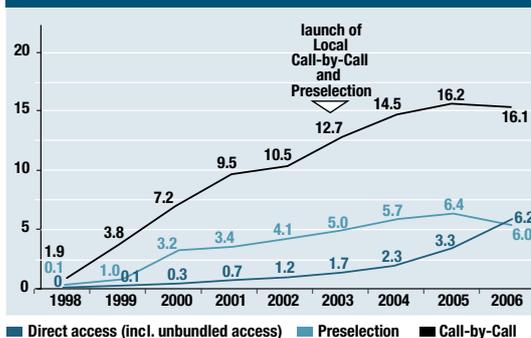
- **Resellers** focus their activities on reselling services of other service providers, typically the incumbents. In the fixed line segment, resellers operate as long distance service providers, providing call-by-call and preselection services based on their own long distance network, originating and terminating calls via the incumbent. In the Internet sector, the German regulator required Deutsche Telekom to provide competitors with DSL services for resale. In the mobile sector, two different business models exist. In one, mobile service providers resell mobile network operator's services by means of co-branding. In addition to sales, mobile service providers also handle billing and customer care functions. In another model, resellers (e.g. retail chains) market mobile services under their brand, but leave all other parts of the value chain to mobile network operators.

**Figure 24: Liberalization path – steps towards greater competitiveness**



(goetzpartners; Consolidus)

**Figure 25: Number of customers of new entrants in million**



(VATM/Dialog Consult; goetzpartners; Consolidus)

The fixed line and Internet sectors are closely regulated by the Federal Network Agency (Bundesnetzagentur), since Deutsche Telekom is considered to be a dominant market power. As it turns out, the German regulator paved the way for resellers to operate in these sectors. (Figure 24)

Regulation of the mobile sector is much looser since none of the mobile network operators is considered to be a dominant market power (although

<sup>4</sup>) In this section, cable TV operators are not considered, since the German cable TV market is characterized by some peculiarities.

T-Mobile and Vodafone have had market shares in excess of 40% in the past). While the German regulator imposed the mobile service provider-related business model as part of the GSM licensing process, reselling (and MVNO) business models have evolved as a result of the mobile sector's increased maturity and, therefore also increased competition. Especially smaller mobile network operators are willing to open their network to new business models to reduce overcapacities in their infrastructure.

**Fixed Line**

Once the German telecommunication services market became fully liberalized, competition was primarily driven by resellers (long distance service providers), whose services were limited to long distance and international calls at that time. The vast difference between retail prices and interconnection charges in combination with limited investment requirements (literally speaking, providers required a switch and an interconnection agreement with Deutsche Telekom) attracted numerous providers.

(Figure 25)

Because of this competition, retail prices fell dramatically within only a few months, in particular in the long distance and international sectors.

(Figure 26)

To encourage competition in local areas where it had previously been limited in the early years of market liberalization, the German regulator required Deutsche Telekom to provide local call-by-call and pre-selection services by 2003.

Again, the market share of new entrants rose significantly within months, topping the 33% mark in 2005. (Figure 27)

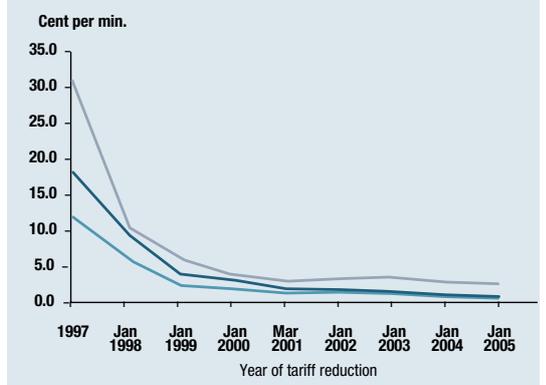
At the same time, retail prices for local calls came down as a result of competition (although price reductions in absolute numbers have been less spectacular as local calls were priced significantly below long distance and international calls).

**Internet**

Until 2003, Deutsche Telekom had a considerable lead over everyone else in the DSL market (accounts for more than 90% of the broadband Internet market in Germany). At that time, many competitors claimed that high prices for unbundled access combined with low retail prices for T-DSL, Deutsche Telekom's DSL product, would not leave room for cost-covering competing products of new entrants.

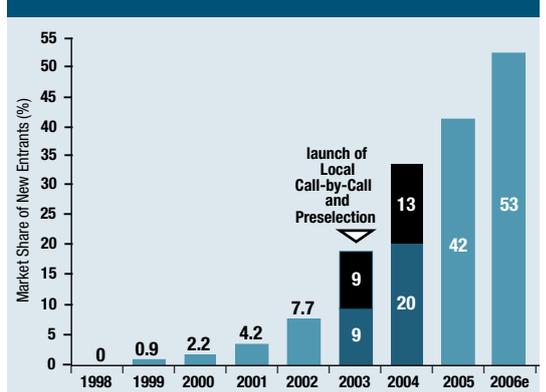
This situation changed when the German regulator imposed reduced charges for unbundled access and required Deutsche Telekom to provide its T-DSL service for resale. (Figure 28)

**Figure 26: Standard tariffs Call-by-Call (weekdays)**



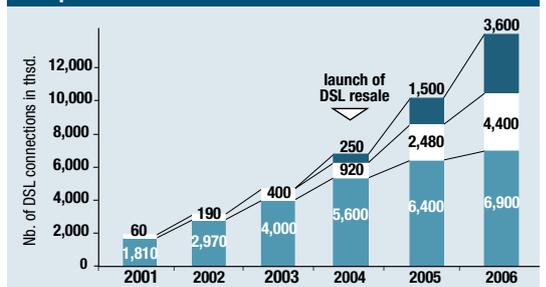
(Bundesnetzagentur; goetzpartners; Consolidus)

**Figure 27: Market share of new entrants in %**



(Bundesnetzagentur; VATM/Dialog Consult; goetzpartners; Consolidus)

**Figure 28: Development of DSL connections in operation in thsd.**



(Bundesnetzagentur; goetzpartners; Consolidus)

The resale requirement especially has intensified competition in the DSL market with DSL resale lines accounting for 40% of the new DSL lines in Germany's market in 2006.

Since most providers offer their DSL services with a VoIP option, the success of DSL resellers also impacts the fixed line (voice) market. As a consequence, VoIP services that typically allow free on-net calls become a major threat for conventional fixed line operators in Germany. In fact, long distance service providers focusing on the most price-sensitive market segments might even be forced out of the market in the foreseeable future.

### Mobile

In the mobile sector, mobile service providers played an important role in developing the market. In recent years though, as market growth slowed, mobile network operators strove to increase the share of direct customers to maximize their share of customer value (although in some cases the sales performance of mobile service providers exceeds sales performance of mobile network operators). Mobile service providers are struggling to hold their ground in this competitive environment, since contracts between mobile network operators and mobile service providers are rather restrictive.

In fact, the ratio of customers of mobile service providers compared to direct customers has dropped from about two thirds in the early years of the GSM market to about one third today.

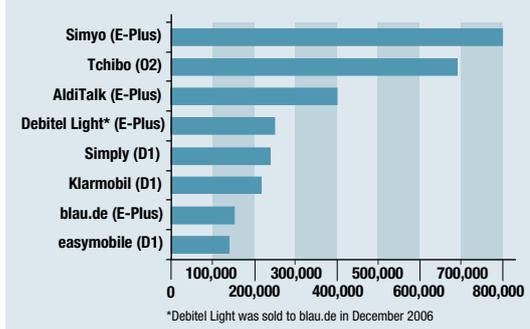
Despite this development, a new reselling model evolved in the German market (in addition to mobile virtual network operator models that operate an infrastructure-based business model as defined in this section).

Branded resellers that market mobile services under their own brand and unbranded resellers that market mobile services under the mobile network operator's brand established themselves in the market. Differing from mobile service providers that operate billing and customer care platforms (and limited service platforms), these resellers focus exclusively on sales, receiving a sales commission from the mobile network operator.

Resellers typically have strong consumer brands and sales organizations that are positioned to market mobile services. From a mobile network operator's perspective, resellers complement their own inhouse sales organization without demanding a major share of the value chain. Furthermore, there is no risk that resellers will cannibalize the mobile network operator's products, since pricing is controlled by the mobile network operator.

As of today, several resellers have entered the market. Tchibo, the first reseller on the market in October 2004, has established itself as the most successful independent reseller in the German mobile market. (Figure 29)

**Figure 29: Number of mobile reseller subscribers (2006)**



(Financial Times; teletarif; Drillisch; goetzpartners; Consolidus)

## Summary

- From a macro-economic perspective, competition at the infrastructure level is necessary since it is a prerequisite for the infrastructure's continued improvement. On the other hand, multiple redundant networks that are only utilized at a fraction of their capacities make no sense from an economic point of view.
- Particularly in markets that are shared between a small number of dominant providers (or ruled by monopolies), building up an additional infrastructure is not a feasible option for potential new market entrants. Giving new entrants access to resale services of providers with dominant market power at reasonable costs can effectively stimulate competition.
- The German market proves that reselling requirements foster competition and improve the provision of telecommunication services in two ways. First, retail prices fell as soon as resellers entered the market. Second, penetration rates grew considerably as a result of these price decreases, but also as a result of intensified sales activities.

## 2. From Vertical to Horizontal Business Models

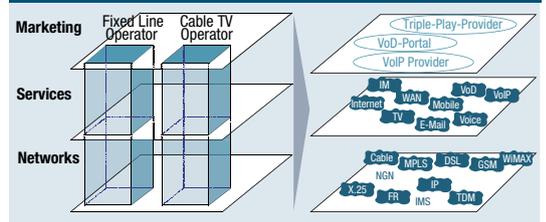
Generally, a trend is emerging whereby vertical business models in which providers cover the whole value chain from networks to marketing are being replaced by horizontal business models in which providers focus on one or more layers of the value chain (e.g. marketing of services).

As a result of this trend, resellers enter the market and focus on marketing telecommunication services from different providers (e.g. mobile services from Vodafone and Internet services from Deutsche Telekom). In many cases, these providers operate networks with complementary platforms (e.g. GSM networks, WiFi networks from different providers, WiMAX networks). In other cases, they are positioned as enablers that operate service, billing and customer care platforms only and utilize access networks of various network operators, and eventually also across different sectors. (Figure 30)

## Summary

- By covering only selected layers of the value chain, the various providers focus on their core competencies (retail chains -> sales; network service providers -> service platforms; network operators -> building and maintaining networks).
- In combination, they provide a service superior to those of conventional providers (e.g. better sales capabilities, lower network cost by sharing the infrastructures with multiple service providers and so on).

**Figure 30: From vertical to horizontal business models**



(Bundesnetzagentur; goetzpartners; Consolidus)

### 3. Regulatory Framework in Hungary

As outlined in Section 1, the telecommunications infrastructure in Hungary is run by a small number of operators that dominate the fixed line, mobile and Internet sectors.

Given the market structure, new infrastructure assets (UMTS and WiMAX) have not attracted the interest of new providers.

On the regulatory side, provisions for non-facility-based operators are rather limited:

- Reselling requirements currently exist only in the **fixed line area**, where LTOs are required to provide call origination and call termination services to long distance service providers like Tele2.
- In the **mobile** sector, mobile service network operators are not required to provide any kind of reselling services (reselling, mobile service provisioning, mobile virtual network operators, etc.).
- In the **Internet** area, no DSL resale requirement exists.

## Summary

Since the telecom infrastructure is concentrated in the hands of a few dominant operators and given that Hungarian regulations only support long distance service provisioning in a shrinking fixed line market, incentives for new non-facility based competitors to enter the market are fairly limited.

### 4. Scenarios for Resellers in the Hungarian Market

goetzpartners and Consolidus believe that reseller business models could have a major impact on the Hungarian telecommunication services market.

#### ■ Fixed Line

In the fixed line sector, the Hungarian regulatory framework already permits reseller business models. However, reseller activities are limited with Tele2 being the only major provider in the market.

The reluctance of potential new entrants is explained by the limited appeal of the fixed line market, which is being infringed by mobile and Internet services.

However, a reselling requirement in the Internet and mobile segments might be of considerable interest to foreign investors and local companies alike.

## ■ Internet

A DSL resale requirement could attract the interest of **foreign investors** who could then provide DSL and VoIP services nationwide without having to make major infrastructure-related investments.

Furthermore, **regional incumbents** would be able to provide DSL and VoIP services in areas of other regional incumbents without making major investments in their own infrastructure. As a consequence, regional incumbents could position themselves as national providers.

**Cable operators** could complement their own infrastructure by means of a virtual DSL infrastructure. Again, this would allow them to position themselves as national service providers.

Finally, **retailers** could leverage their brands and sales capabilities by entering the Internet and voice market without requiring in-depth technical expertise.

## ■ Mobile

Other European markets, including Germany, indicate that reseller models in the Hungarian mobile sector would attract interest from fixed line and cable operators that would be able to supplement their service portfolio with a mobile component, international investors (e.g. Virgin Mobile), and local non-telco players, like retailers, that would be able to enter the telecommunication services market.

## Summary

- Developments in other European markets indicate that resellers could play an important role in (re-)intensifying competition in the Hungarian telecommunication services market.
- One might expect that particularly the Internet and mobile sectors could attract new providers as soon as reselling becomes available from incumbent operators in the Hungarian market.
- Given the current structure of the Hungarian market where a small number of dominant players are holding on to their respective market share, the existing providers have little incentive to invite new providers to enter the market on a reseller basis.
- Therefore, it would be up to the Hungarian regulator to initiate reseller business models by imposing reselling requirements on Internet and mobile service providers with dominant market power.

# The IP Threat

## To what extent are IP-based services a threat to established telecommunication service providers?

### 1. IP-Services on Closed Platforms

As outlined in Section 1, IP-based services are making their way into the Hungarian market.

The trend was initiated by cable operators that upgraded their infrastructure to provide broadband Internet and, as a natural complement, VoIP services. In fact, all cable operators in Hungary have currently launched IP-based telecommunication services (including T-Kábel, the subsidiary of the leading incumbent Magyar Telekom).

Since these services were promoted as being free of charge (in terms of free on-net calls), fixed line operators were forced to follow the VoIP trend by introducing VoIP services as well – jeopardizing their conventional fixed line services.

In a new phase of the ongoing competition, fixed line operators like Magyar Telekom are going after cable TV operators on their home turf by launching TV services via the Internet (IPTV).

However as of September 2006, 347,000 Hungarian cable households had access to broadband Internet infrastructure; it is reasonable to expect that the number of households having access to IPTV services in the near future will be significantly lower.

### Summary

- IP technology in combination with broadband infrastructure has paved the way for the convergence between cable and fixed line segments, enabling providers in both segments to provide their customers with a full range of telecommunication and content services (triple play).
- Although the level of competition will increase in both segments as a result of this convergence, goetzpartners and Consolidus believe that it does not represent a serious threat to them since more competition in the respective core segments is at least partially compensated by new business opportunities in the other segment. Furthermore, both types of providers operate similar business models – a fact that will promote fair competition.

## 2. IP-Based Services on Open Platforms

Of greater concern from a network operator’s perspective is the rise of competitors, like Skype, that are seeing tremendous success (although this success is based more in terms of subscribers than in terms of profit) thanks to their business models which are applied outside the conventional telecommunications realm.

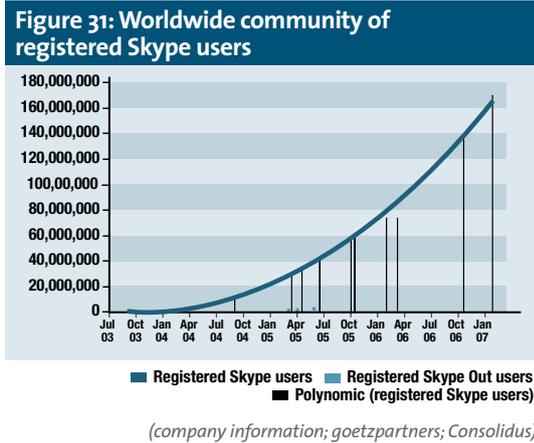
Skype was founded by Niklas Zennström and Janus Friis as a global telecommunication service provider in 2003. The company launched a free peer-to-peer VoIP service in August 2003. Subsequently, Skype gradually introduced premium services, including call termination to the public telephony network (Skype Out), mailbox services, ring tone download services and so on that users have to pay for.

The worldwide community of registered Skype users (as of January 2007, the service was available in 28 languages including Hungarian) has grown rapidly since and exceeded 150 million users by the end of 2006! (Figure 31)

Skype’s service is based on the existing broadband Internet infrastructure and adds a separate IP-based service, intentionally jeopardizing the business of conventional fixed line operators.

“The idea of charging for calls belongs to the last century. Skype software gives people new power to affordably stay in touch with their friends and family by taking advantage of their technology and connectivity investments.” (Niklas Zennström, CEO and co-founder of Skype)

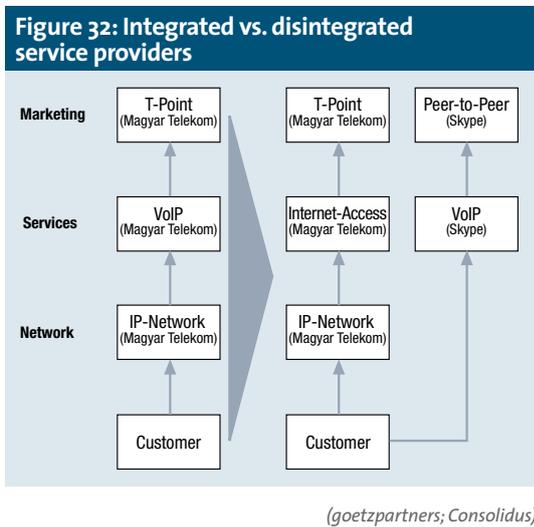
In October 2005, the company was acquired by eBay in a transaction worth EUR 2.1 billion.



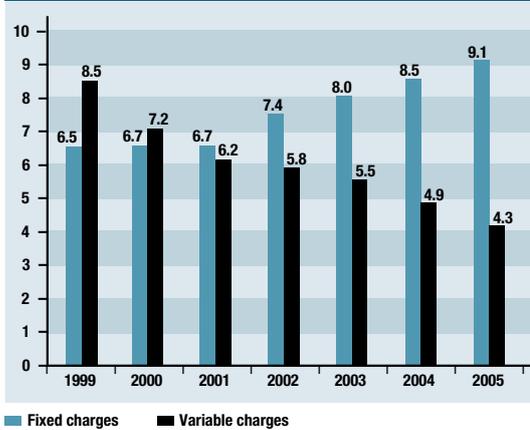
While new business models currently introduced in many European markets tend to separate network and services from marketing (NetCo – ServeCo business models as outlined in Section 4), the business models of open-platform IP service providers take it one step further by separating the service layer from the network layer.

Since the Internet is set up as an open platform (and since Internet connectivity is typically charged at flat rates nowadays), IP-based service providers are able to offer their services at no cost (for the access part of their services). (Figure 32)

IP-based service providers obviously have to provide some services at cost to make their business worthwhile. However, providing the access part of their services free of charge gives them a substantial advantage over conventional service providers, especially in the eyes of customers.



**Figure 33: Charges for telecommunications services in Germany in million EUR**



(Bundesnetzagentur; goetzpartners; Consolidus)

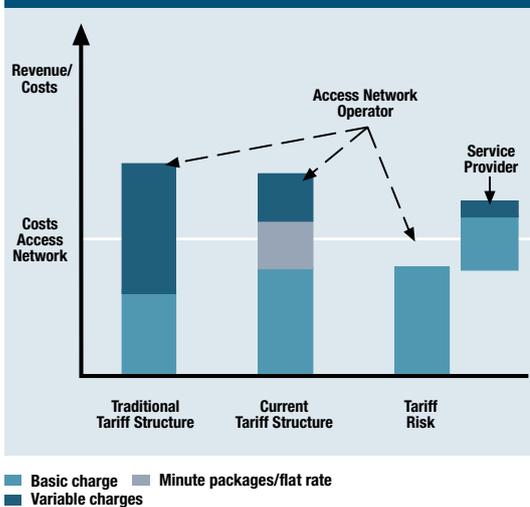
Conventional service providers struggle to compete with companies like Skype because their tariff schemes are not set up to compete with this type of rival. Despite introducing “Klip” (a “Skype-like” service launched by T-Online in 2006), these types of services have not been established in any meaningful scale in Hungary so far.

In the course of competition with resellers like Tele2, access service providers have re-balanced their tariff schemes towards higher fixed charges (basic charges, minute packages and flat fees). In the German market for instance, where access providers have been competing with resellers for several years, the ratio between fixed and variable charges has changed completely. (Figure 33)

However, conventional service providers still rely on variable charges for the time being to cover their costs.

In a worst case scenario, a customer signs up for a DSL connection with an access service provider, but draws Internet connectivity and voice services from another provider. In this case, access service providers find themselves in a position where they might not cover their costs. (Figure 34)

**Figure 34: "Revenue gap" of facility-based telecoms**



(goetzpartners; Consolidus)

The threat, exemplified by Skype as a new competitor in the voice market, also applies to IPTV services currently rolled out by Magyar Telekom.

To succeed in the market with its IPTV service, Magyar Telekom is relying on attractive premium content for its channels and on-demand services.

In traditional business models, TV content has been marketed indirectly via free TV and pay-TV stations (of which some were run by cable TV operators). In the future, content providers will be able to market their content directly via the (broadband) Internet, thus bypassing IPTV platform providers. In this scenario, broadband Internet platform providers would not participate in content revenues, thereby losing an important revenue source required to amortize infrastructure investments.

This risk has been realized by several access service providers. AT&T and Deutsche Telekom have requested (additional) charges from IP-based service providers as a contribution to their broadband infrastructure costs. However, it is doubtful whether regulatory authorities will impose a respective obligation for non-facility based ISPs.

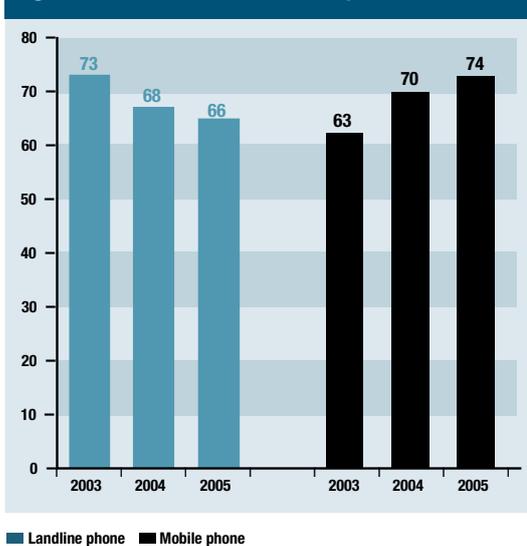
## Summary

- The spread of broadband Internet networks enables providers of IP-based services to roll out services on third-party infrastructures on a large scale.
- Since the tariff schemes of fixed line operators are not suited to compete with these new rivals, IP-based services represent a serious threat to their business.
- Fixed line operators tend to seek protection from these new competitors (“promote infrastructure investments for the benefit of the economy”), but one can expect that these claims will not endure. Instead, despite intense competition, fixed line providers will have to increase fixed charges for access services in their markets to align their tariff schemes with the new competitive environment.
- Making this alignment a reality will put access service providers in a position to compete on a level playing field. However, competition at the marketing and services levels will increase significantly in the future.

## All Wireless

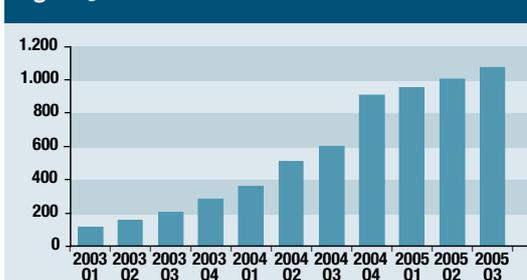
### Do future mobile technologies provide a mechanism to challenge the incumbent's dominant position?

Figure 35: Fixed line and mobile penetration in %



(National Communications Authority Hungary; goetzpartners; Consolidus)

Figure 36: Number of GPRS users in thsd.



(National Communications Authority Hungary; goetzpartners; Consolidus)

Figure 37: Data turnover of GPRS usage



(National Communications Authority Hungary; goetzpartners; Consolidus)

As outlined in Section 1, the mobile sector in Hungary experienced tremendous growth over the last several years, but is now moving towards saturation. As the fixed line market decreases at the same time, the question arises as to whether mobile services will continue to substitute fixed line services in the future.

A direct comparison between fixed line and mobile penetration levels shows that a decrease in one sector correlates closely with an increase in the other. (Figure 35)

Mobile phones have become a commodity for households today. With prices decreasing, they have become viable substitutes for landline phones. Generally ending their landline contracts or not even having a landline installed, smaller households and younger users especially turn to mobile phones as the only means of voice communication.

For Magyar Telekom, the only operator providing both fixed line and mobile services, this substitution trend causes an income shortfall since the fixed line ARPU of around EUR 24/month exceeds the EUR 19/month mobile phone ARPU, which has decreased nearly 50% since 1999.

Broadband Internet services provided on GSM networks are also spreading rapidly, although these are not competing with fixed line Internet services yet. GSM-based broadband services target primarily the casual user and they are relatively pricey. Broadband services are not differentiated in terms of technology type: the user's handset capability determines whether GPRS, EDGE or 3G is utilized. Prices are around EUR 10-25 for a 200- to 300-megabyte package per month.

All three GSM providers own a UMTS license, with a fourth license still available. T-Mobile and Pannon GSM are the leaders in mobile broadband services, with Vodafone following close behind as its broadband network expands. GPRS is present countrywide, EDGE coverage exists in most major cities, and 3G technologies completed their test runs in late 2005. As one can see, the intense competition among service providers portends a rapid countrywide expansion in the near future. UMTS is currently available in larger cities and areas with more affluent customers, like Budapest, Debrecen and around Lake Balaton. (Figures 36, 37)

Apart from 3G-related services, other options are also available for offering wireless broadband services in either fixed, nomadic, or ultimately mobile modes similar to GSM networks. (Figure 38)

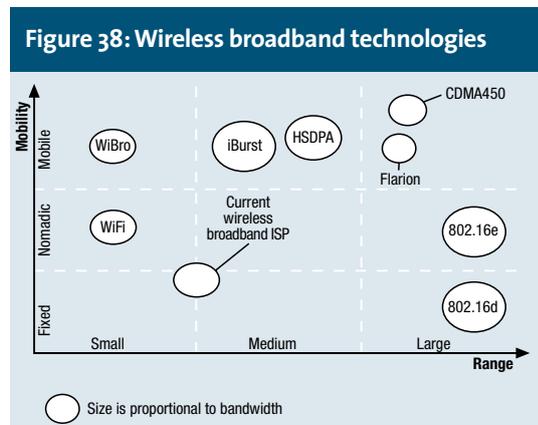
3.5 GHz WiMAX frequencies are owned by Magyar Telekom, Antenna Hungária, Invitel, Pantel and GTS in Hungary, but no service based on this technology exists yet. The technology is standardized and offers large cell coverage as well as high and almost symmetrical download and upload speeds. It is thus a viable option for wireless broadband solutions. Major players in the telecommunications industry have expressed an interest in having WiMAX services introduced in the near future to cover areas without an existing wired infrastructure. Another possible use for this technology might result from combining a WiMAX overlay network with existing WiFi technologies to create an integrated telecommunications network.

Out of the non-GSM related wireless broadband solutions, WiFi is the most widespread in Hungary. Currently, there are three major players on the market: T-Com, T-Mobile and Wiera. T-Com is primarily focusing on restaurants and cafes; T-Mobile provides WiFi services at airport locations; and Wiera is concentrating mainly on hotels and conference locations. There are a total of 500 fee-based hotspots in Hungary, with about another 250 free hotspot locations operated by other market players. The “traditional” WiFi services offered by the major players include wireless broadband Internet access, VPN over public WiFi, IP VPN for corporate internal communications, and complex tailor-made conference packages. (Figure 39)

Since the WiFi frequencies are free and do not require a license, they can also be used by small, local Internet providers or larger ADSL retailers to offer residential Internet services to people living in areas not covered by a wired (cable and ADSL) infrastructure. These wireless Internet providers usually only have a few hundred to several thousand customers, and serve only a limited region. Such WiFi-based fixed broadband solutions lag behind wired services in terms of bandwidth (512 kbps connections are still the most frequent offers), and since the frequency is free, the service can be disturbed and is difficult to guarantee.

As outlined in Section 1, the 450 MHz spectrum is currently unused in Hungary. In other European countries (e.g. Czech Republic, Romania and Portugal), this very efficient spectrum has been made available to mobile operators that provide GSM-type mobile service, e.g. based on CDMA 450 technology.

Prices charged by wireless providers vary widely and depend heavily on available fixed line offers. Where no physical infrastructure is available, they can offer broadband Internet as a premium service for those who



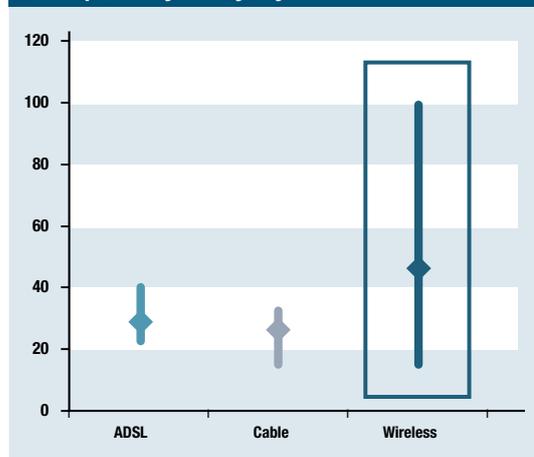
(goetzpartners; Consolidus)

**Figure 39: Selection of hot spot operators**

|                                      | T-Com   | T-Mobile  | WIERA   |
|--------------------------------------|---|---|---|
| <b>Total nb. of Hotspots</b>         | 207<br>- Chargeable: 191<br>- Free: 16                                  | 91<br>- Chargeable: 89<br>- Free: 2                                 | 159<br>- Chargeable: 157<br>- Free: 2   |
| <b>Deployed nb. of access points</b> | ~ 630   | ~ 300   | ~ 600   |
| <b>Main locations</b>                | 3 star hotels concentrated in Budapest, Pizza Hut and Kentucky FC chain | Budapest Airport and few 4 - 5 star hotels concentrated in Budapest | 4 - 5 star hotels concentrated in Budapest, country wide McDonalds chain, gas stations, conference centers and shopping malls |
| <b>Provided services</b>             | Mainly wireless broadband Internet access services                      | Only wireless broadband Internet access services                    | Wireless broadband Internet access services, conference projects, VPN over WiFi   |
| <b>Owned by</b>                      | Magyar Telekom  | Magyar Telekom  | Privately owned   |
| <b>Operation started in</b>          | 2004  | 2004  | 2003  |

(goetzpartners; Consolidus)

**Figure 40: Monthly price ranges in EUR, 512 kbps, for 1 year loyalty**



(company information; goetzpartners; Consolidus)

badly need a broadband connection. The wireless broadband market has not been consolidated yet, but large players are showing their intention to launch countrywide networks in the near future. (Figure 40)

## Summary

- As mobile penetration has already reached a considerable level in Hungary, mobile operators need to adjust their strategies to address new growth potential. In this context, three options exist:
  - Take away customers from rival providers in a cut-throat competition
  - Introduce new services (e.g. mobile TV, mobile gaming)
  - Substitute other services (e.g. fixed line services)
- The last option has proven to be successful in the past. However, new technologies and changing customer behavior require new solutions in the Internet sector.
- Therefore, it will be essential to develop intelligent, affordable broadband Internet services in the future. In this context, new frequencies and new technologies will play an important role in providing these services in an efficient and economically viable manner.
- Apart from network operators and equipment manufacturers, the Hungarian regulator will determine to what extent mobile technologies will be competitive in a new IP realm.

# Leveraging the Cable

## Will cable operators play a dominant role in the Hungarian telecommunication services market?

### 1. Case Study: The German Cable Market

With about 23 million cable households, Germany is the largest cable TV market in Europe. Despite the large number of customers, the German market is less developed than many other European cable markets. The reason for this situation is two-fold:

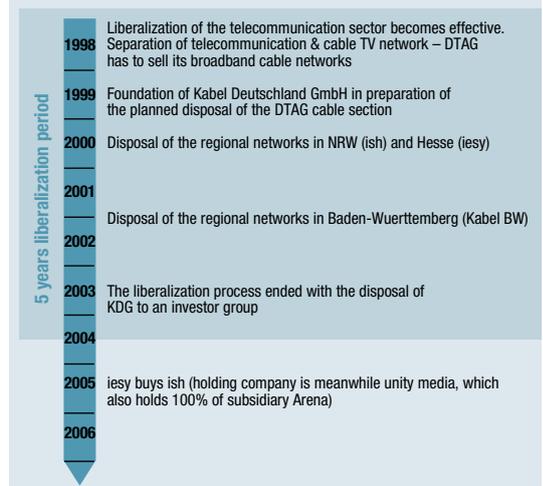
- The **privatization** of Deutsche Telekom's level 3 cable TV network took significantly longer than in other markets. Furthermore, privatization was structured as an auction of regional cable TV networks instead of an "en bloc" transaction. As a result, it took 5 years from the time of the EU Commission's resolution to separate telecommunications and cable infrastructures until Deutsche Telekom's cable TV networks became fully privatized. Ultimately, the network was divided into four parts and sold to different financial investors: (Figure 41)

- ish (North Rhine-Westphalia)
- iesy (Hesse)
- Kabel BW (Baden-Wuerttemberg)
- Kabel Deutschland (rest of Germany)

- The German cable TV market is characterized by a peculiarity: In contrast to other cable TV markets, **ownership of level 3 and level 4 networks is split**. While regional monopolies own level 3 networks (regional distribution networks up to the transition point next to the customer's home), the "last mile" to the customer (level 4) is typically owned by smaller cable service companies or the housing industry. As a result, level 3 operators have limited end user access. Kabel Deutschland for instance has 10.3 million connected homes on a level 3 layer, but only direct access to 3 million end customers. (Figure 42)

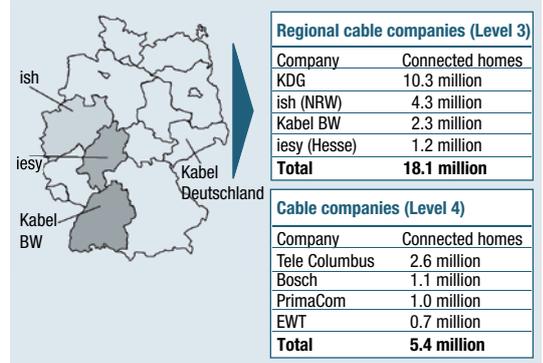
Besides limited end user access, infrastructure improvement and product development prove to be difficult due to the split ownership situation. If a cable operator upgrades its network to offer new services and the owner of the "last mile" is not willing to invest in an upgrade at its network layer, these new services cannot be made available to the customer. Therefore, cable operators and the "last mile" owners had to develop a close relationship to overcome any structural disadvantages.

Figure 41: Liberalization process



(KDG; goetzpartners; Consolidus)

Figure 42: Regional coverage of German cable operators

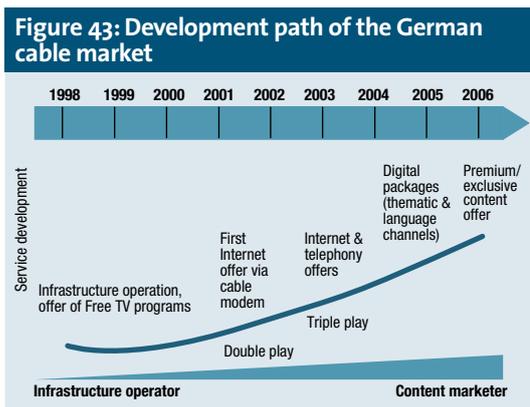


(dpa; goetzpartners; Consolidus)

Despite these obstacles, the German cable market became increasingly dynamic – an attribute resulting primarily from three strategies executed by level 3 cable TV operators:

- **Consolidation:** Consolidation among level 3 operators (acquisition of ish by iesy, following an insolvency of ish in 2005), level 4 operators (acquisition of Kabelfernsehen München ServiCenter by Pepcom GmbH in 2005) as well as between level 3 and level 4 operators (acquisition of Telecolumbus by iesy in 2005, acquisition of Fernseh-Elektronik Heinloth by Kabel Deutschland in 2004) created bigger organizations and brought together level 3 and level 4 networks in selected areas.
- **Vertical Expansion:** Level 3 operators invested in their infrastructure and upgraded their networks from analogue to digital systems. This upgrade was a prerequisite for increasing the number of broadcast channels and providing additional capacities for their own premium content products (e.g. theme channels and international channels).

In a further step, Unity Media, the parent company of ish and iesy, further expanded its activities from marketing pre-packaged channels to producing and marketing its own exclusive content by acquiring the broadcast rights for Germany's premier soccer league for three seasons starting in 2006/07<sup>5)</sup>. To secure access to this asset in the future, the German Football League was given a 10-percent call option in Arena, Unity Media's subsidiary that markets these assets.



(KDG; goetzpartners; Consolidus)

- **Expanding into the telecommunications market:** Having made additional investments in their infrastructure, level 3 operators upgraded their networks to enable telecommunication services (as a prerequisite, the networks have to provide a back-channel for bi-directional communications). By the end of 2005, 6 million homes had access to telecommunication services via cable (voice and Internet services). By that time also, cable operators provided telecommunication services to more than 240,000 subscribers.

As a consequence, cable operators have become serious competition for telecommunication service providers (and to Premiere, the leading pay-TV provider in the German market). (Figure 43)

5) With a market share in excess of 90%, the German pay-TV market is dominated by Premiere.

Unity Media attacked this position by acquiring exclusive broadcast rights for premier soccer in Germany (the most important premium content) at the end of 2005. This move led to Premiere's stock price plummeting by up to 50% in one day.

In the following months, Unity Media learned that they had the content rights, but not the necessary capabilities to market the content on a larger scale. As a result, Unity Media entered into a partnership with Premiere for marketing these rights via satellite and, in a recent second step, even via cable. This second step was combined with an equity participation of Unity Media in Premiere of 16.7%.

Over the long term, Unity Media might even take over full ownership of Premiere via its Arena subsidiary.

## Summary

- Deutsche Telekom succeeded in staving off competition from cable TV operators until their own broadband access product (based on DSL technology) was successfully established in the market.
- Despite their late market entry, regional limitations and the split ownership of level 3 and level 4 networks, cable TV operators have evolved as serious competitors for “traditional” telecommunication service providers.
- In a converging market of triple-play product offerings, cable TV might evolve to become the leading technology from the onset. Cable operators already provide content to the customer (although in a different business model), they own attractive (although not 100% exclusive) premium content, and they are prepared to market their services at aggressive prices.

## 2. Cable Market in Hungary

As outlined in Section 1, Hungary has a well-developed cable infrastructure with 78% of the households having access to cable TV service (not considering satellite services) and approx. 55% of the households having subscribed to cable TV services.

Given that cable TV operators enjoy a quasi-monopolistic position and that penetration rates grew at unspectacular but stable rates in the recent past, most of them feel like they are in a very comfortable position.

However, cable TV operators are facing new challenges:

- According to the latest forecast of the National Communications Authority, **penetration will reach its peak in 2007** with 59%. From 2008 onward, decreasing penetration rates are expected.
- **A new player, Digi TV, entered the pay-satellite market** in early 2006 with a very aggressive pricing strategy and gained 30,000 customers in only a few months. UPC direct, the only other player in the pay-satellite market, had to reposition its offers and decrease prices. With these two satellite offers available everywhere, cable TV companies are losing their quasi-monopolistic position.
- **DVB-T might emerge as an additional threat** by providing a broader range of free TV channels in return for a limited investment cost to households.

The major providers are aware of these challenges and are responding by introducing triple-play products to address additional revenue potential.

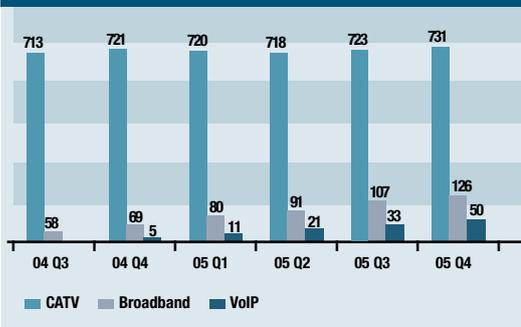
**Figure 44: Cost synergy in UPC's bundled offers**

|                                | Monthly fee for VoIP | Reduction % |
|--------------------------------|----------------------|-------------|
| VoIP (standalone)              | HUF 2,400            | ( - )       |
| VoIP and Cable TV              | HUF 2,100            | - 12.5%     |
| VoIP and Internet              | HUF 1,490            | - 38.1%     |
| VoIP and Cable TV and Internet | HUF 1,190            | - 50.4%     |

(UPC; goetzpartners; Consolidus)

UPC can handle approximately 1 million homes in its service area. A bi-directional infrastructure can reach about 0.9 million homes. Since UPC already has an infrastructure in place, the company is in a position to provide these households with telecommunication services at very favorable costs. (Figure 44)

In fact, the number of households subscribing to UPC's Internet and voice services has risen substantially within a few years. (Figure 45)

**Figure 45: Number of UPC customers in thsd.**

(UPC; goetzpartners; Consolidus)

The relatively high share-of-wallet shows that Hungarian clients are very price-sensitive which would make bundled product offers attractive for them. However, due to the limited network size of the cable TV service providers the offers are limited: calls within the own VoIP service network are free from additional charges whereas calls to another network are not. This reduces the consumers' convenience feeling of having to deal with just a single service provider. Triple play can contribute to retaining the customers and increasing the ARPU. However, the key question is when and how Magyar Telekom will start offering bundled products. Having a possible revenue decrease due to bundled offers in mind, Magyar Telekom has been pursuing a "reluctant follower" strategy. Its cable TV division has introduced bundled products but has not yet exploited its quadruple-play potential so far.

## Summary

- Due to their existing infrastructure, Hungarian cable TV operators are predestined to enter the voice and Internet market.
- While smaller operators might not be able to upgrade their infrastructures (network and service platforms), the leading cable operators might play a dominant role in the fixed line telecommunications market (and, if reselling business models become available, in the mobile market).
- On the other hand, fixed line operators, in particular T-Com, have already launched a counter-offensive by introducing IPTV.
- goetzpartners and Consolidus expect the level of competition in the TV, voice, and Internet area to increase. At the same time, a new level of consolidation among cable TV operators could come, with the large cable operators consolidating smaller operators that do not have the resources to upgrade their infrastructure to the next level.

# Closed shop?

## Is there room for new telecommunication service providers in the future?

### 1. Market Structure

In Hungary, all first-tier providers are owned by international telecommunication groups:

- In the **fixed line** sector, Magyar Telekom, the former incumbent which successfully defended its stake in the market, is owned by the largest European incumbent, Deutsche Telekom.
- In the **mobile** sector, all mobile network operators are owned by leading international players: T-Mobile is ultimately owned by Deutsche Telekom, Vodafone Hungary by Vodafone and Pannon by Telenor.
- In the **Internet** sector, the dominating provider, T-Online, is also ultimately owned by Deutsche Telekom. The second major competitor coming from the cable sector, UPC Hungary, is ultimately owned by Liberty Global.
- Finally, the two leading **cable** operators are again owned by Liberty Global (UPC Hungary) and Deutsche Telekom (T-Kábel).

Even the second-tier competitors are owned by larger international groups: Antenna Hungária by TDF, GTS DataNet by GTS Central Europe, FiberNet by Warburg Pincus (as a financial investor) and Tele2 by the Tele2 Group.

### Summary

In comparison to other Eastern European countries, not a single telecommunication service provider in Hungary of any considerable size is owned by Hungarian or at least Eastern European players.

### 2. Recent M&A Activities

An analysis of transactions completed between January 2003 and May 2007 shows that Magyar Telekom (Deutsche Telekom), GTS Central Europe and Hungarotel (Tele Danmark) acted as consolidators in the Hungarian market, thereby tightening the current market structure.

This consolidation includes intra-sector transactions (e.g. Hungarian Telephone and Cable Corp, which owns Hungarotel, acquiring Invitel) as well as inter-sector transactions (Hungarian Telephone and Cable Corp acquiring Euroweb Hungary, a leading Internet service provider).

Magyar Telekom was the only Hungarian operator that broadened its scope to neighboring countries by acquiring majority stakes in Telekom Montenegro (Montenegro) and Stonebridge (Macedonia).

## Summary

Recent transactions have tightened the current market structure, thereby widening the gap between leading operators in the various market segments and their competitors.

### 3. Options for New Players Entering the Picture

Given its structure, the Hungarian telecom market seems to be a closed shop, effectively locking out new players. In regard to the regulatory environment and the current market shares, entering the market by founding a new business does not seem very promising.

Since the leading providers in the various market segments are owned by international operators that are under no pressure to dispose their investments, market entry through a major transaction appears rather unlikely in the short term. Entering the market by acquiring one or more second-tier providers appears difficult, as most of these providers are already owned by international operators. Furthermore, most of the second-tier providers do not have the sought-after critical size.

As a result, goetzpartners and Consolidus see only two “long shot” options for entering the Hungarian telecom market:

- A change in Hungarian regulations might pave the way for new business models, especially non-facility-based operators, to get their foot in the door. In this context, retail chains, international operators and others could compete with LTOs and mobile network operators on a service and marketing & sales layer.
- As consolidation continues at an international level, international shareholders of Hungarian operators will have to review their international strategy as it pertains to their Hungarian investments. Should these shareholders decide on withdrawing from the Hungarian market, an opportunity for new entrants might arise.

## Summary

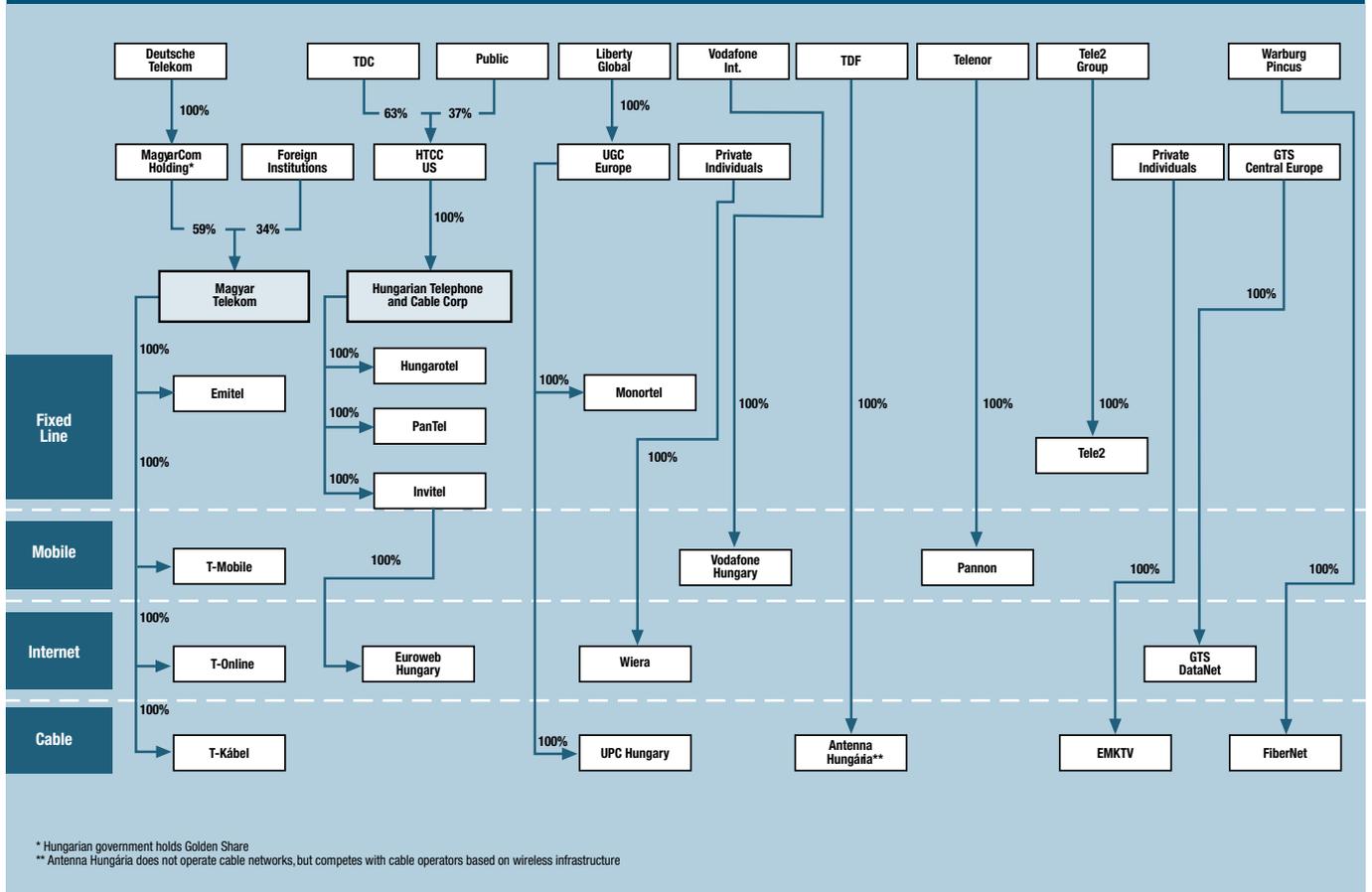
goetzpartners and Consolidus see only two “long shot” options for new entrants to the Hungarian telecommunication market: either the Hungarian regulator paves the way for new business models to get a foothold in the market or one of the existing leading operators withdraws from the Hungarian market as a result of its international strategy.

**Figure 46: Appendix – Selected transactions (January 2003 - May 2007)**

| Date           | Target name                        | Country    | Acquirer name                           | Vendor name                 | Enterprise value (in millions) | Sales multiple | EBITDA multiple |
|----------------|------------------------------------|------------|---|-----------------------------|--------------------------------|----------------|-----------------|
| May 9, 2007    | Antenna Hungária                   | Hungary    | TFD                                     | Swisscom AG                 | EUR 326.5                      | n/a            | n/a             |
| Jan. 9, 2007   | Invitel Tavkozlesi                 | Hungary    | Hungarian Telephone and Cable Corp      | Matel Holding NV            | EUR 469.7                      | n/a            | 6.1x            |
| Jan. 1, 2007   | T-Systems Hungary (2% stake)       | Hungary    | Magyar Telekom                          | T-Systems Int. GmbH         | EUR 0.2                        | n/a            | n/a             |
| June 16, 2006  | KFKI Group                         | Hungary    | Magyar Telekom                          |                             | EUR 35.8                       | 0.6x           | 6.4x            |
| Dec. 19, 2005  | Euroweb Hungary                    | Hungary    | Invitel Tavkozlesi                      | Euroweb Int. Corp.          | EUR 25                         | n/a            | n/a             |
| Dec. 14, 2005  | Quadia DCT                         | Hungary    | GTS Central Europe                      |                             | n/a                            | n/a            | n/a             |
| Dec. 13, 2005  | Dataplex Kft                       | Hungary    | Magyar Telekom                          |                             | EUR 19.8                       | n/a            | n/a             |
| Dec. 7, 2005   | NextraCzech                        | Hungary    | GTS Central Europe                      | Telenor ASA                 | n/a                            | n/a            | n/a             |
| Nov. 29, 2005  | Orbitel Inc.                       | Hungary    | Magyar Telekom                          |                             | EUR 8                          | 0.9x           | 7.3x            |
| Mar. 12, 2005  | Telekom Montenegro (51% stake)     | Montenegro | Magyar Telekom                          | Government of Montenegro    | EUR 223                        | n/a            | n/a             |
| Oct. 22, 2004  | Stonebridge (remaining 7.4% stake) | Macedonia  | Magyar Telekom                          | Cosmo Telco S.A.            | EUR 31.4                       | n/a            | n/a             |
| Sept. 27, 2004 | Pan Tel Rt                         | Hungary    | Hungarotel Rt                           | KPN NV<br>MÁV<br>KFKI Group | EUR 93.8                       | 1.0x           | n/a             |
| Aug. 5, 2004   | FiberNet                           | Hungary    | Warburg Pincus LLC                      | Argus Capital Partners      | EUR 59.8                       | n/a            | n/a             |
| July 16, 2004  | T-Systems Hungary (49% stake)      | Hungary    | Magyar Telekom                          | T-Systems Int. GmbH         | EUR 27.8                       | n/a            | n/a             |
| June 9, 2004   | Elender                            | Hungary    | Euroweb Int. Corp.                      |                             | n/a                            | n/a            | n/a             |
| Jan. 7, 2003   | Invitel Tavkozlesi                 | Hungary    | AIG Emerging Europe Infrastructure Fund | Veolia Environment SA       | EUR 325                        | n/a            | n/a             |

(Thomson; goetzpartners; Consolidus)

Figure 47: Appendix – Shareholder structure



(company information; goetzpartners; Consolidus)

## Table of Figures

|           |  |    |
|-----------|--|----|
| Figure 1  | Real Growth Rate in % (2006)                                       | 8  |
| Figure 2  | GDP per capita in thsd. EUR (2006)                                 | 9  |
| Figure 3  | Privatization process  | 10 |
| Figure 4  | Market size carrier services (2005)                                | 14 |
| Figure 5  | “Share of Wallet” – Carrier service expenditure as % of GDP (2005) | 14 |
| Figure 6  | Market volume by sector in million EUR                             | 15 |
| Figure 7  | Fixed line penetration in % of households                          | 15 |
| Figure 8  | Fixed line – ARPU in EUR per month                                 | 15 |
| Figure 9  | Development of Magyar Telekom’s RUO                                | 16 |
| Figure 10 | Market shares fixed line operators in % of subscribers (Q1/2006)   | 17 |
| Figure 11 | Mobile penetration in % of population                              | 17 |
| Figure 12 | Mobile – ARPU in EUR per month                                     | 17 |
| Figure 13 | Mobile operator market share in %                                  | 18 |
| Figure 14 | Internet penetration in % of households                            | 19 |
| Figure 15 | Internet – ARPU in EUR per month                                   | 19 |
| Figure 16 | Internet market shares in %  | 19 |
| Figure 17 | Cable TV penetration in % of households                            | 21 |
| Figure 18 | Number of CATV companies   | 21 |
| Figure 19 | Cable TV market shares in %  | 21 |
| Figure 20 | Development path of Deutsche Telekom                               | 26 |
| Figure 21 | Development path of telecommunication services                     | 27 |
| Figure 22 | Merger process between Magyar Telekom and T-Mobile Hungary         | 28 |
| Figure 23 | Magyar Telekom stock price   | 28 |
| Figure 24 | Liberalization path – steps towards greater competitiveness        | 32 |

|           |  |    |
|-----------|--|----|
| Figure 25 | Number of customers of new entrants in million                       | 32 |
| Figure 26 | Standard tariffs Call-by-Call (weekdays)                             | 33 |
| Figure 27 | Market share of new entrants in %                                    | 33 |
| Figure 28 | Development of DSL connections in operation in thsd.                 | 33 |
| Figure 29 | Number of mobile reseller subscribers (2006)                         | 34 |
| Figure 30 | From vertical to horizontal business models                          | 35 |
| Figure 31 | Worldwide community of registered Skype users                        | 39 |
| Figure 32 | Integrated vs. disintegrated service providers                       | 39 |
| Figure 33 | Charges for telecommunications services in Germany<br>in million EUR | 40 |
| Figure 34 | “Revenue gap” of facility-based telecoms                             | 40 |
| Figure 35 | Fixed line and mobile penetration in %                               | 42 |
| Figure 36 | Number of GPRS users in thsd.  | 42 |
| Figure 37 | Data turnover of GPRS usage  | 42 |
| Figure 38 | Wireless broadband technologies                                      | 43 |
| Figure 39 | Selection of hot spot operators                                      | 43 |
| Figure 40 | Monthly price ranges in EUR, 512 kbps, for 1 year loyalty            | 44 |
| Figure 41 | Liberalization process   | 45 |
| Figure 42 | Regional coverage of German cable operators                          | 45 |
| Figure 43 | Development path of the German cable market                          | 46 |
| Figure 44 | Cost synergy in UPC’s bundled offers                                 | 48 |
| Figure 45 | Number of UPC customers in thsd.                                     | 48 |
| Figure 46 | Selected transactions (January 2003 - May 2007)                      | 52 |
| Figure 47 | Shareholder structure  | 53 |

## About goetzpartners

With about 150 employees in Munich, Düsseldorf, Frankfurt, London, Madrid, Moscow, Paris and Prague, goetzpartners ranks as one of the leading independent consultancy firms in Europe. By offering profound expertise in the fields of corporate finance (goetzpartners CORPORATE FINANCE), management consulting (goetzpartners MANAGEMENT CONSULTANTS) and interim management (goetzpartners INTERIM MANAGERS) under one roof, goetzpartners combines deep functional expertise with a unique market approach. goetzpartners MANAGEMENT CONSULTANTS focuses on strategy, sales and marketing management, operational excellence, business development, strategic due diligence and public private interface management. goetzpartners CORPORATE FINANCE is focused on M&A, corporate finance, fairness opinions/valuations and corporate partnering advisory. goetzpartners INTERIM MANAGERS assumes responsibility for the achievement of results defined in restructuring and growth programs.

In the Indian market, goetzpartners has joined forces with Avendus Advisors, one of the leading investment banks in India. In Hungary, goetzpartners has formed an alliance with Consolidus to provide management consulting and corporate finance advisory services in the Hungarian market.

goetzpartners stands for innovative consulting approach and tailor-made solutions that are successfully implemented together with their clients.

Additional information is available at [www.goetzpartners.com](http://www.goetzpartners.com).

# About Consolidus

Consolidus Business Consulting is a Hungarian management consulting firm founded by experienced consultants in early 2003 to provide corporate finance and management consulting services. Consolidus offers a broad range of consulting services primarily to clients in the TMT sector, including strategic advice, strategic due diligence, cost optimization, organizational development, corporate restructuring as well as procurement and real estate management optimization.

For additional information, please refer to [www.consolidus.com](http://www.consolidus.com).

## Disclaimer

The report is not based on primary research conducted by goetzpartners and Consolidus, but on public information taken from different sources, including reports, press articles, expert interviews, databases, and company publications.

In preparing this report, goetzpartners and Consolidus have relied upon and assumed, without independent verification, the accuracy and completeness of information from these public sources.

goetzpartners and Consolidus point out that, if only limited, partly outdated, and/or inconsistent information was available on the topics covered in this report, they amended this information by own analysis and assumptions. goetzpartners and Consolidus accept no liability whatsoever for the accurateness of these analyses or assumptions.

This report should not be used as sole source of information for any decisions related to the topics covered in this report. Any information taken from the report should be verified independently and completed by information from additional sources.

This report does not carry any right of publication.

June 2007



# Contacts

goetzpartners and Consolidus

goetzpartners  
MANAGEMENT CONSULTANTS GmbH  
goetzpartners  
CORPORATE FINANCE GmbH  
Prinzregentenstraße 56  
80538 Munich  
Germany  
T: +49 - 89 - 29 07 25 - 0  
F: +49 - 89 - 29 07 25 - 200

[www.goetzpartners.com](http://www.goetzpartners.com)

Consolidus Business Consulting Ltd.  
Dorogi u. 48.  
Budapest 1106  
Hungary  
T: +36 - 1 264 - 24 12  
F: +36 - 1 264 - 24 12

[www.consolidus.hu](http://www.consolidus.hu)

