Global Communications Newsletter

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Wireless Access: A Solution for Late Liberalized and Price Sensitive Markets!?

By Nicolae Oaca, Romania

Two technologies were competing before Romanian telecommunications liberalization in January 1, 2003: fixed telephony and mobile telephony. After liberalization at least other two technologies, cable TV (CATV) and digital enhanced cordless telecommunications (DECT), may enter the access market.

Fixed Telephony by Liberalization

In the last 13 years, Romanian fixed telephony has had a poor evolution in comparison with other Central European countries: lower penetration, lower digitalization, and so on. This is largely due to the fact that in the past RomTelecom collected insufficient revenues to maintain the system properly, because of incoherent tariffs, far lower than necessary to recover the cost of an efficient system. By the end of 2002, RomTelecom's (now 54 percent owned by Greece's OTE) results were:

- Low penetration — approximately 20 percent, 4.3 million phone lines
- Still a long waiting list and waiting time for a phone
- Low digitalization — 72 percent, but improving
- Delayed tariff rebalancing
- Low productivity — 140 main lines/employee
- Stagnating revenues — some US$200/line in the last few years, too low for rapid investment reimbursement

A government decision passed in 1998 established the price cap formula for tariff adjustment permitting changes in response to inflation or exchange rates, and an increase in real terms of up to 5 percent/year. Accordingly, in 1999 RomTelecom increased tariffs quarterly, facing strong criticism, so since 2000 they had to renounce increasing tariffs according to the formula, resulting in a tariff reduction in real terms. For instance, if one takes into consideration the inflation rate, tariffs were decreased 11.4 percent in 2000, 10.2 percent in 2001, and 6.0 percent in 2002. Tariff rebalancing remains one of RomTelecom's main problems in the recently liberalized market, with a strong impact on the company's investment capacity.

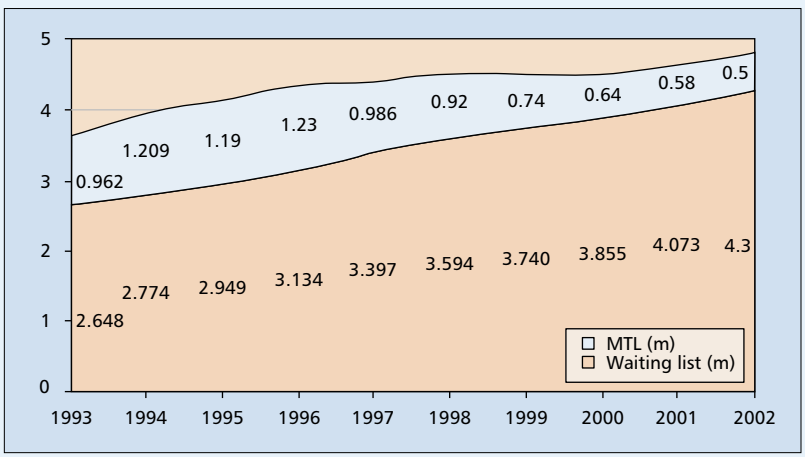

Figure 1. *MTL (millions).*

Mobile Telephony: The Main Driver of Romanian Telecommunications

The mobile industry has experienced two very distinct periods in its 10-year history. The first monopolistic period was disappointing as a single NMT450 operator failed to develop the market. The second duopolistic period started in 1997 when two GSM900 operators launched their services, showing high growth rates despite poor macroeconomics. The third period, competition, has yet to start.

Telemobil: From NMT450 to CDMA 2000 in 450 MHz

Telefonica Romania was the first Romanian mobile telephony operator to launch its NMT450 service, Telemobil, in April 1993. By the end of 1996 they had some 20,000 subscribers, or 0.09 percent penetration rate, covering 40 percent of the population.

On May 25, 1999, Telemobil launched a new service, SunTel, based on low emission mobile system (LEMS) technology, also operating in the 450 MHz band. One month after relaunching, Telemobil attracted 5000 new subscribers for a total of some 15,000 subscribers, while by the end of 1999 Telemobil had fewer than 20,000 subscribers. Behind the second failure one could find not only poor investments.

On December 7, 2001, Telemobil launched a new service, Zapp Mobile, based on code-division multiple access (CDMA2000) technology using the same band, 450 MHz, the first such network in the world. Zapp Mobile provides voice, data transmissions at 153 kb/s, mobile Internet, Web access, HTML Web page visualization, and dedicated business solutions. By the end of March 2003, Zapp Mobile covered

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85 percent of the urban population due to an investment of over US$300 million and has some 120,000 users. Due to lower specific investment, the tariffs of voice services are lower than fixed telephony tariffs.

GSM900 Operators: The Drivers of Romanian Telecommunications

In December 1996 two GSM900 operating licences were awarded. MobiFon launched its Connex service after four months on April 15, 1997, and Mobil Rom launched its service, Dialog, two months later, on June 6. Each company invested some US$800 million to roll out a network covering now more than 95 percent of the population and some 80 percent of the surface. In early October 2003, Connex added the three millionth mobile user, while Mobil Rom, which last year rebranded its services Orange, had 2.92 million by the end of September 2003. Both operators provide data transmission using General Packet Radio Service (GPRS) and recently launched mobile multimedia service (MMS), and together have 96 percent of the market. Behind the success of GSM900 operators is the presence of international players in the shareholders structure: Orange in Orange Romania, Vodafone and TIW in Connex.

CosmoRom: The First Failure in the European Mobile Business?

The first GSM-1800 Romanian mobile operator, CosmoRom, 100 percent owned by RomTelecom, was licensed in December 1998 and commercially launched in March 2000. CosmoRom had some 80,000 mobile users in mid-2003, its historical maximum being some 110,000 in 2001. Besides decreasing in subscriber base, CosmoRom reported losses and had problems with loan payments. Behind its poor results, one could find a too delayed launching process (16 months compared to four months for Connex!), too low financing and network rollout (coverage under 60 percent). All these are due to the lack of a strategic partner with experience in mobile telephony and competitive markets, able to rise funds in international markets. A recent declaration from Athens announced the intention to shut down CosmoRom. This could be the first failure in the European mobile GSM market!

In 2002 mobile telephony was the performer of Romanian telecommunications due to a 33.3 percent increase in the subscriber base to 5 million mobile users or 23 percent penetration. Furthermore, the growth rate in mobile subscribers — 900 percent in 1997, 220 percent in 1998, 110 percent in 1999, 80 percent in 2000, and 54 percent in 2001 — seems to be among the highest in Europe.

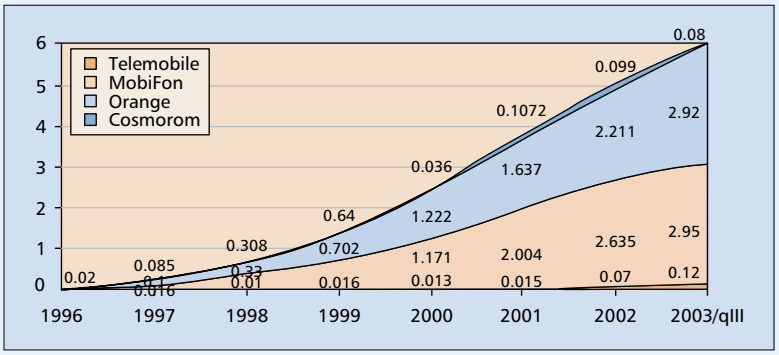

Figure 2. *Mobile users in Romania (millions).*

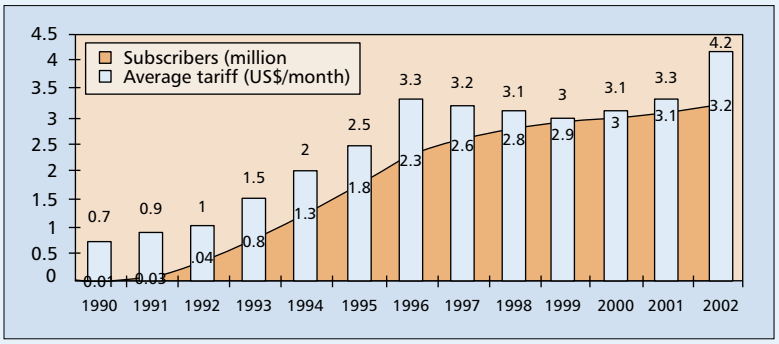

Figure 3. *Romanian CATV.*

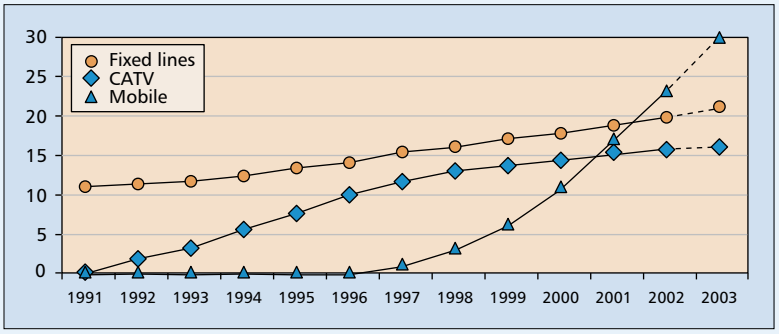

Figure 4. *Penetration of alternative technologies in Romania (percent).*

Cable TV Operators: Preparing for Telecommunications Liberalization

With over 3.2 million subscribers (45 percent penetration of households), Romania is ranked sixth in Europe mainly due to low monthly rates (US$4) not in line with European tariffs. In the last years, the turnover of industry has increased continuously to some US$130 million in 2002.

Services offered include TV channels, data transmission, and Internet access. The modernized networks (optical fiber in a trunk network) work in 720 or 860 MHz band to permit bundled services: 100 TV channels, Internet, data, and telephony. The cable industry is profitable, but net profit is too small to support network modernization, so raising funds is the main problem for the time being. Concentration is a characteristic of the last years, raising the market value of a cable company from US$15–20/subscriber in 1991 to US$80–120/subscriber, three groups now holding 55 percent of the market.

Among investors one can find Romanian and foreign cable operators and investment funds. Romania Cable Systems (RCS) has over 0.7 million subscribers in Romania, Slovakia, and Hungary, and a 22–24 percent market share in Romania, its shareholders structure being two investment funds, Austria's EPIC and U.S. Quadrant, each owning a 30 percent stake. Astral Telecom had some 0.65 million subscribers and a 20 percent market share, 25 percent owned by AIG New Europe Fund, negotiating a US$10 million loan with EBRD. UPC, majority owned by cable operator UPC of Holland, has a 10 percent mar-

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ket share.

The market liberalization planned for January 1, 2003, triggered a race. The main players have already started the restructuring process, replacing coaxial cable with optical fiber and targeting smaller players. Last year, market leaders had pilot projects aiming to field trial telephony or data (Internet included) transmissions.

On the Horizon: Limited Mobility by DECT

On July 1, 2003, Atlas Romania, a company 51 percent owned by U.S. Atlas Telecom, specializing in deregulated markets, launched in Oradea a pilot project on a DECT network. This is the first DECT metropolitan network in the world, aiming to offer low-cost local and international dialing services. Atlas has spent US$8 million to develop the new network using Alcatel Romania's equipment, and intending to expand the project to 19 new cities, including Bucharest, Constanta, Timisoara, Cluj, and Brasov, all early next year. The total planned investment, US$100 million over an eight-year timeframe, will be covered by the company's resources (40 percent), banking loans, and investment funds. They plan to have 30,000 clients by mid-2004 and 1 million over the next three years. The new telephony service, allowing limited mobility within a covered area, is planned to be commercially launched early in August 2003. The DECT solution seems to fit the city's layout: rows of blocks of flats, a high density over a relatively limited area, one antenna reaching three or four buildings. This approach could also work in former socialist countries that used to employ the same pattern of urban planning.

Atlas's gamble is to make money from volume of calls, arguing that their cost structure will allow them to turn a profit on a lower ARPU than that existing in today's Romania. Atlas announced it would offer unlimited calls over the network for a monthly flat fee in an American style attempt to make local calls a commodity. When the network expands into other cities, the same tariff scheme may blur the line between intercounty and local calls, which may result in further damage for RomTelecom. DECT phones are fancier, thinner, and more fashionable than traditional handsets. Last but not least, DECT phones cost less than GSM handsets: for a batch of 1 million devices the price tag is about €50 per item compared to an average of €100 for mid-market GSM phones. The only problem is that the residential market segment Atlas wants to target is conservative and less inclined to accept new things.

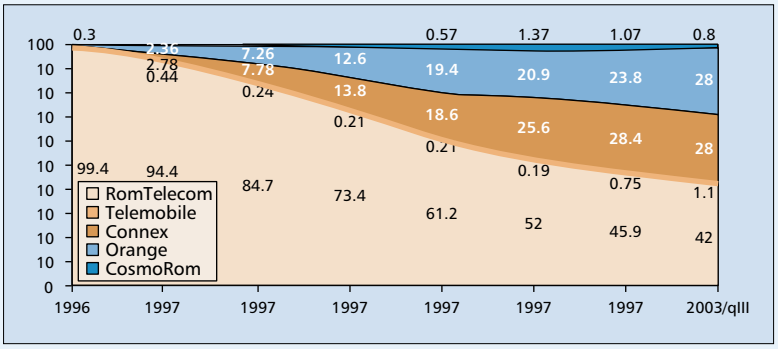

Figure 5. *Telephony market share (percent).*

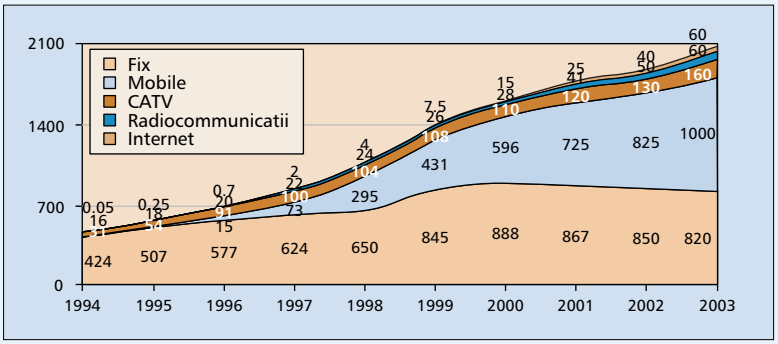

Figure 6. *Romanian telecom turnover (US$million).*

For the time being, Atlas runs a voice-only network, but there are plans for the service range to be enhanced with email, voice mail, and short message service. Atlas Telecom would buy its fiber optics capacity from Orange Romania, while Belgacom and Matav are taking over Atlas' international traffic.

Romanian Telecommunications Industry

Despite the poor economic macro-environment of the last years, the Romanian telecommunications industry has experienced continuous growth, mobile telephony being its main driver. Mobile density has doubled in the last two years.

Now the majority of phones in Romania are connected in mobile networks, which have continuously increased the subscriber base over the last years.

Due to postponed tariff rebalancing, most RomTelecom' revenues are coming from the local market, while for mobile telephony it is difficult to split revenues between local and long distance. CATV and Internet service provider (ISP) revenues came, before liberalization, from non-voice services.

	RomTelecom	GSM900	CDMA450	CATV	DECT
Potential market	Households	Persons	Persons	Households	Persons
Investment - US$/line	~600	200–300	200–300	200–400	100 (?)
Peak hours tariffs (US$)	0.03	0.10	0.02		
ARPU (US$/year) in 2003	~200	~220		50 (TV)	
Revenues for US$100 invested	~33	70–100			
Turnover in 2002 (US$m)	850	825	15	130	
Estimated turnover in 2003	820	1,000	30	160	

Table 1.

Competing Technologies in the Access Network

The Romanian market is one of the most permissive in Europe, open to almost all technologies; CATV, NMT450, GSM LEMS, CDMA, and

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DECT have found here a trial field. Moreover, the Romanian liberalized market benefited from no entry barriers (no charge for license, numbering, etc.), so some 1500 companies filed requests to be granted a license to operate fixed telephone services.

For the time being, only two technologies are competing to provide local access: classical fixed telephony and mobile telephony; while very soon, maybe this year, two other technologies could enter the local market: CATV and DECT. Which will be the successful technology in a price-sensitive market like the Romanian one? Of course, the technology able to deliver quality services at the lowest tariffs.

Classical telephony seems no longer to be attractive, since it requires the highest investment, while RomTelecom is still rather slow. One year before deregulation they stopped investment.

This is why those best positioned to take advantage of deregulation are mobile operators. Mobile technologies, addressing individuals rather than households, have the highest potential market, theoretically 100 percent of the population, practically 80 percent, compared to 30–40 percent for technologies addressing families. Also, GSM operators seem best positioned for fixed-mobile convergence.

GSM900 operators have built a large customer base now benefiting from economy of scale, while lower investment could enable them to continue to decrease tariffs. CDMA450 could be a strong competitor in local access (fixed and mobile), if Telemobil is able to speed up network rollout to provide service to the majority of the population (> 90 percent) and eliminate the existing "technological island."

The newest technology, DECT, if successful technologically at the planned investment level (US$ 100 million for 1 million users), could lead to the lowest investment per user (US$100!!), permitting the lowest tariffs in the market. End users already identify mobile phones as among the most desirable consumer items, and the limited mobility provided by DECT could benefit from the lifestyle image mobile telephony has built up through the years.

Last but not least, POSTelecom, the telecom arm of Posta Romana, could have the advantage of a purely IP network, cheaper to implement and run.

[1] R. Noll, *Telecommunications Reform in Developing Countries*, 2000.
[2] N. Oaca, "Mobile Telephony: The Main Driver of Romanian Telecommunications," *IEEE Commun. Mag.*, GCN, Aug. 2000.
[3] N. Oaca, "What's ZAPPening in Romania," *Mobile Europe*, Mar. 2002.
[4] N. Oaca, "Fixed Telephony: A Social Service or a Business," *IEEE Commun. Mag.*, GCN, Sept. 2003.

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