



State of the art in IMT 2000 in the Central Europe

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- Part II.: ways to the IMT 2000
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State of the art in IMT 2000 in the Central Europe

- Part I: Mobile market in the Central Europe

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Current state of mobile telephony in CE countries

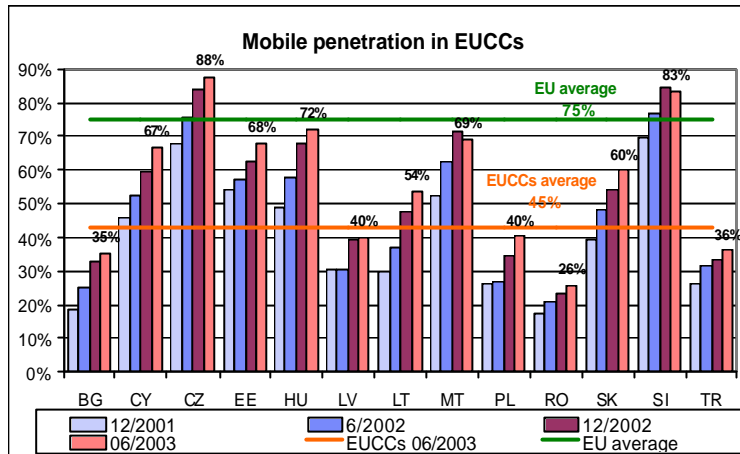
- **GSM networks are reaching saturation point**
- **Operators offer WAP and GPRS services and new handsets are offered**
- **GSM penetration is higher than expected**
- **SMS are extremely popular**
- **3G licenses were issued**
- **Demand for 3G services is unclear**

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Mobile penetration overview

(source: IBM)



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Current state of mobile telephony in CE countries – cont.

- **Operators**
 - 1st operator: incumbent + foreign partner
 - 2nd operator: power companies + foreign partner
 - 3rd operator: financial investors
- **Full coverage of territory**
- **Pressure from shareholders on ROI**

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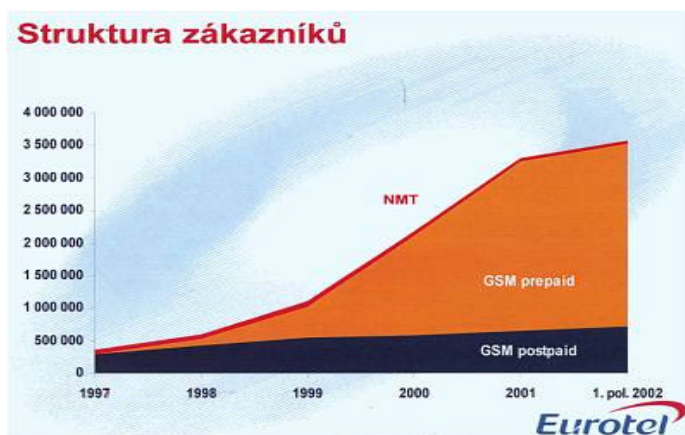
Current state of mobile telephony in CE countries – cont.

- **Operators' strategies**
 - 1st operator: business customers + higher prices
 - 2nd operator: another market segment – young people, prepaid cards
 - 3rd operator: cheap services

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Czech republic> Eurotel's structure of customers



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HUNGARY: *Digital mobile phone market, June 2003*

source: HIF (Hungarian regulatory authority)

Number of digital mobile subscriptions: **7 211 372**
Number of digital mobile subscriptions actually generating traffic: **6 798 159**
Digital mobile subscription per 100 inhabitants: **71,2**

Market share (%)

Vodafone	Westel Mobil	Pannon GSM
14,33%	48,16%	37,52%

(Active mobile SIM cards of the service provider/Total number of active mobile SIM cards)

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HUNGARY: *Digital mobile phone market, June 2003*

Share of digital mobile subscriptions actually generating traffic (%)

- **Vodafone** **10,94%**
- **Westel Mobil** **51,11%**
- **Pannon GSM** **37,95%**
- (Active mobile SIM cards of the service provider actually generating traffic /Total number of active mobile SIM cards actually generating traffic)

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HUNGARY: *Digital mobile phone market, June 2003*

- April 2002: commercial, full-scale Multimedia Messaging Services (MMS)
- A decision on how and when 3G networks are to be launched is to be made in the third quarter of 2003
- 3G networks would be launched in 2005 at the earliest.

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Czech republic mobile market

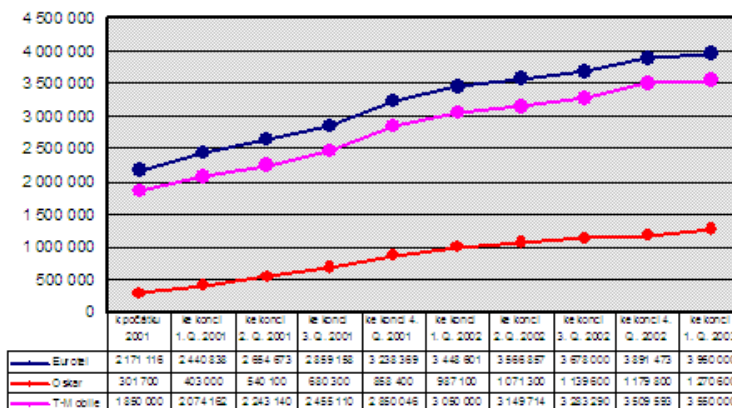
- **Population 10 500 000, number of SIM cards 8 770 600, mobile penetration 80%, number of users 6 million**
- **The most attractive services: mobile e-mail, SMS (CR has the highest number of SMS messages per client – good starting position for MMS)**
- **Price is important**
- **Boom in high speed data through technology GPRS. (Oskar: an increase of 55% in 1.Q 2003, Eurotel: GPRS traffic in May was 8 times higher than in March)**
- **Peak hour for data traffic is between 22 and 23.**

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Czech Republic: Number of mobile subscribers

Vývoj počtu zákazníků

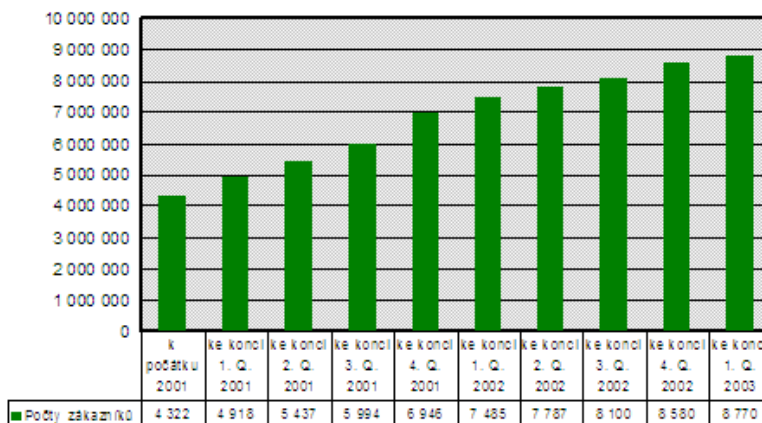


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Czech Republic: Total number of mobile customers

Celkový počet zákazníků

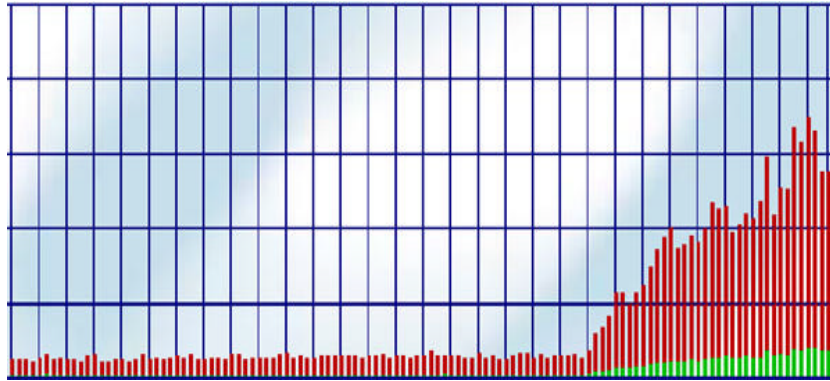


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Czech Republic: new tariffs for GPRS data

Eurotel: 30 GByte per day



1. 4. 2003

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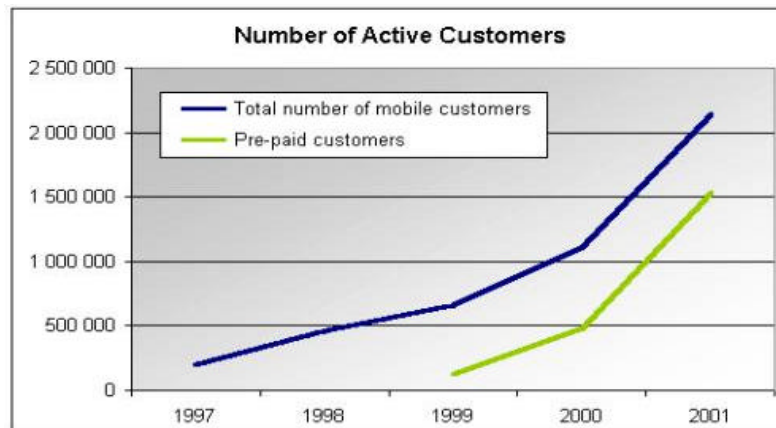
Czech Mobile market - advertising expenses (in million Kc)

	2001
Eurotel	997
Radiomobil	856
Czech mobil	624

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Slovak Republic: Number of mobile customers



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Slovak Republic: Mobile Services COVERAGE OF TERRITORY AND POPULATION

Indicator	1996	1997	1998	1999	2000	2001
Coverage of territory % - NMT	60,0	75,0	77,0	79,0	79,0	79,0
Coverage of population % - NMT	ND	93,0	95,0	96,0	96,0	96,0
Coverage of territory % GSM EuroTel, a.s.,	ND	60,0	76,0	81,0	81,0	81,0
Coverage of territory % GSM Orange, a.s.,	ND	75,0	79,2	81,4	82,2	82,6
Coverage of population % GSM EuroTel, a.s.,	ND	87,0	96,0	98,0	98,0	98,0
Coverage of population % GSM Orange, a.s.,	ND	91,6	93,7	94,4	95,4	95,6

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Slovak Republic: Mobile market size (Revenue in millions SKK)

Indicator	1995	1996	1997	1998	1999	2000	2001
Total revenue from all telecom services	9 394	15 675	15 249	16 493	18 424	36 197	45 439
Total income from telephone service	8 644	11 281	11 345	12 013	12 745	15 269	16 910
Mobile communication revenue	106	145	395	898	1 073	12 702	17 128

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GPRS in Central Europe

Country	Operators offering GPRS services	GPRS users/all mobile subscribers
CZ	3	Not available
HU	3	1,57%
PL	3	3,87%
SK	2	0,95%

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Part II.: Ways to the IMT 2000

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Ways to the IMT 2000

- Lessons learned from the transition from POTS to ISDN
- 3G requires to build new networks
- There are no new customers – cannibalization of GSM market
- Benefit from 3G services versus price – elasticity of the demand
- Role of voice service in 3G
- “Push” approach in 3G data services
- Attributes of killer application

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Case study: Czech Republic

- Mature mobile market
- Strong competition
- Intensive use of SMS
- 2,5G services offered via WAP and GPRS
- Customers eager to try new services
- 3G licenses already issued
- 3G network should be in operation by 2005

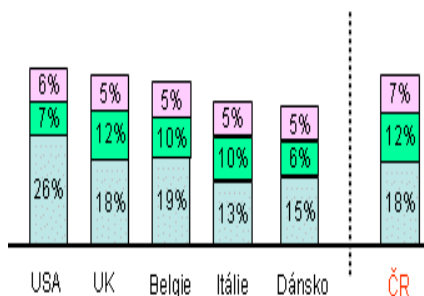
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Czech Republic: Demand for 3G services

(source: Agency Gfk, sample of 1000 inhabitants, age 15 - 79 years)

- not interested or do not know:
63%
- very interested:
7%
- interested:
12%
- maybe interested:
18%
-



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Czech Republic – Demand for 3G Services

- e-mail: 67 % = 37% very int. + 30% interested
- maps, travel, traffic information 66% = 25% + 41%
- banking: 64% = 27% + 37%
- reservation services: 60% = 24% + 36%
- traffic information 57% = 25% + 32%
- local information (navigation, guide): 55% = 19% + 36%
- content download (music) 41% = 15% + 26%
- multimedia mail (video clips) 48% = 19% + 29%
- games and gambling 23% = 11% + 12%

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Czech Republic: If you have possibility to choose only one 3G service ...

- Do not know 33%
- email: 12%
- personalized videoclips: 10%
- banking: 9%
- traffic info: 8%
- reservation services: 7 %
- maps and travelling information 6%
- shopping: 6%
- on-line games: 4%
- Weather 3%
- download of games/videoclips: 2%

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Czech Republic: Killer application will be

...

- Eurotel : gaming is potential killer app:
Examples:
IQ Map, mobile version of “Millionaire,
xGenGo – the mobile adventure game in fictional land,
„NOMOR” allowed group players to decide how to react in
certain situations
- T-Mobile: Creativity and interactivity
- gaming, but by using the latest technologies
- Java game applications -ClickFun
- ClickFun applications: basic ring tones, logos and animated
screensavers to be sent to a mobile phone, a new generation of
SMS messages

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Czech Republic: Will you use m-commerce?

- definitely yes: 27 %
(out of 37 % interested in 3G services)
- I will see: 51 %
- definitely not: 18%

preferred way of payment for m-commerce:

- through bank account: 41%
- credit card: 23%
- through phone bill: 13%
- prepaid limit: 10%

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Poland: Evolution to IMT 2000

-All three Polish mobile operators received licenses just before the end of 2000

- A fourth license is planned to be issued by auction.

-The cost of building each of the three UMTS networks is estimated at about E1.4bn between 2002 and 2008.

- Planned date of UMTS introduction in Poland 2005

- PTC, Polkomtel and Centertel are defined as 'significant operators' (operator having over a 25 per cent market share)

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Part III: Licensing

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IMT 2000 – licensing policies

- LICENSING CONDITIONS HAVE VARIED ACROSS COUNTRIES
- NUMBER OF LICENSES AWARDED HAVE VARIED
- SELECTION PROCEDURES HAVE VARIED: auctions, tenders, “hybrid procedures”
- PRICE PAID FOR LICENSES HAVE VARIED GREATLY
- INFRASTRUCTURE & SERVICE ROLL OUT CONDITIONS HAVE VARIED
- NATIONAL ROAMING CONDITIONS HAVE VARIED

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IMT 2000 – licensing policies (cont.)

EU statistics (year 2000)

- 47 licenses issued
- 25 for GSM incumbent operators – out of it 14 in auctions
- 22 for new entrants
- Incumbent GSM operators were more successful in auctions

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Summary of the 3G Licensing Situation in Europe

- Total fixed payment of the 3G licenses reached €130 billion - almost €120 billion comes from auctions
- At the country level, total payment for the licenses has varied from €4 000 in Finland to €50.8 billion in Germany
- The highest single license fee is €10.2 billion (Vodafone, UK)
- The first commercial 3G network has been launched in 2001 (Isle of Man and Monaco)
- Charges for the licenses per inhabitant has varied from €0.0008 in Finland to €650 in UK

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Issues to Be Considered

- **What price would maximize the efficient use of spectrums and end users benefits concurrently with sound development of the ICT sector as a whole ?**
 - Key issue is not the debate of auctions vs. Beauty contests
 - its about timing
 - Impact of high license payments on the price of services
- **How many licenses should be awarded?**
 - Availability of spectrum
 - Real competition between applicants
- **How to treat incumbent and new entrant operators:**
 - Equally
 - Discrimination

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3G licences in Central Europe

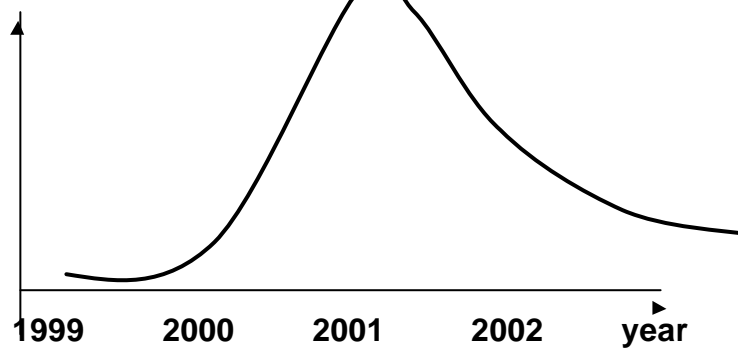
Country	Operators	Deadline for launching services	Coverage and roll-out obligations
CZ	2	1 January 2005	Not set yet
PL	3	1 January 2005	end of 2005 - 20 % of population; end of 2008 - 40% of population
SK	2	30 months of frequency band release	Not set yet

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License prices – timing

price per POP and 2x5MHz (Euro)



The later the smaller price

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License prices – market size

Population (M)	price per POP and 2x5MHz (Euro)
1 – 5	less then 10
6 – 10	less then 15
11 – 20	less then 15
21 – 40	less then 15
41 – 60	less then 50
61 – 80	less then 60

The smaller country the less price

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Licence prices

Price as % of GDP	GDP (billion \$)
less then 0,05	1 – 500
Less then 0,1	501 – 1500
Less then 0,25	1501 – 2 000

The higher GDP the higher price

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Licensing – who has the chance?

- Auction in big countries:
 - 95% global players, 5% regional players
- Auction in small countries:
 - 65% global, 20% regional, 15% local
- Beauty contest in big country:
 - 55% global, 10% regional, 35% local
- Beauty contest in small country:
 - 30% global, 35% regional, 45% local

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Czech Republic

T-Mobile and Eurotel were the only bidders at the auction. Third operator Oscar refused to participate. No foreign investor was interested.

Company	Price (Euro)	Standard	Awarded
Eurotel	E112m	W-CDMA	17 Dec 2001
T-mobile	E121m	W-CDMA	17 Dec 2001

Licence duration is 20 years and licensees must launch a commercial public service with a UMTS system in the City of Prague by 1 January 2005. The service shall be available in at least 90% of that area.

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Hungary

- Hungarian government puts off 3G licence auction in 2001
- A decision on how and when 3G networks are to be launched is to be made in the third quarter of 2003
- 3G networks would be launched in 2005 at the earliest.

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Poland

License conditions: For voice - 25% of the country population by the end of 2003, 60% by the end of 2005, 80% by the end of 2009, slightly less for 144kbps data service.

Company	Price (Euro)	Standard	Awarded
Centraltel	E650m	W-CDMA	06 Dec 2000
PTC	E650m	W-CDMA	06 Dec 2000
PolKontel	E650m	W-CDMA	06 Dec 2000

Poland cancelled 3G tender and decided to grant licences to the three local operators who are Centertel, PolKontel and Polska Telefonía Cyfrowa PTC. The licence combines both GSM and UMTS rights. A fourth UMTS licence will be granted later on.

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Slovak Republic

The only bidder was Profinet, - Eurotel and Orange received licences automatically. Profinet's licence was finally cancelled

Company	Price (Euro)	Standard	Awarded
Eurotel	E28m	W-CDMA	02 Jul 2002
Orange	E28m	W-CDMA	02 Jul 2002
Profinet	E28m	W-CDMA	15 Jul 2002

The UMTS licences will be valid for 20 years. Operators are obliged to build a mobile network covering 20 per cent of the population through the public telecoms network within 18 months of the licence entering into effect. UMTS services should be launched no later than 30 months after having access to the 3G frequencies.

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IMT 2000 - Challenges

IMT 2000 = the mobile component of the Information Society

- digital convergence of media, data & telecom
- a multi-national, multi-sector system
- Many different protocols (MPEG, WAP, IP, etc.)
- A wide range of terminals, products & services
- Shorter product development times & more complex products

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Conclusions

- Transition from 2,5G to 3G via evolutionary path
- To build new networks for old customers
- No killer application has been identified till today
- Supply and technology constrains
- Content = Potential source of revenue
- New business models
- Integration of Internet and mobile

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