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State of the art in mobile telephony in Central Europe and licensing

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Current state of mobile telephony in CE countries

- **GSM networks are reaching saturation point.**
- **Operators are beginning to offer GPRS services and handsets are being tested.**
- **GSM Penetration is higher then expected**
- **SMS are extremely popular**
- **Governments look for money from 3G licenses**
- **Regulators prepare regulatory framework**

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**
- **Quick coverage of territory**
- **Pressure from shareholders on ROI**

Current state of mobile telephony in CE countries – cont.

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

HUNGARY: *Digital mobile phone market, June 2002*

source: HIF (Hungarian regulatory authority

Number of digital mobile subscriptions:

5 855 313

Number of digital mobile subscriptions actually generating traffic:

5 654 937

Share of digital mobile subscriptions (%)

Vodafone	Westel Mobil	Pannon GSM
10,81%	**50,68%**	**38,51%**

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

HUNGARY: *Digital mobile phone market, June 2002*

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)

HUNGARY: *Digital mobile phone market, June 2002*

- **Shares of outgoing call minutes (%)**
- **Vodafone 13,37%**
- **Westel Mobil 47,29%**
- **Pannon GSM 39,35%**

(Outgoing call minutes/Total outgoing call minutes)

HUNGARY: *Digital mobile phone market, June 2002*

Trend of mobile subscriptions (in proportion to the previous month, %)

May 01	June 01	July 01	August 01	Sept. 01	Oct . 01	Nov. 01	Dec. 01
104,82	**103,57**	**102,98**	**102,59**	**102,66**	**102,84**	**102,91**	**110,95**

Jan. 02	Febr. 02	March 02	April 02	May 02	June 02
102,72	**102,35**	**103,60**	**103,11**	**102,81**	**103,02**

Total number of digital mobile subscribers (current month)/Total number of digital mobile subscribers (previous month)

HUNGARY: *Digital mobile phone market, June 2002*

Digital mobile subscriptions per 100 inhabitants

May 01	June 01	July 01	August 01	Sept. 01	Oct . 01	Nov. 01	Dec. 01
36.6	37.9	39.0	40.1	41.1	42.3	43.5	48.3

Jan.02	Febr.02	March 02	April 02	May 02	June 02
49.6	50.8	52.6	54.3	56.0	57.6

(Total number of digital mobile subscribers/Total population)x100

Czech Republic:Mobile market size – revenues in bilion Kc

	2000	2001
Eurotel	27,2	30,6
Radiomobil	17,7	21,1
Czech mobil	0,96	4,4
Total	45,86	55,96

Exchange rate: 1 Euro = 35 Kc

Czech Mobile market size
– number of customers in % of total market size

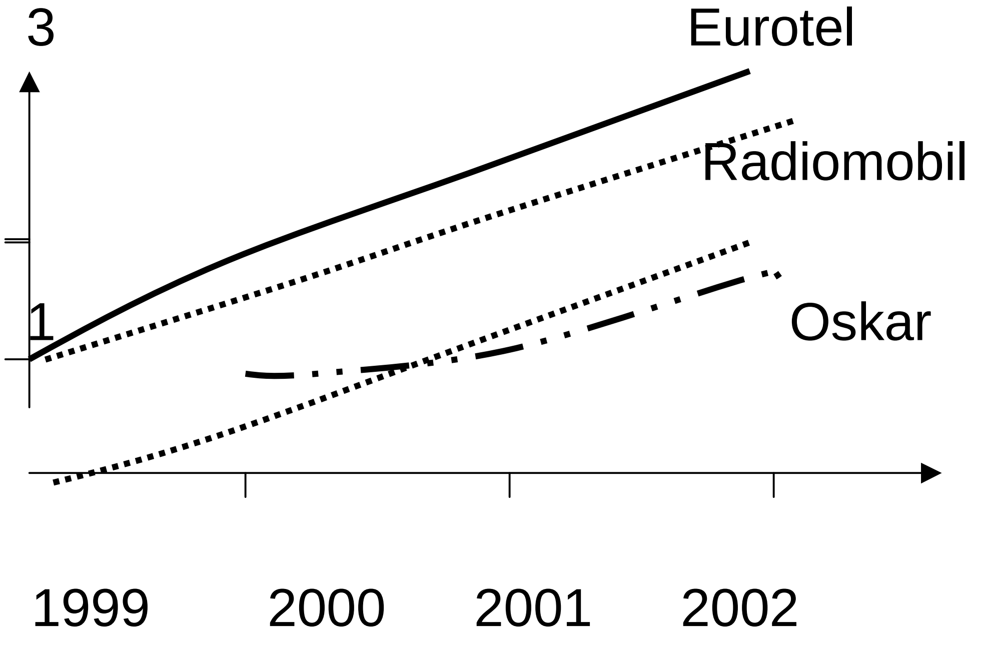
	1999	2000	2001
Eurotel	55	50	46
Radiomobil	45	43	41
Czech mobil	0	7	13

Czech Mobile market
– advertising expenses (in milion Kc)

	2001
Eurotel	997
Radiomobil	856
Czech mobil	624

Czech Mobile market
– development in the number of customers (in milion)

mobile penetration (2002): 80%

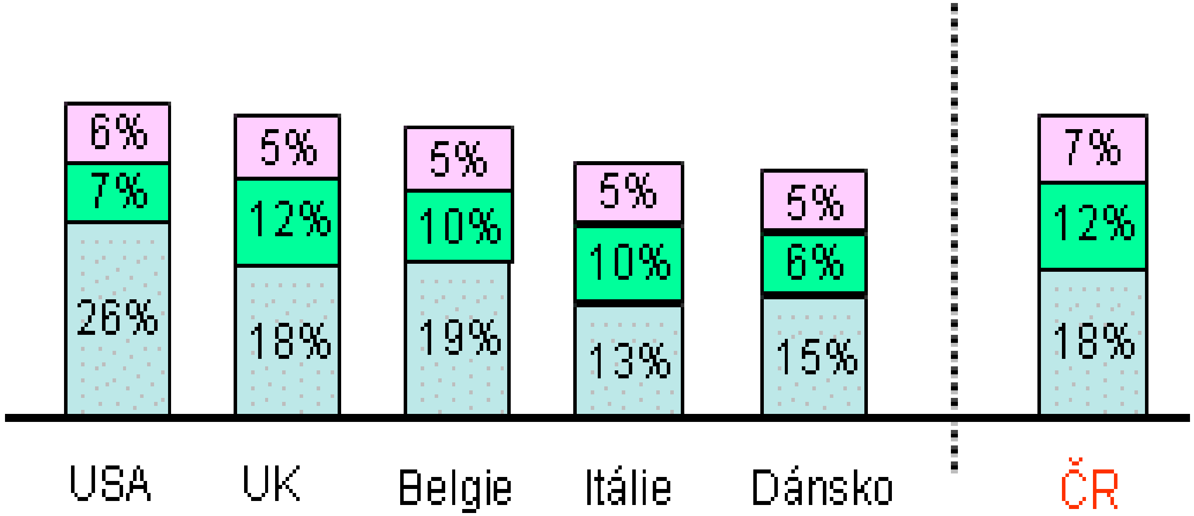


Czech Republic: Demand for 3G services

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

very interested: 7%
interested: 12%
maybe interested:18%

the rest is not interested or do not know



Czech Republic – Demand for 3G Services

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

If If you have possibility to choose only one 3G service …

1. email: 12%
2. personalized videoclips: 10%
3. banking: 9%
4. traffic info: 8%
5. reservation services: 7 %
6. maps and travelling: 6%
7. shopping: 6%
8. on-line games: 4%
9. weather: 3%

download of videoclips: 2%

download of music: 2%

do not know: 33%

Will you use m-commerce?

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

preffered way of payment:

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

GPRS in Czech republic

Operator	**Oskar**	Eurotel	Paegas
Program	**Basic**	WAP Mobile Internet	GPRS Basic
Monthly payment [Kč]	**0**	0	0
1 KB of WAP data	**0,40**	0,50	0,50

Eurotel plans to build its 3G network over the next five years

Eurotel must at least start offering commercial high-speed mobile services in Prague by the start of 2005.

Eurotel : gaming is potential killer app: 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 ringtones, logos and animated screensavers to be sent to a mobile phone, a new generation of SMS messages

Eurotel structure of customers

EBITDA	2001	2002	Change
total revenue	14,668 mld. Kč	13,862 mld. Kč	-5%
revenue from services	13,060 mld. Kč	12,979 mld. Kč	-1%
Sale of phones and activation fees	1,608 mld. Kč	0,883 mld. Kč	-45 %
Net profit	3,335 mld. Kč	3,164 mld. Kč	-5%

EBITDA	customers %	Revenue %	EBITDA %
Eurotel	46	50	57
Radiomobil	41	38	42
Český Mobil	13	12	1

(end of March 2002)

Mobile versus fixed

Czech Telecom (2000)
total revenue: 42 bn USD (up 10%)
EBITDA: 664m USD (up 3,6%)
Net income 159m USD (up 3%)
Eurotel revenues: 298 m (up 52%)

Structure of revenue:
fixed call revenues: 43,8%
mobile call revenues: 19,6%
subscriptions: 12,8%
internet: 13,6
other: 10,2 %

CT wanted to buy 49% of Eurotel shares for 1.475 bn USD

Poland: Future of UMTS postponed

-The UMTS tender was cancelled

-All three Polish mobile operators (PTC, Polkomtel and Centertel) received licences just before the end of 2000
(a total of E1.95bn until the year 2019).

- A fourth licence was to be issued this year 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 holding over a 25 per cent market share)

Polish mobile subscriber numbers reach 10m

-Polish mobile subscribers reached a total of 10m by the end of 2001

- an increase of about 4.1m users from 2000.

- this has almost overtaken fixed-line subscriptions, which stood at 10.5m by the end of the year.

-This figure represents a penetration rate of 26 per cent.

-it is a marked increase on the 14 per cent penetration rate reached at the end of 2000.

Slovakia

Capital: Bratislava

Territory: 49 036 km2

	1998	1999	2000
Population (thous.)	5 393	5 398	5 403
GDP Growth (%)	+ 4,4	+ 1,9	+ 2,2
GDP per capita (US$)	3 775	3 485	3 609
Postal and Telecom Share on GDP(%)	2,93	3 ,00	2,66
Unemployment Rate (%)	15,6	20,1	18,6
Annual Inflation Rate - Average(%)	6,7	14,2	12,0
Average Exchange Rate SKK/US$	35,24	41,42	46,20

Sources: National bank of Slovakia, Statistical office SR

Slovakia - public mobile networks

	1993	1994	1995	1996	1997	1998	1999	2000
Total number of mobile subscribers	**3 125**	**5 946**	**12 315**	**28 658**	**196 642**	**473 173**	**664 072**	**1 109 888**
Total number of digital mobile subscribers	NA	NA	NA	NA	**165 325**	**440 220**	**867 559**	**1 277 449**

% of coverage of territory	NA	NA	NA	NA	75	79	81	81
% of coverage of inhabitants	NA	NA	NA	NA	88	96	98	98
mobile penetration (%)	0,06	0,11	0,23	0,53	3,65	8,77	12,30	20,54

IMT 2000 – licensing policies

LICENSING CONDITIONS HAVE VARIED ACROSS COUNTRIES

- **SELECTION PROCEDURES HAVE VARIED: AUCTIONS, BEAUTY CONTESTS AND „HYBRID“**
- **NUMBER OF LICENSES AWARDED HAVE VARIED**

- **PRICE PAID FOR LICENSES HAVE VARIED GREATLY**
- **INFRASTRUCTURE & SERVICE ROLL OUT CONDITIONS HAVE VARIED**
- **NATIONAL ROAMING CONDITIONS HAVE VARIED**

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

Summary of the 3G Licensing Situation in Europe

- Total fixed payment of the 3G licenses is reaching €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

Issues to Be Considered

- Spectrum pricing
- – Impact of high license payments
- – Problem of up-front licensing charges
- – Key issue is not the debate of auctions vs. Beauty contests if the government wants to make money – its about timing

Issues to Be Considered (cont.)

- What price would maximize the efficient use of
- spectrums and end users benefits concurently with sound development of the ICT sector as a whole ?
- How many licenses should be awarded?
  - Availability of spectrum
  - Real competition between applicants
- How to treat incumbent and new entrant operators:

  Equally/Discrimination?

Licence prices

year	price per POP and 2x5MHz (Eur)
2000	10 000, 60 000, 14 000, 50 000, 8 000, 4 000, 2 000,
2001	5000, 4000, 10 000, 8000, 18 000, 7 000, 5000,

Licence prices

Population (M)	price per POP and 2x5MHz (Eur)
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

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

Licencing – who will be the winner?

- 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

Czech Republic postpones 3G licence tender

The Czech Republic has decided to postpone awarding its third UMTS licence until mobile operators become more interested in starting a third-generation network,

Two 3G licences were given to RadioMobil for E121m – owned by Deutsche Telekom and Ceske Radiokomunikace – and Eurotel for E112m – owned by Cesky Telecom, Verizon Communications and AT&T Wireless in 2001.

hungary

Hungarian government puts off 3G licence auction in 2001
UMTS tender could be opened by end of year 2002

Slovakia: Profinet becomes Slovakia's third mobile operator

The only bidder won a licensing tender for the right to provide GSM and UMTS services.

- It is obliged to pay SKK1.5 bn (E38m)
- It must launch GSM services within six months of the activation of its licence and UMTS services no later than 30 months after it has access to the 3G frequencies.The UMTS licences will be valid for 20 years.
- Profinet is required 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.

- Orange and Eurotel also won licences to offer 3G UMTS services (each of the 3G licenses is to cost SKK1.499bn (E37.5m).)

- comparison: in the Czech Republic 3G licences were sold for around $100m (E110m) in Dec 2001.

Regulatory Framework for 3G Licensing

_ Frequency planning and assignment are tasks for the NRA

Harmonization measures concerning the introduction of IMT 2000

- a) Licensing Directive (97/13/EC)
- b) UMTS decision (128/1999/EC)
- c) Other relating legislation

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**

Conclusions

- Evolution from 2,5G to 3G necessary
- No killer app till today
- Supply and technology constrains
- Content = Potential source of revenue
- New business models
- Integration of Internet and mobile