Czech Way to Broadband

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Agenda

- INTRODUCTION
- REGULATORY ENVIRONMENT IN THE CZECH REPUBLIC
- FUNDING OF BROADBAND PROJECTS
- SITUATION IN THE BROADBAND MARKET
- STATE OF BROADBAND INFRASTRUCTURE
- e-SERVICES AND READINESS OF CZECH POPULATION TO USE THEM
- BARRIERS, RISKS AND PROSPECTS IN DEVELOPING BB IN CZECH REPUBLIC
- CONCLUSIONS

Introduction (1)

Czech Republic - basic demographic data

- Area: 78 866 km2
- Population: 10 259 017 (31.1.2006)
- Population centres:
  - Praha (1 165 581)
  - Brno (369 559)
  - Ostrava (313 088)
  - Plzen (164 180)
  - Olomouc (101 268)

Introduction (2)

Map of Czech Republic – 14 regions

Introduction (3)

Main providers of BB Internet connection

- Telefónica O_2 Czech Republic (established on July 1, 2006 by fusion of the Czech Telecom - the incumbent and Eurotel - the largest Czech mobile operator)
- GTS Novera (the largest Czech alternative operator of fixed landline network)
- České Radiokomunikace (operates wireless and wireline networks)
- UPC Czech Republic (the largest CATV network operator in CR)
- Karneval Media (the second largest CATV network operator in CR)
- T-mobile Czech Republic (the second largest mobile network operator in CR)
- Vodafone Czech Republic (the third largest mobile network operator in CR). In 7/06 it suspended preparation of UMTS. Only GPRS and EGGE offered.

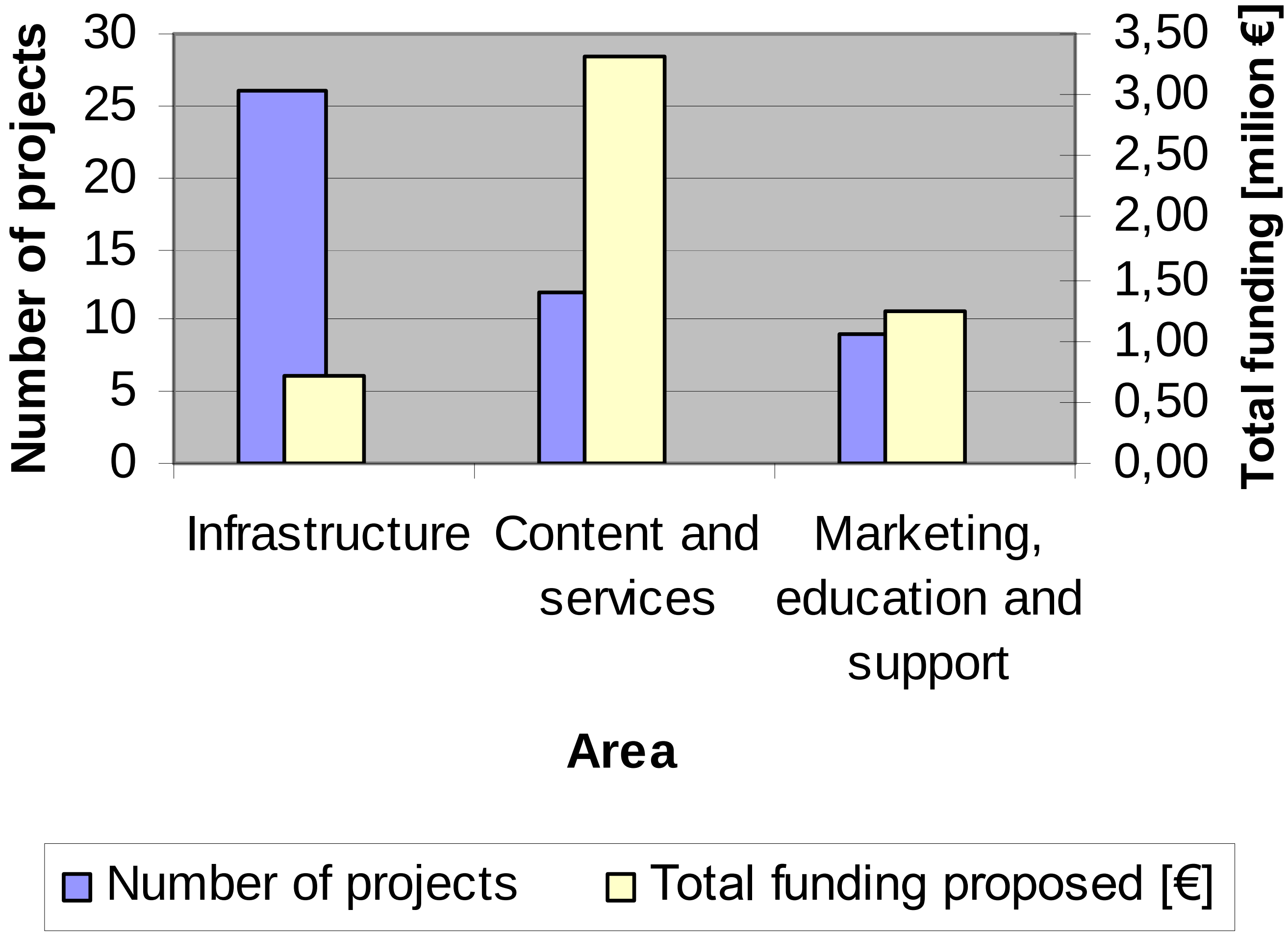
Regulatory environment in the CR

- ***Regulatory bodies*:**
  - Ministry of Informatics
  - Czech Telecommunication Office
  - Antimonopoly Office
  - Radio and Television Council
- ***National broadband strategy***
  - Aproved by the government on 26.1. 2005
  - Broadband: Data rate 256 kbit/s or more
  - Goals: All public institutions connected to Internet by the end of 2006, 50% of the population by 2010
  - National BB server since 31.5.2005

Funding of BB projects

- Structural funds and other EU instruments
- (Czech) Broadband Fund
  - Almost 30 mil. EUR assigned over 4 years
  - In 2006, over 5 mil. EUR awarded to 47 projects, 2 mil. EUR put aside for preparing transition to digital TV
  - Support for development of content, e-services, education and building infrastructure in deprived areas

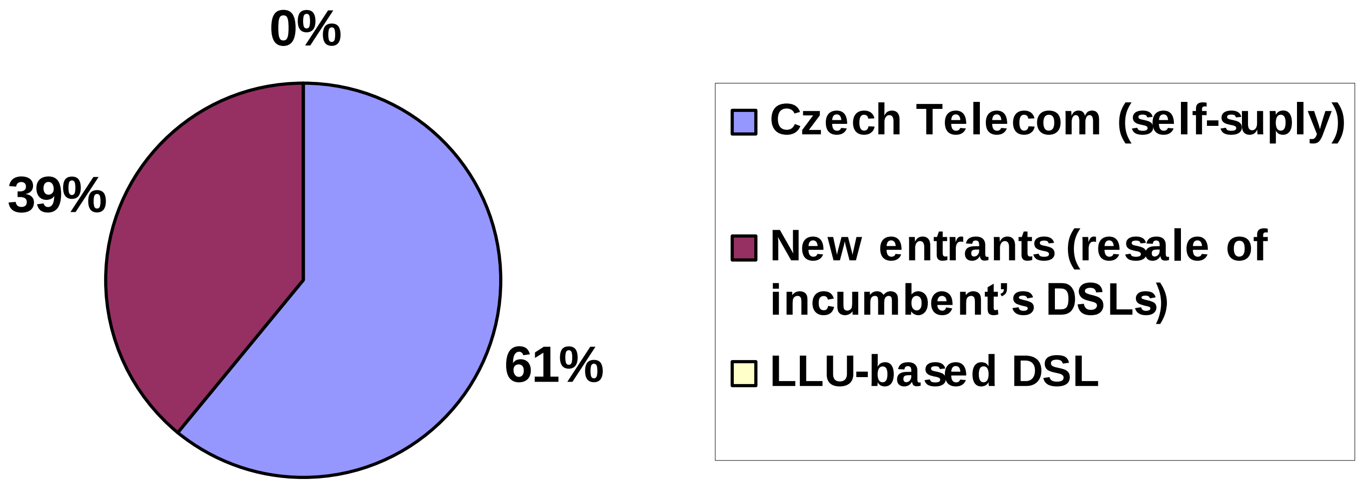
Projects supported by the national BB fund



Situation in the BB market

Evolution of ADSL Market Share in the Czech Republic (Source: CTO)

2003



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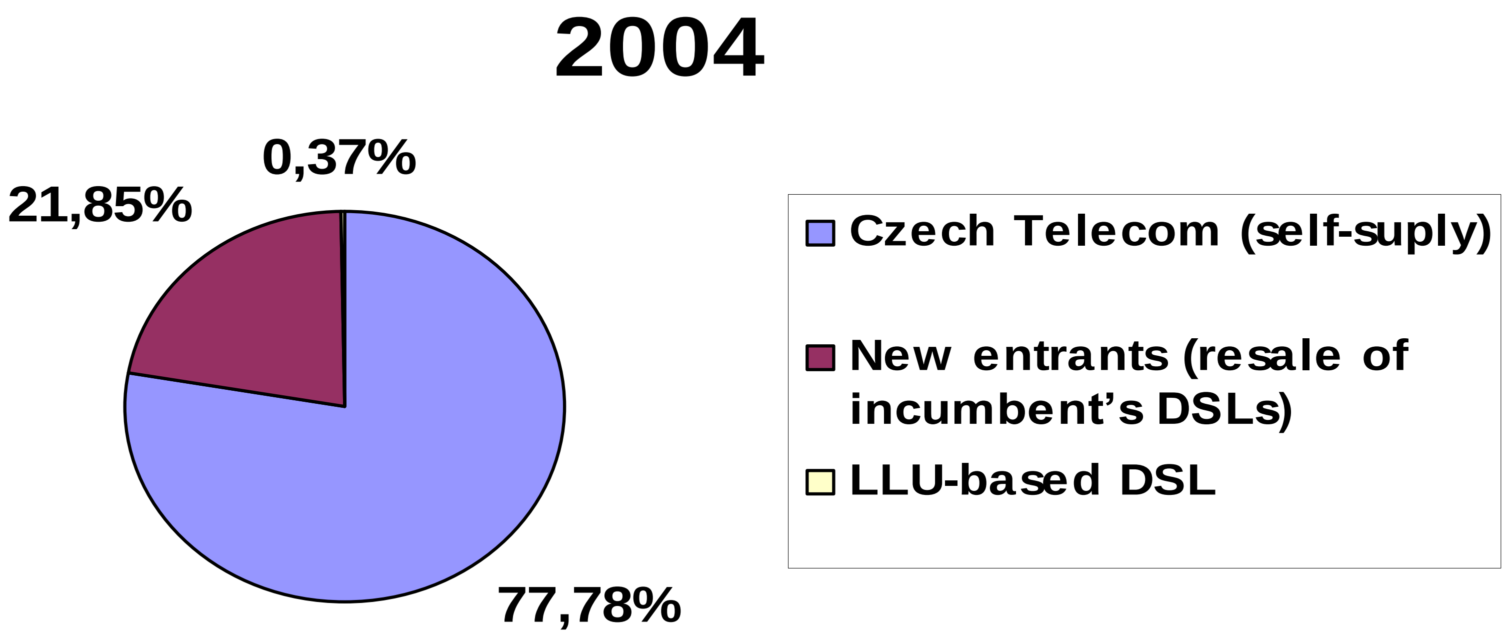
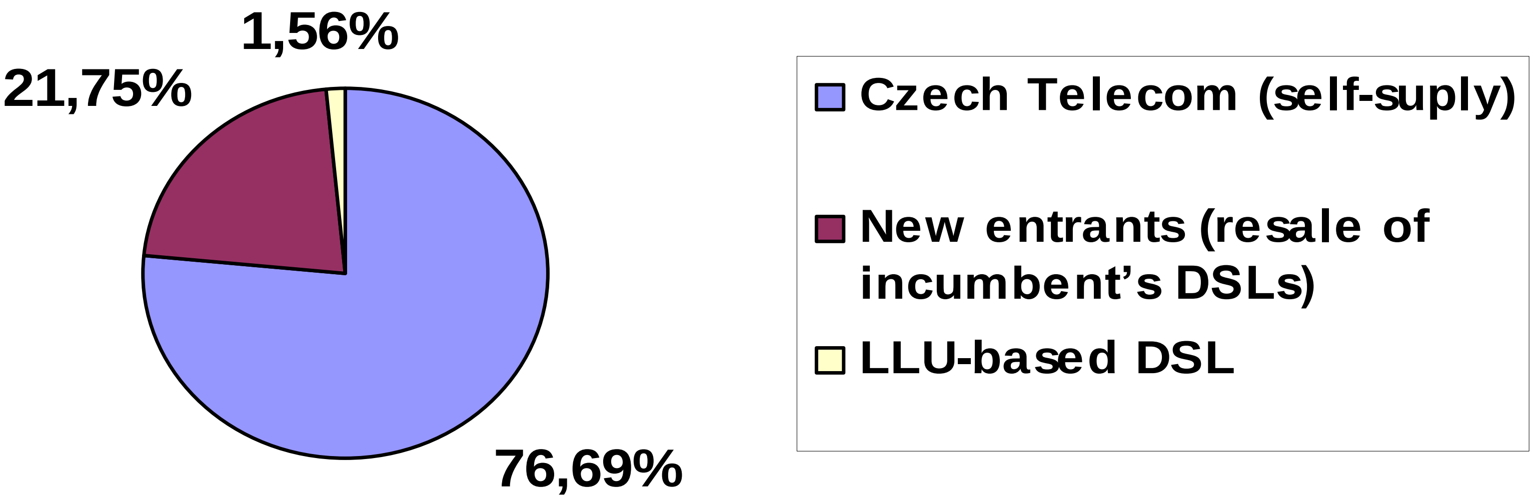


Situation in the BB market

Evolution of ADSL Market Share in the Czech Republic (Source: CTO)

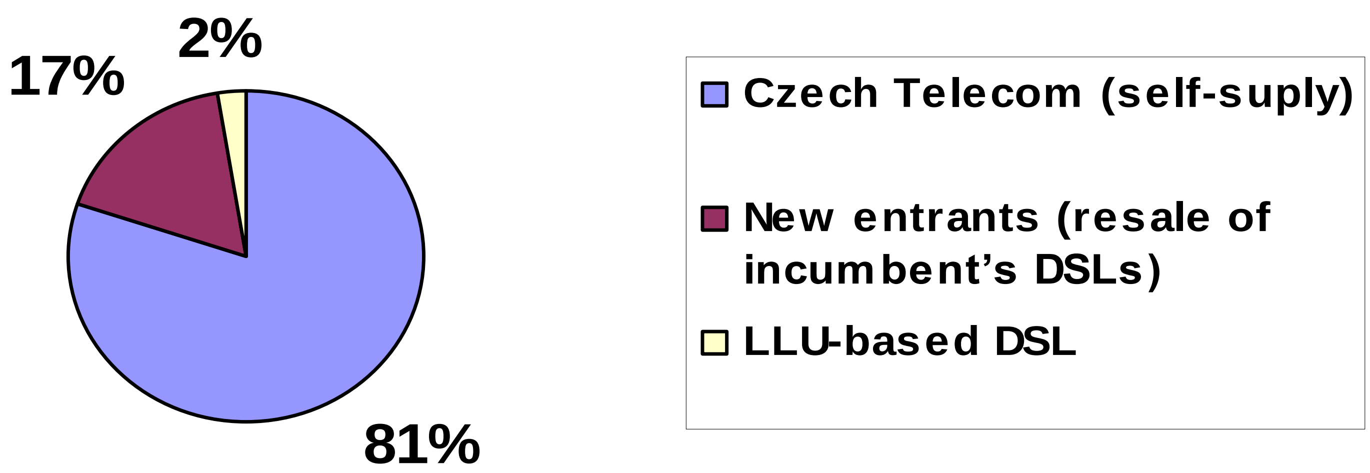
1H2005



Situation in the BB market

Evolution of ADSL Market Share in the Czech Republic (Source: CTO)

End of 2005



Evolution of ADSL market share in the Czech Republic.
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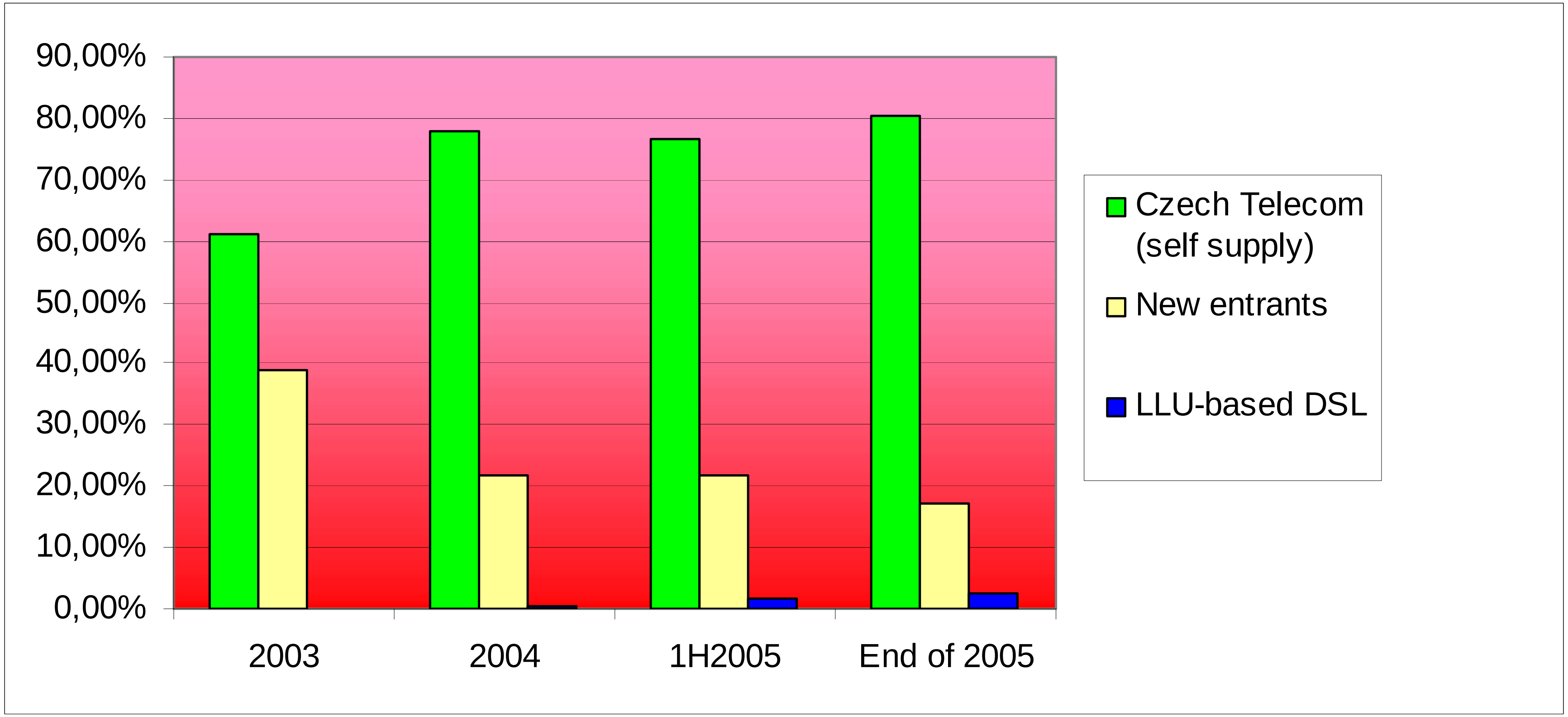
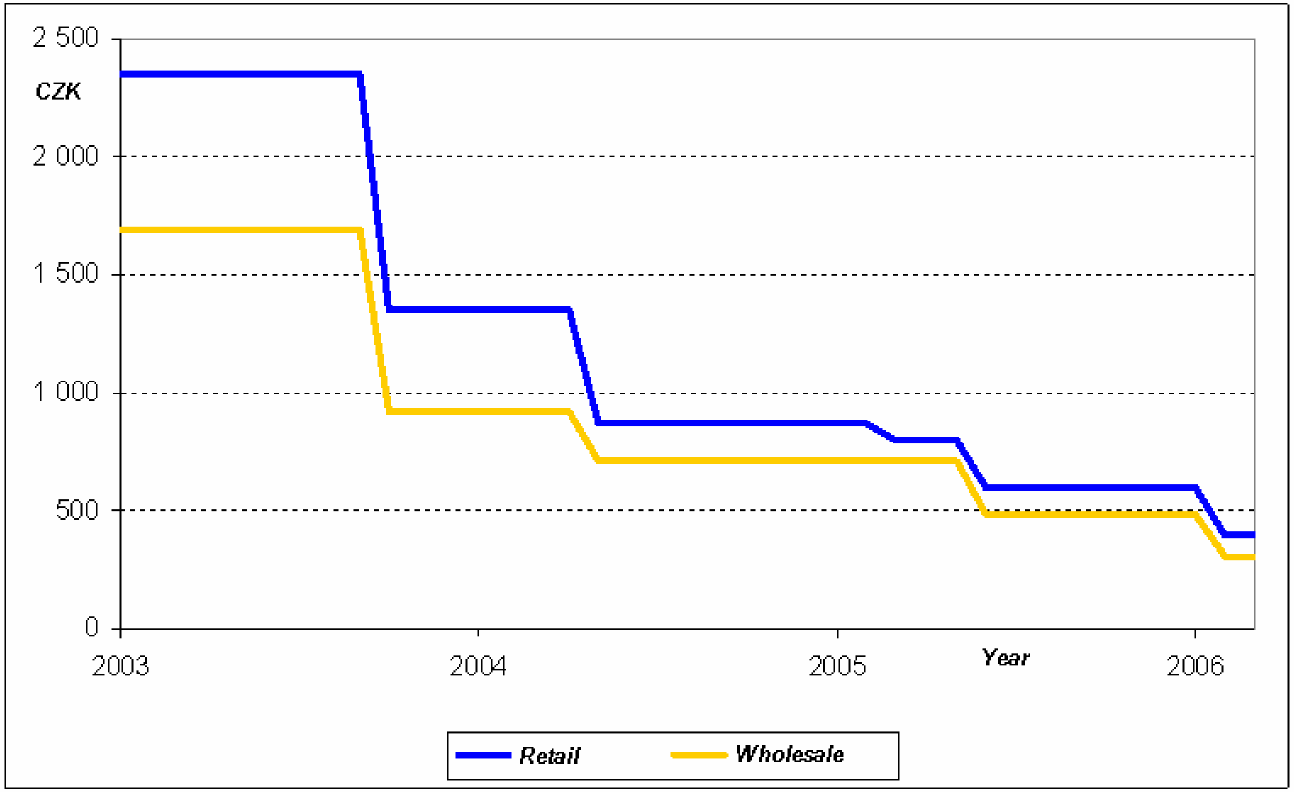


Situation in the BB market

Retail + wholesale market

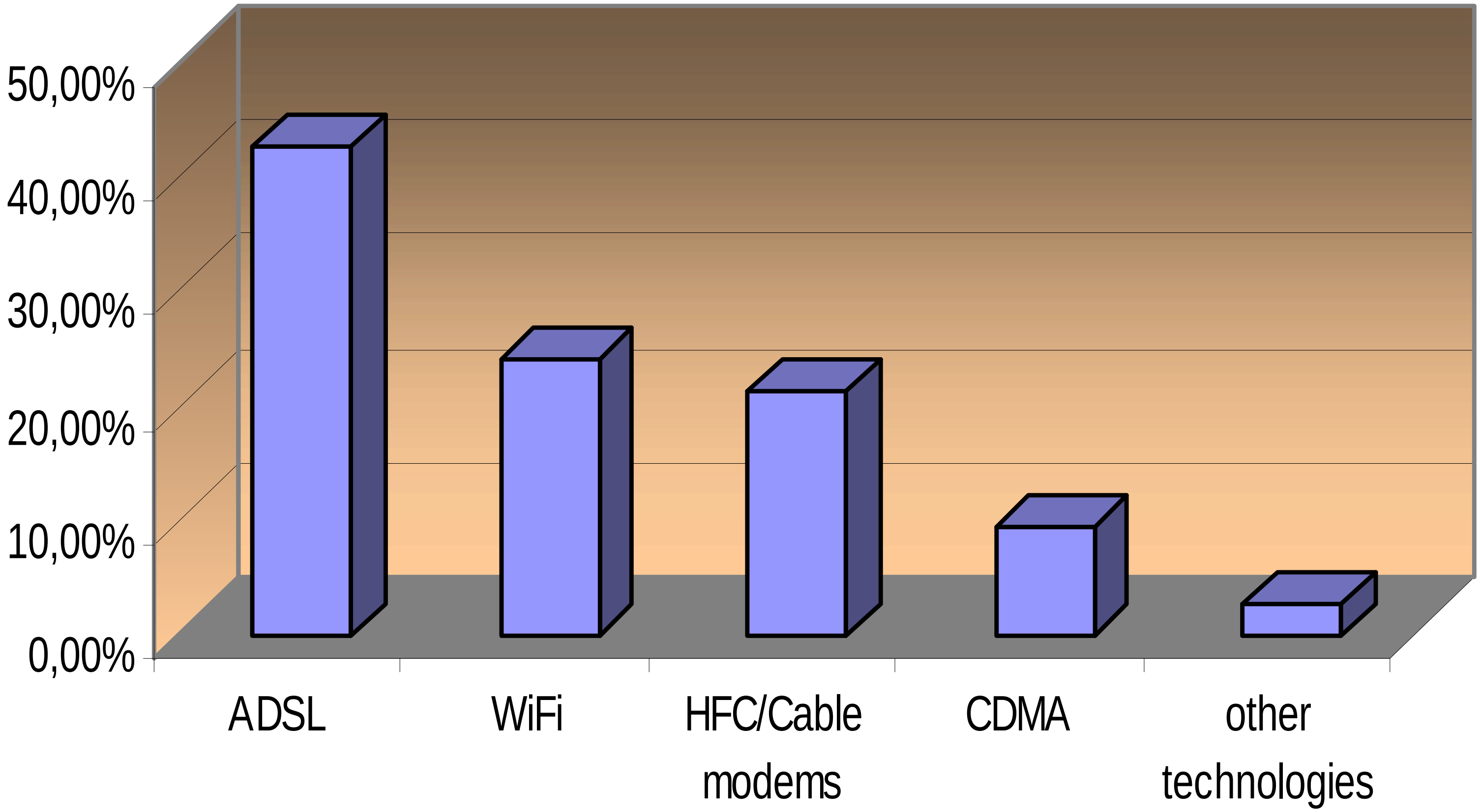
Development of monthly retail and wholesale rates charged by Czech Telecom over the last three years for 512/128 kb/s ADSL lines with 1:50 aggregation. (1 € = cca 28 CZK).

Source: CTO.



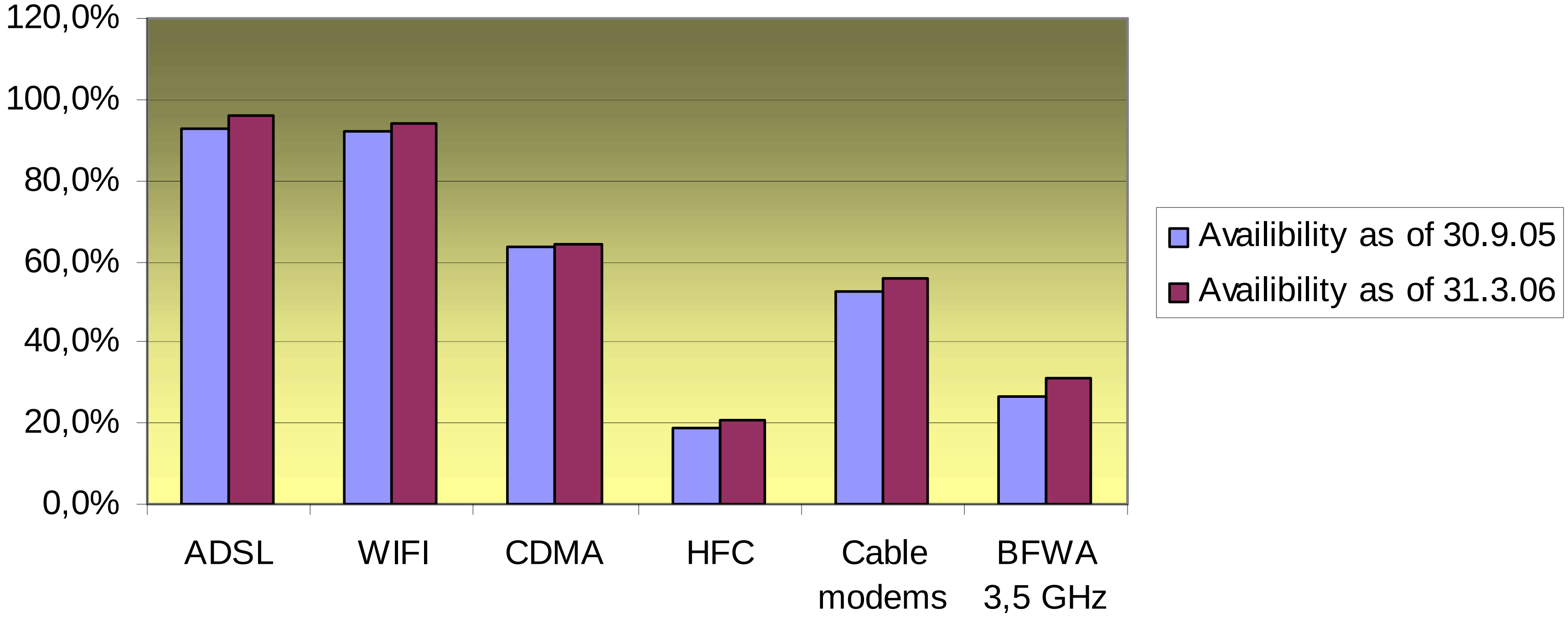
Situation in the BB market

Share of individual technologies in the broadband access market in the Czech Republic



Situation in the BB market

Comparison of Availability of Broadband Access by Using Various Technologies in Czech Municipalities



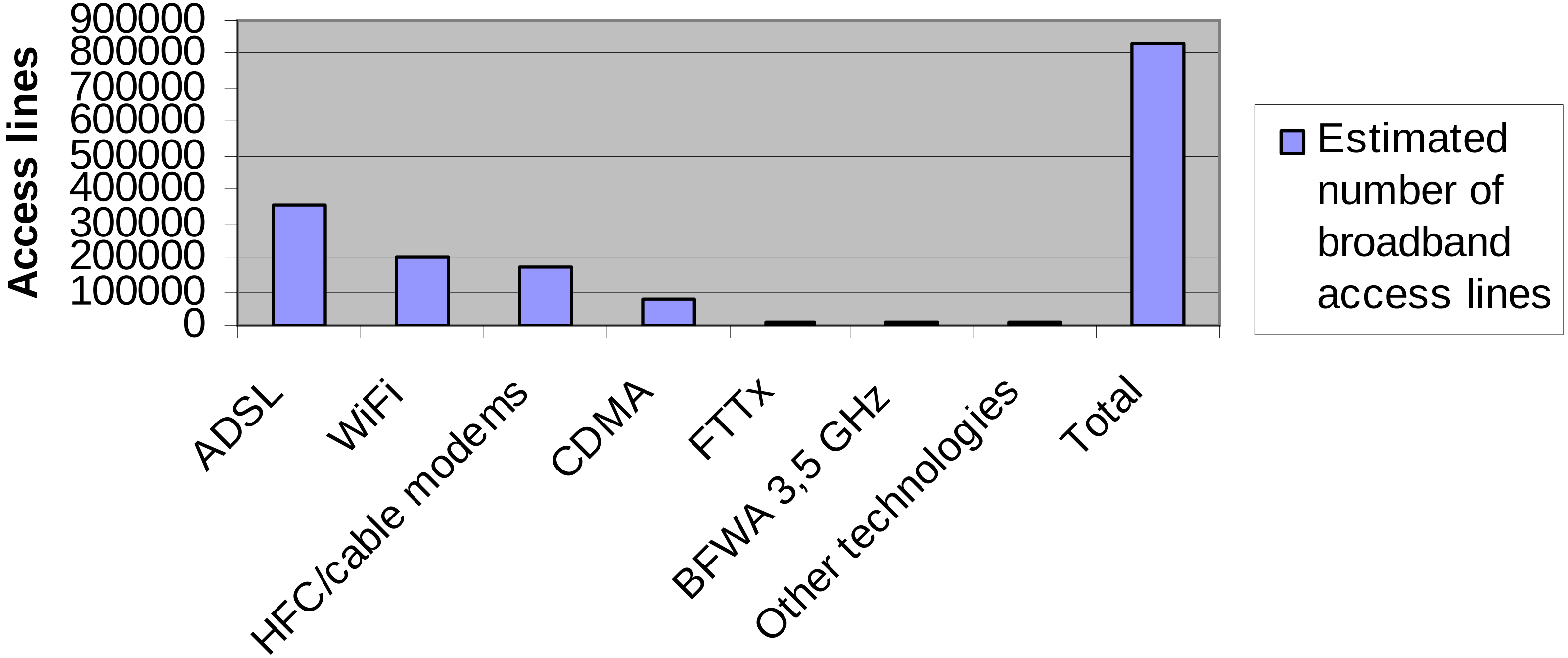
State of BB infrastructure
Backbone networks

- Five major nation-wide alternative operators offer their ***optical fibre backbones***
- WDM technology with each wavelength carrying up to 10 Gb/s
- Telefónica Czech Republic (formely Czech Telecom)
- Alternative operators
  - **GTS Novera: Its fibre-optic network is laid mainly along the electric power distribution lines**
  - **Net4Net company: fibre links laid along the gas pipelines**
  - **CDT (Ceske drahy telematika): fibre links along railway lines with radio relay extensions to its (wholesale) customers**
  - **Czechbone has emerged out of CATV providers**
- CESNET (Czech Nat. Res. and Edu. Net., NREN) – operates advanced multi-Gb/s optical fibre network

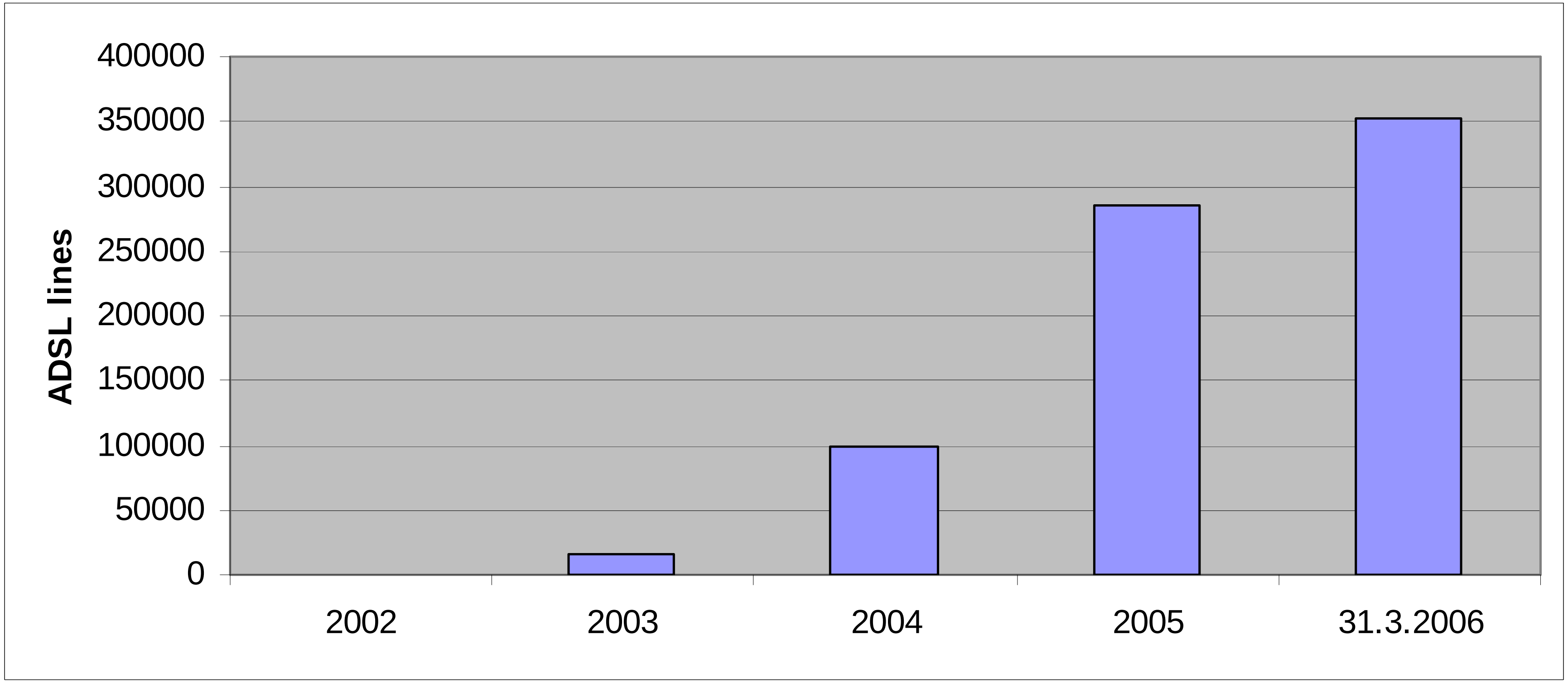
State of BB infrastructure
MANs and access networks

- MANs in all major cities **(several of them in Prague)**
- ADSL: 98.4% owned by the Telefónica, 512 to 5120 kb/s down and 128 to 512 kb/s upstream
- CATV networks with cable modems
  - UPC, Karneval Media, F.C.A., KTV Prerov, ...
  - EURODOCSIS modems, 64 to 12 288 kb/s down and 32 to 2048 kb/s upstream
- Wireless: CDMA, UMTS, WiFi, WiMax, BFWA, Satellites
- Optical fibre access networks (FTTx)
- Power Line Com-n (PLC)

Estimated Number of Broadband Access Lines in the Czech Republic at the End of 1Q/2006



Growth of the number of ADSL lines in Czech Republic over the last 4 years

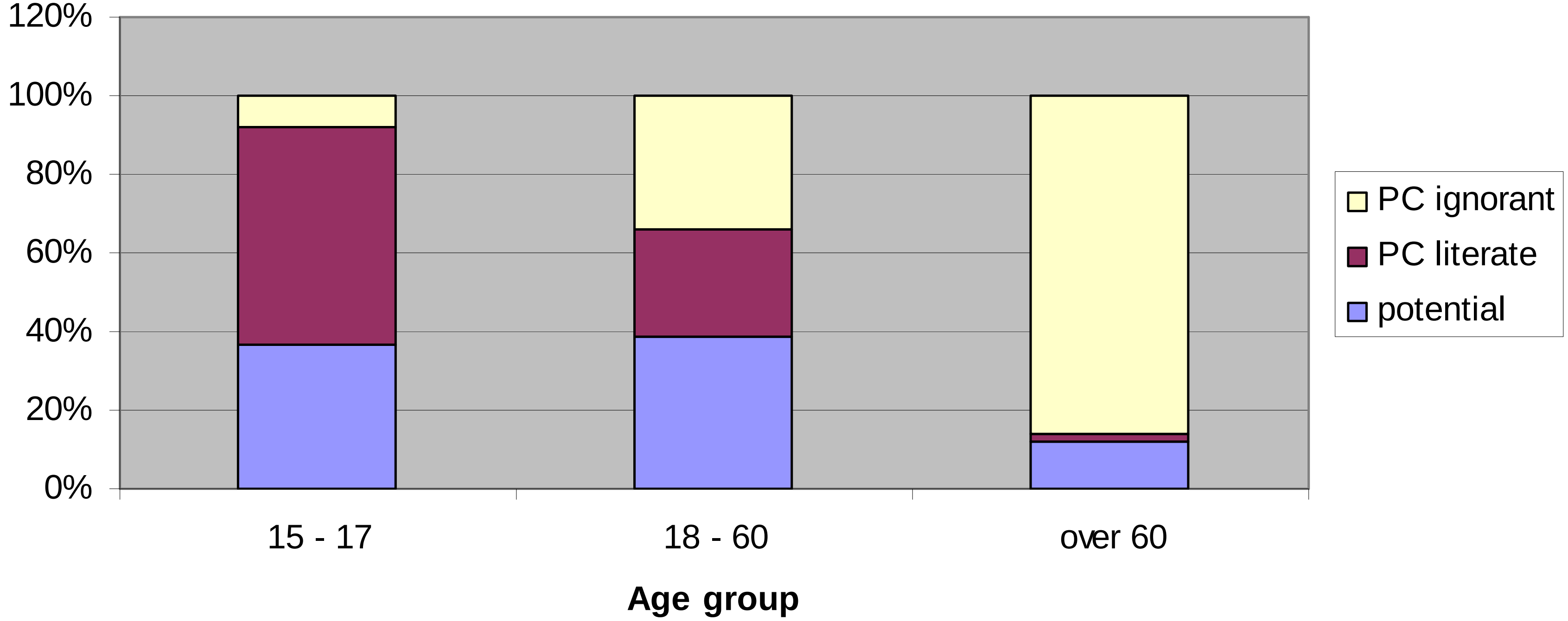


E-services and readiness to use them

- e-Government:
  - Governmental portal
  - Tax declaration
  - Social security applications
- e-Learning
  - All secondary and primary schools connected
  - Distance education – role of CESNET
- e-Health
  - IZIP: Almost 1 mil. patients and over 8 000 healthcare workers registered
- e-Business
  - All banks, thousands of e-shops ...
  - E-transactions: recognizing e-signature still a problem

E-services and readiness to use them

Computer literacy (Source: STEM/MARK)



Barriers, risks and prospects in developing broadband in Czech Republic

ADSL – the most important means to deliver BB. However:

- the ADSL market share of the incumbent is currently more than 80% and is still rising
- the 17% of the market that have the alternative operators is just resale of the incumbent's ADSL services
- bit stream and ADSL interconnection are not yet available
- the incumbent offers its wholesale DSL services with specific volume limits on data that the user can download and/or upload
- effective speed is often much lower than 80% of the nominal speed (requested by the National broadband strategy)
- the "naked DSL" service, i.e., without having to pay a fixed charge for renting the line, is not available

Stable position of CATV on BB market

Unusually high share of wireless (esp. WiFi) on BB market

Issues: „Free Internet“, role of municipatilies, ...

Conclusions

- Infrastructure is in relatively good shape but more has to be done to get BB especially to homes
- Consistent policies at all levels needed
- Existing Law on electronic communications has still to be refined
- Clear rules for private public partnerships needed
- The regulator still has to complete analyses of the relevant markets to create competitive environment
- Scope of e-services that enable online com-n of citizens with state institutions has to be extended
- The population has to be educated in using ICT.