

Status of Broadband Development in the Czech Republic and open issues

Anton Kuchar

IREE, Prague, Czech Republic

Agenda

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

Introduction

Czech Republic - basic data

- **Area: 78 866 km², population: 10 259 017 (31.1.2006)**
- **Main providers of BB Internet connection:**
 - the **incumbent**: Telefónica O₂ CR (formerly the Czech Telecom - and Eurotel - the largest Czech mobile operator)
 - 2 major **alternative** operators with own fixed infrastructure
 - 2 major **CATV** network operators (expected to merge soon)
 - 2 **mobile** network operators (in addition to Telefónica's mobile arm)

State of BB infrastructure

Backbone networks

- Five major nation-wide alternative operators offer their ***optical fibre backbones***
- WDM, Nx10 Gb/s
- Telefónica O2 Czech Republic
- 4 alternative operators (fibre links laid mainly along electric power distribution lines, gas pipelines and railway lines)

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
- Wireless: CDMA, UMTS, WiFi, WiMax, BFWA, Satellites
- FTTx, Power Line Com-n (PLC)

ADSL-Based Access Networks

Growth of the number of ADSL lines in CR
over the last 4 years

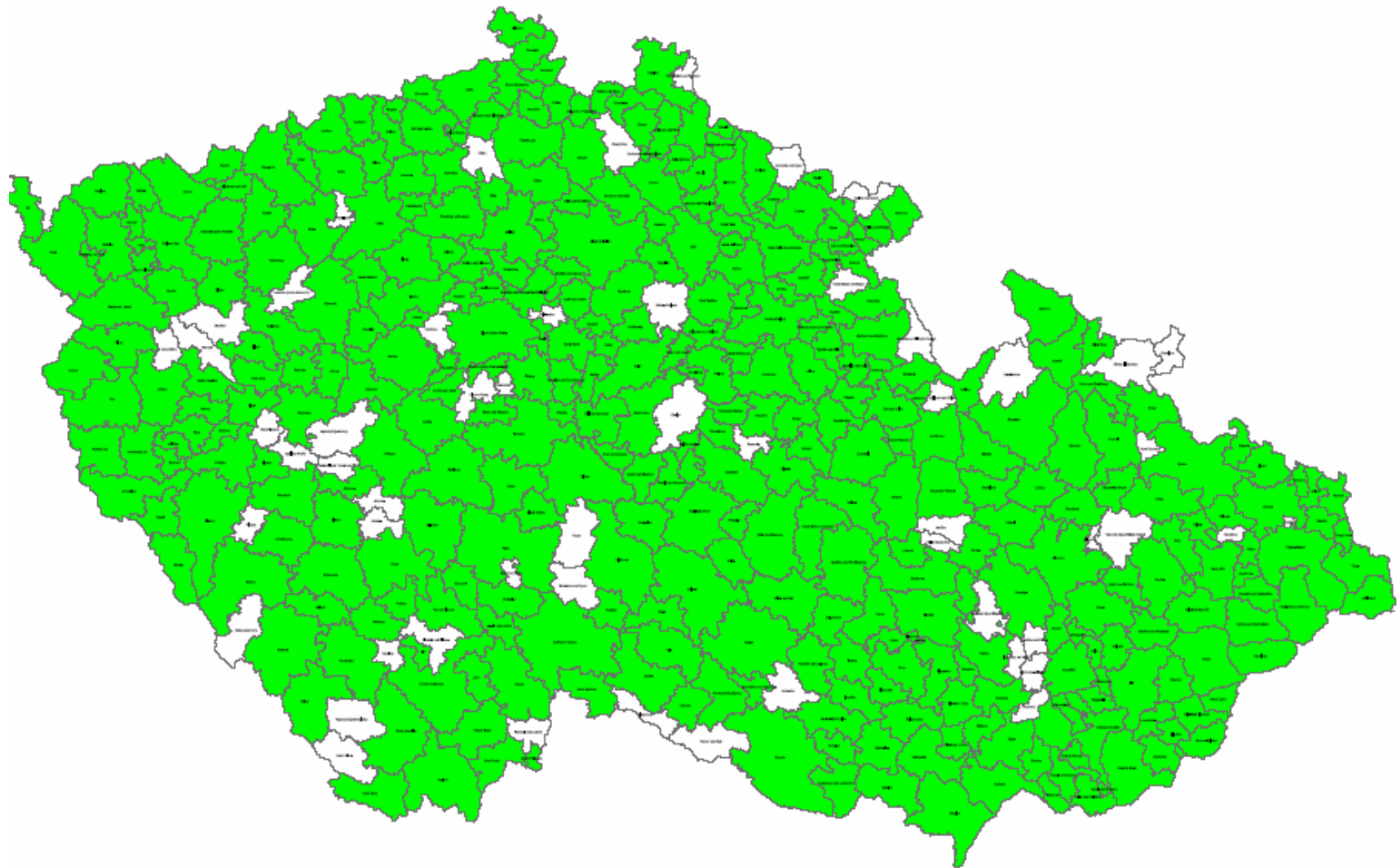
(End of) Year	2002	2003	2004	2005	31.7. 2006
ADSL lines	0*)	16 000	10 0000	285 000	400 000

*) No ADSL lines were available in year 2002.

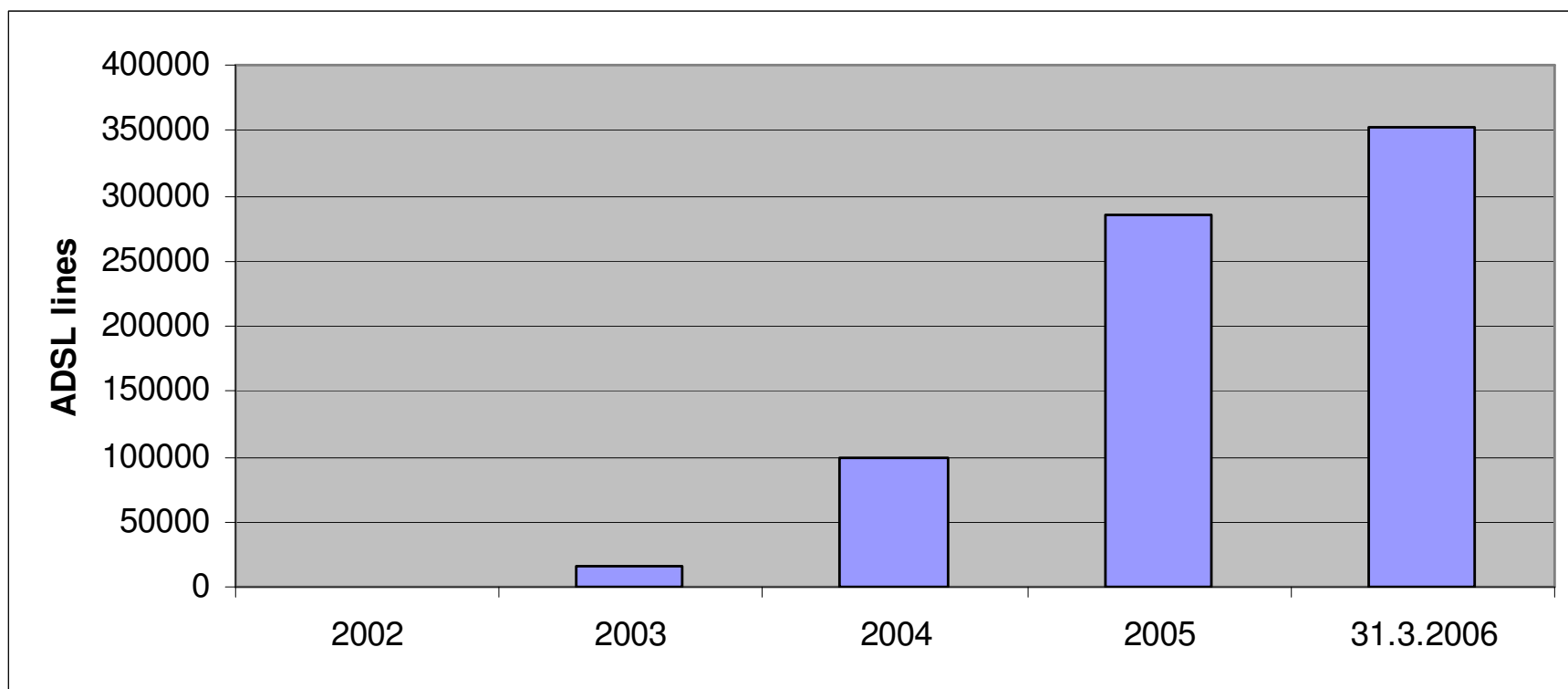
ADSL-Based Access Networks

Availability by May 2005 (green area)

Mapa pokrytí technologie ADSL (květen 2005)

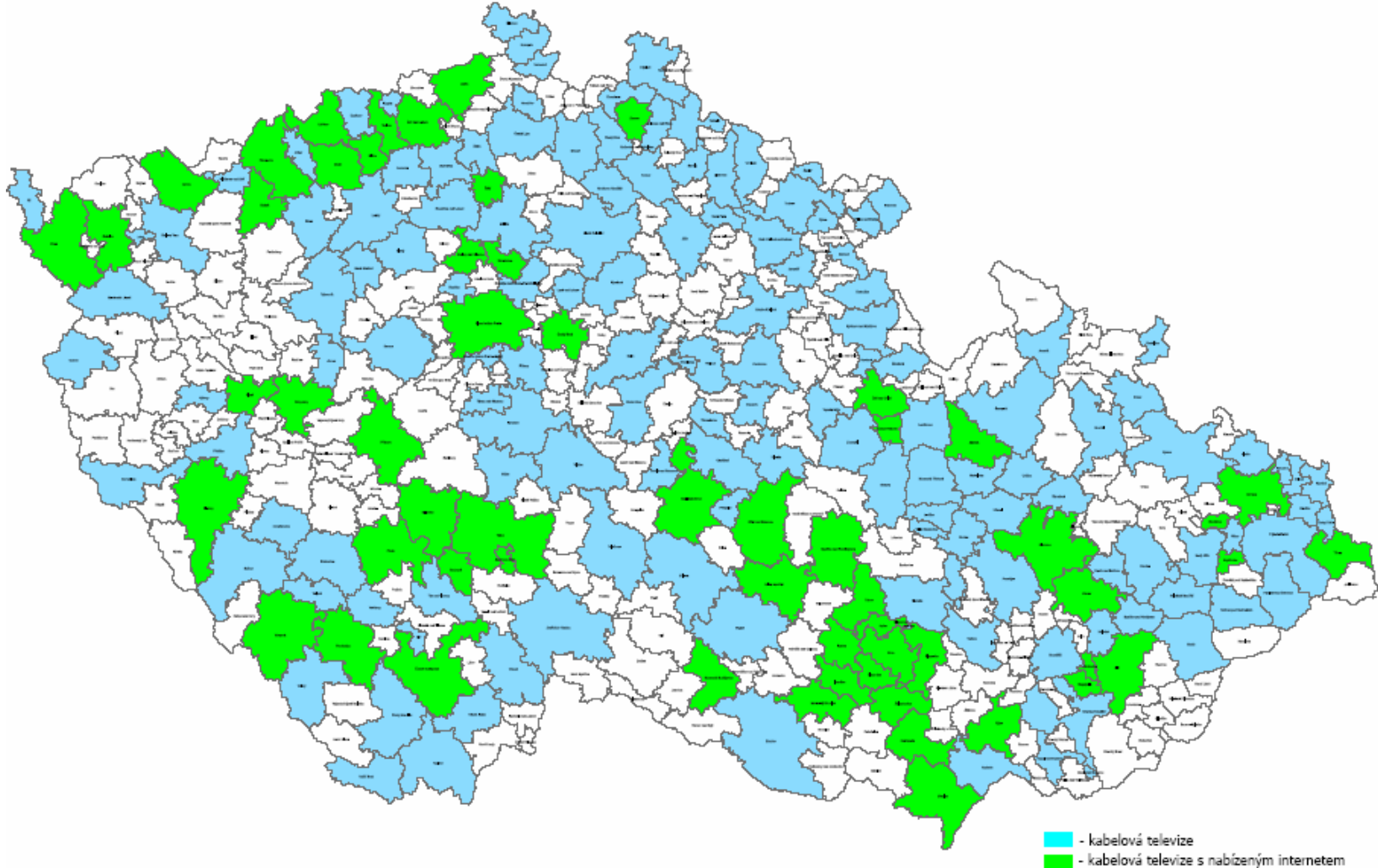


Growth of the number of ADSL lines in Czech Republic over the last 4 years



Areas serviced by **CATV** operators

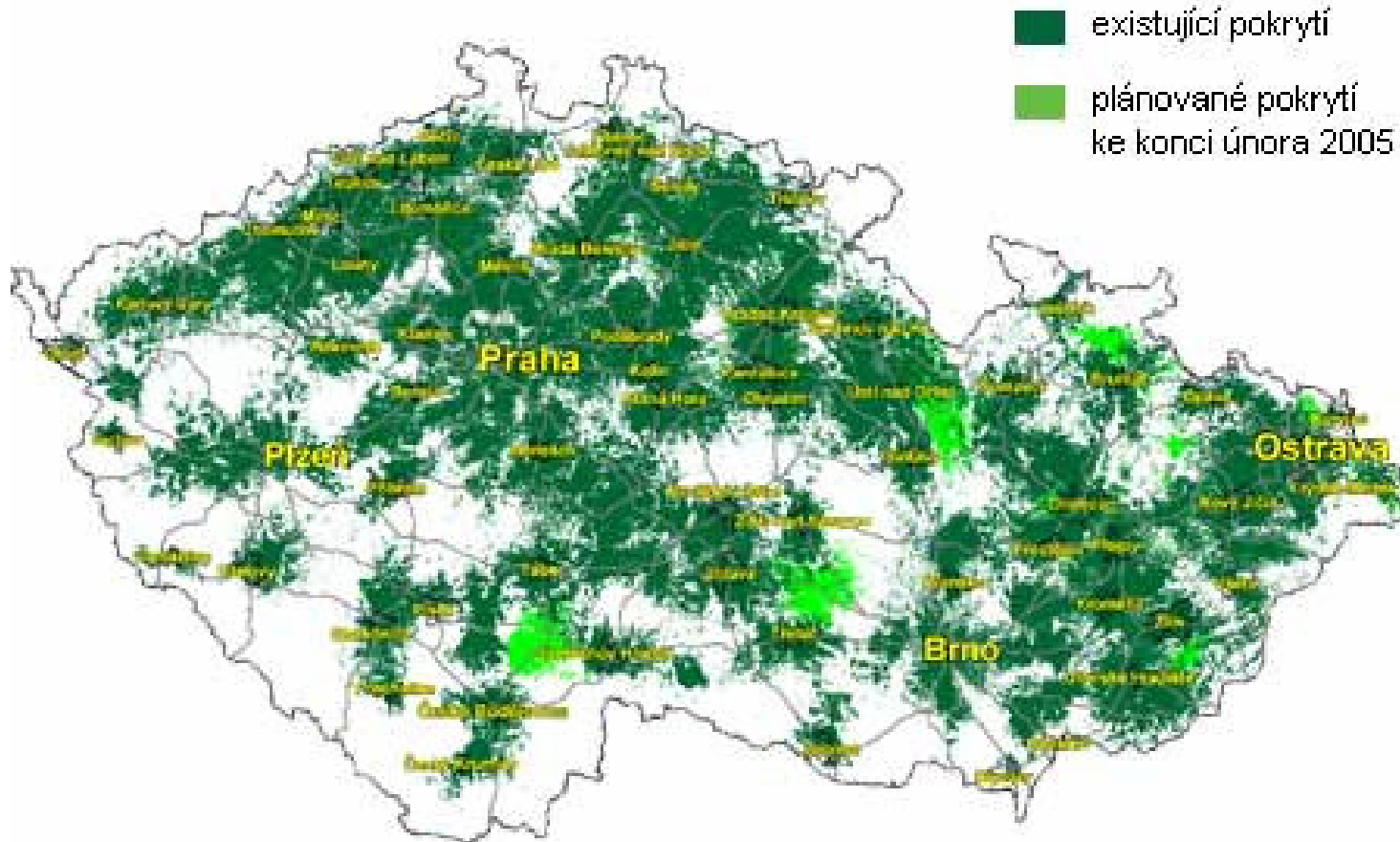
Blue: only TV is available. **Green:** Also access to the Internet



Wireless solutions to access networks

Coverage by **CDMA Internet** connection provided by Eurotel (8/2005).

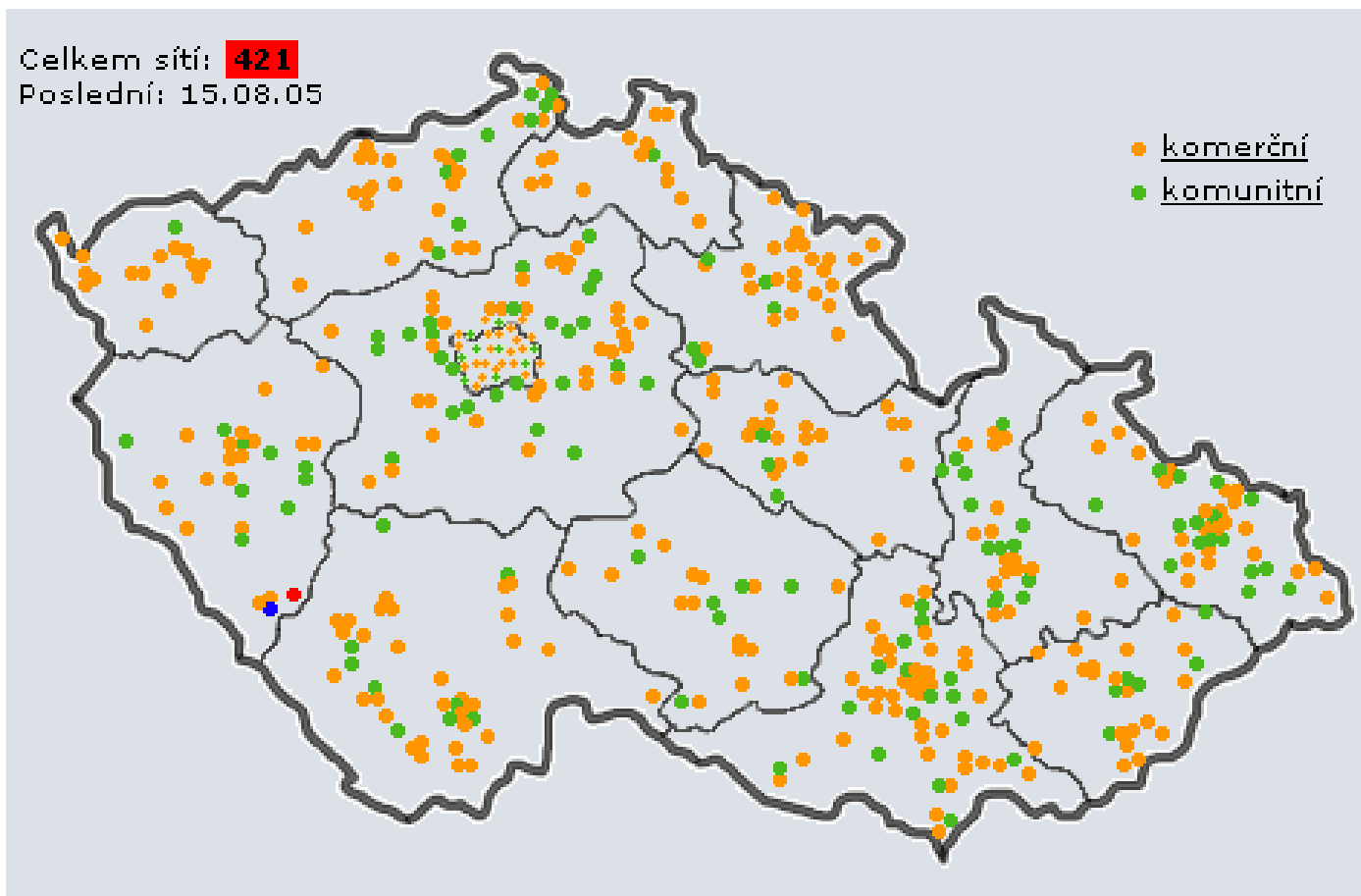
Dark green = existing, light green = planned



Wireless solutions to access networks

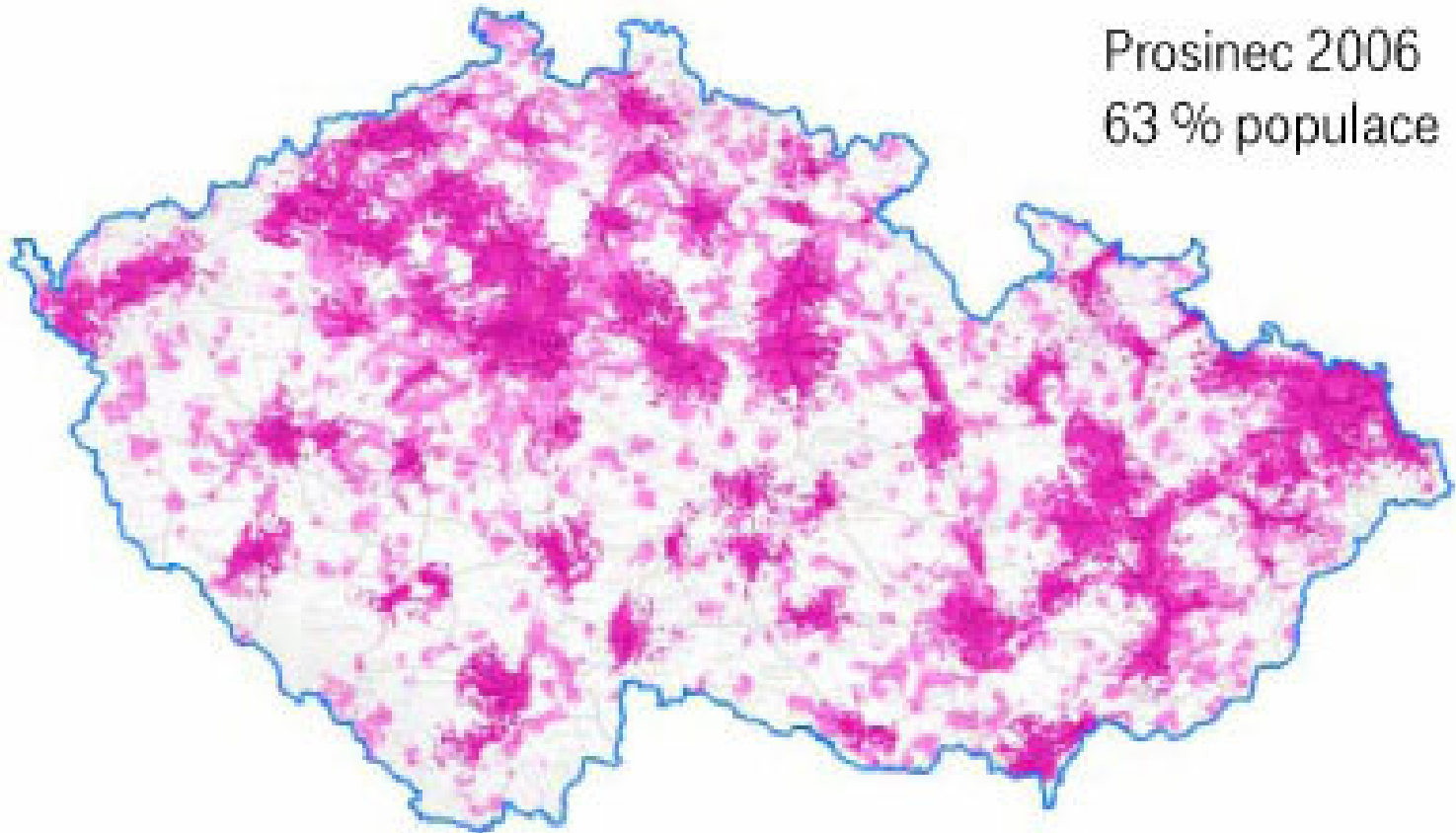
coverage by **WiFi networks**.

Hotspots: **Yellow** – commercial, **green** – free.



Wireless solutions to access networks

Coverage of **T-Mobile UMTS HSDPA** net planned for 12/2006. It will be available to 63% of the population. 6.3 Mb/s down, 3 Mb/s up.

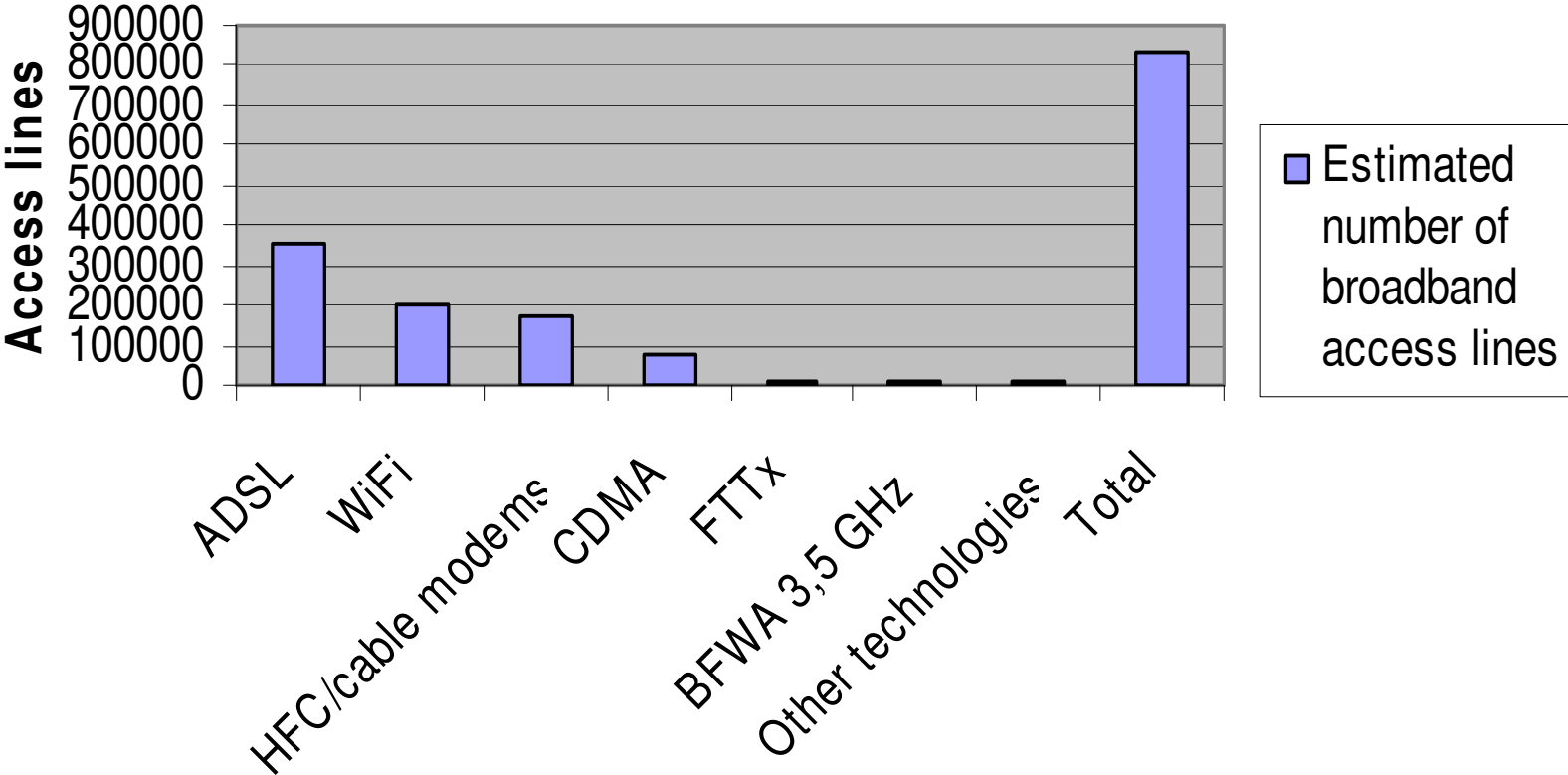


OVERALL ACCESS CONNECTIONS

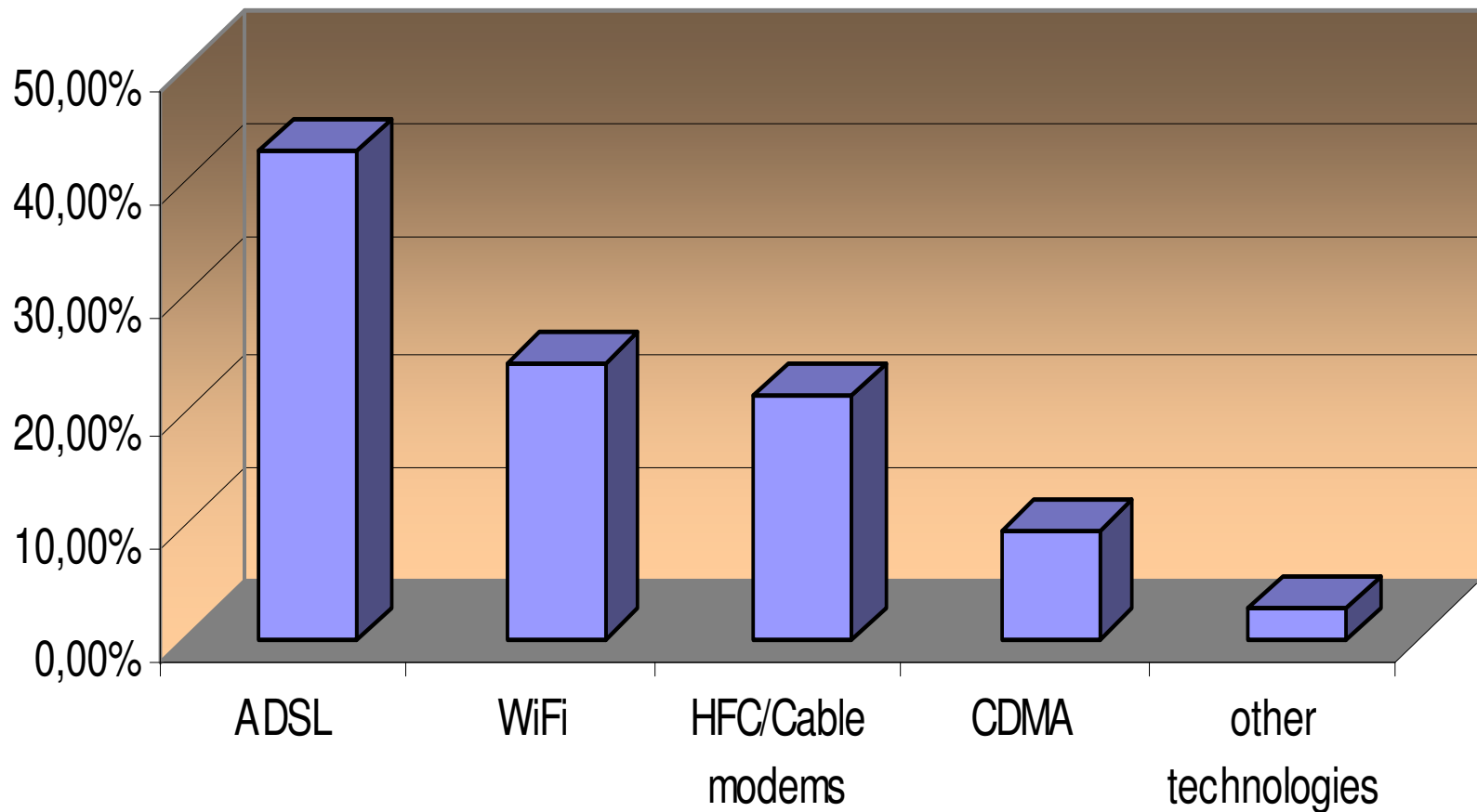
DEPLOYED IN CR BY MID 2006

Technology/type of connection	Estimated number of broadband access lines
ADSL	400 000
WiFi	200 000
HFC/cable modems	176 000
CDMA	78 000
FTTH	9 000
BFWA 3,5 GHz	6 000
Other technologies	10 000
Total	879 000

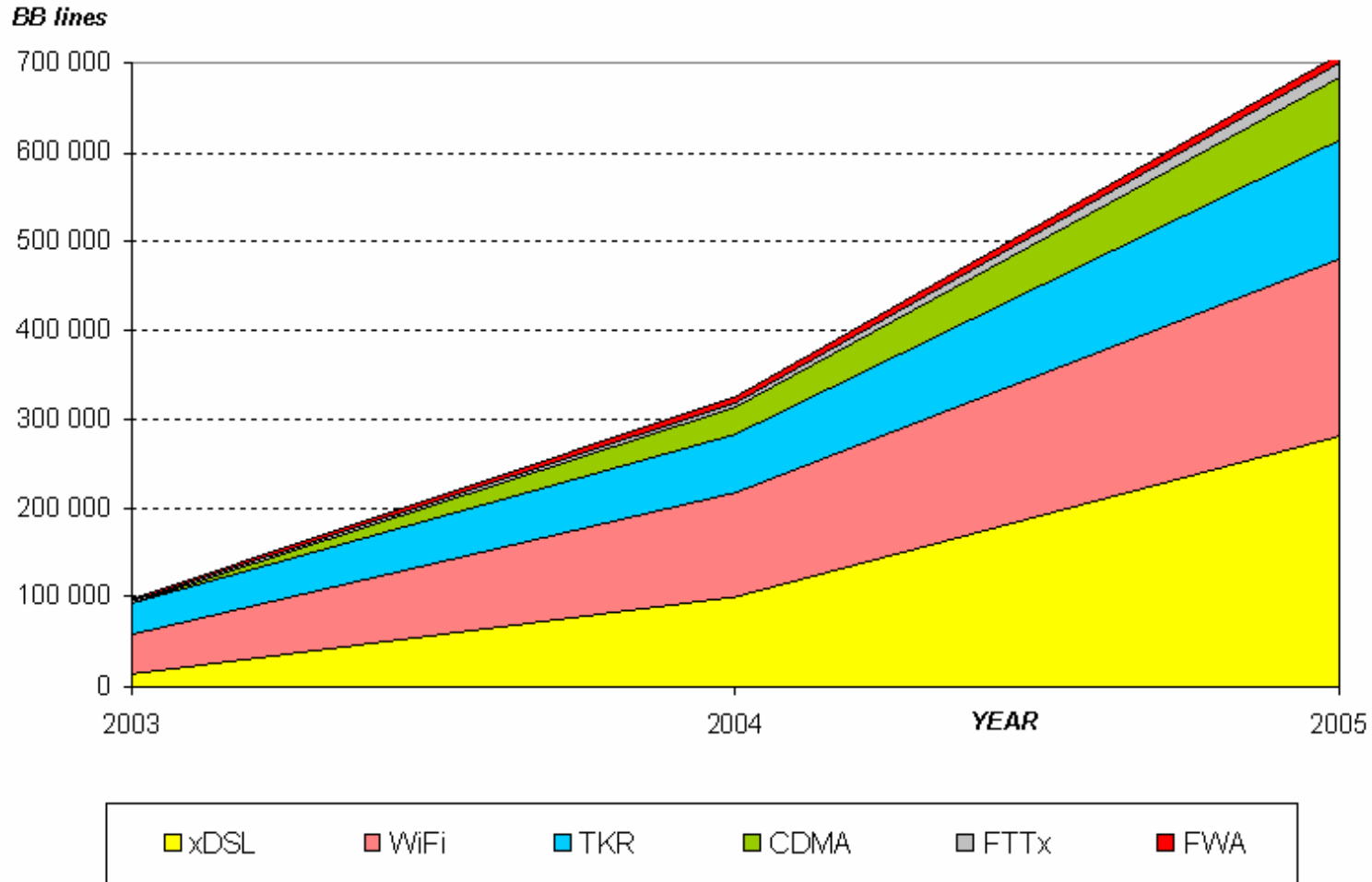
Estimated Numbers of BB Access Lines in the CR at the End of 1Q/2006



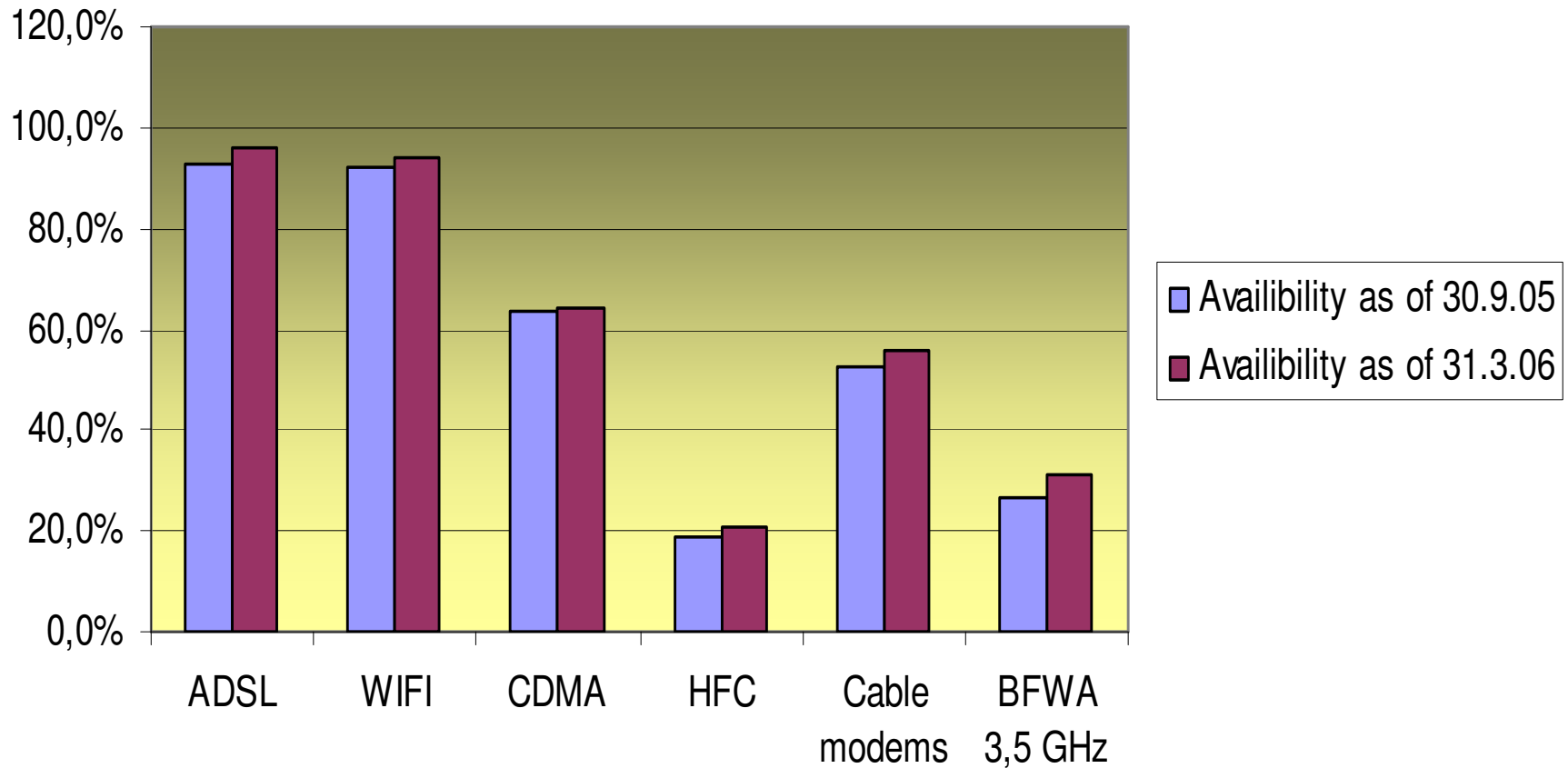
% share of individual technologies in the broadband access market in CR (1Q/06)



Growth of **total** number of BB lines in CR over the last 4 years

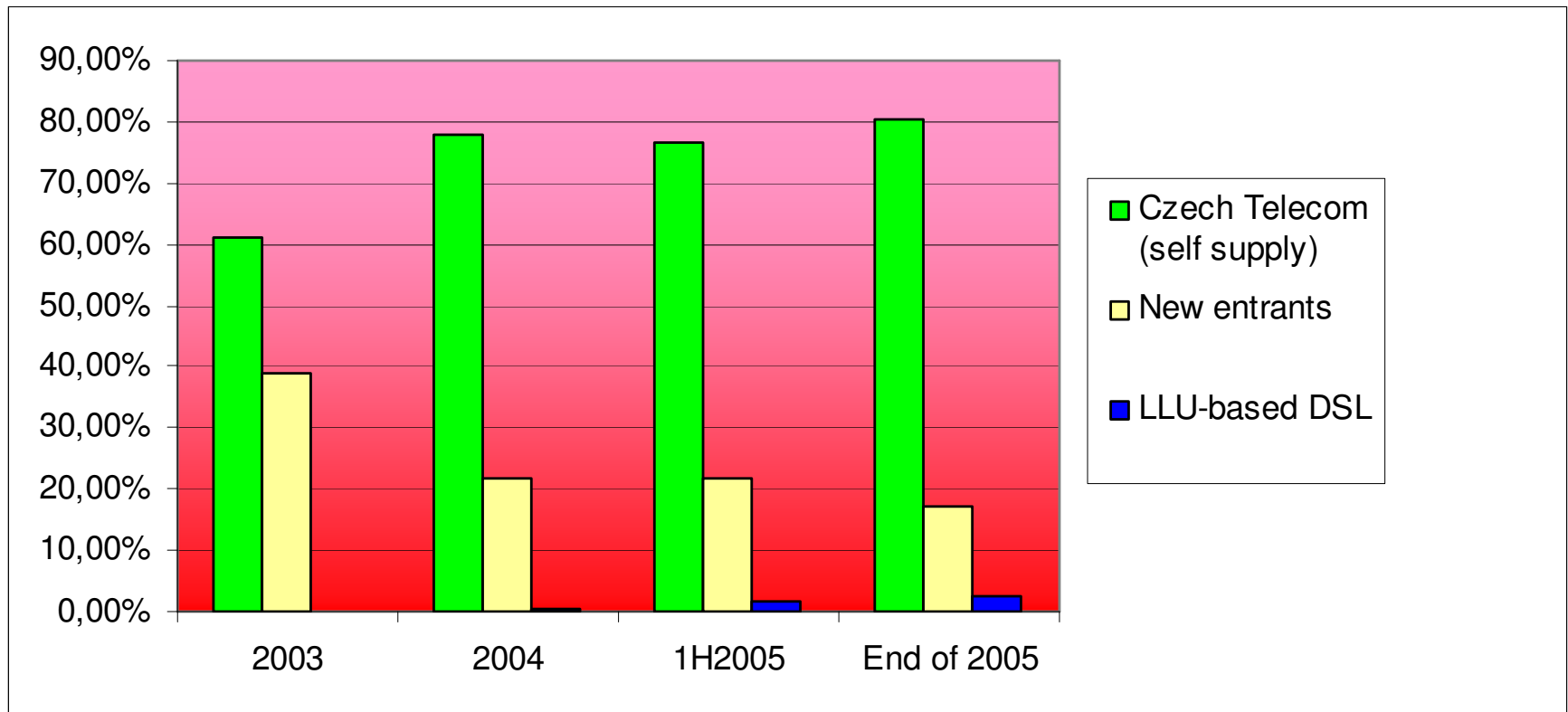


Availability of Broadband Access by Using Various Technologies in Czech Municipalities (1Q/2006)



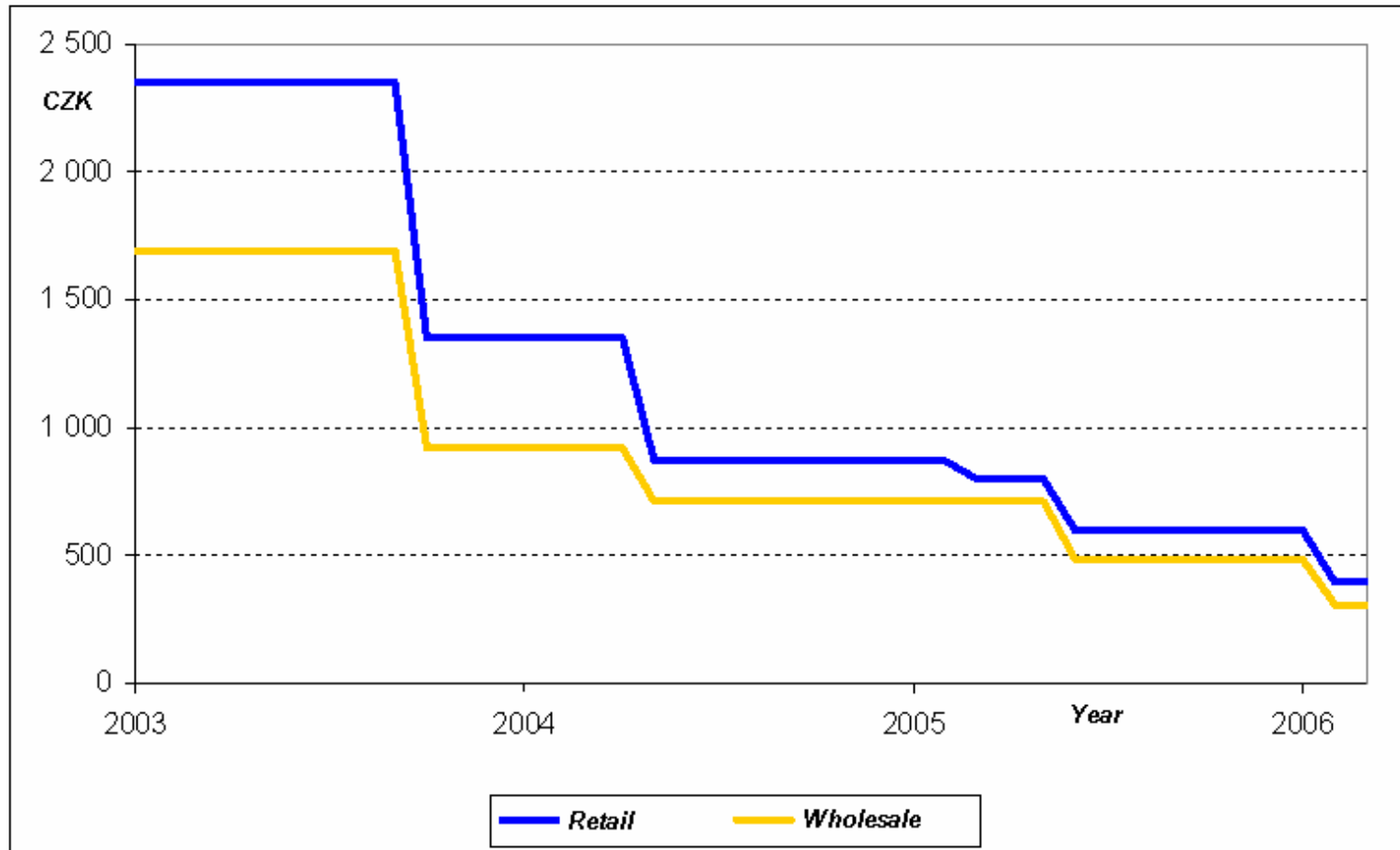
Evolution of ADSL market share in the Czech Republic.

(Source: CTO)



ADSL-Based Access Networks

Development of prices set by CTc

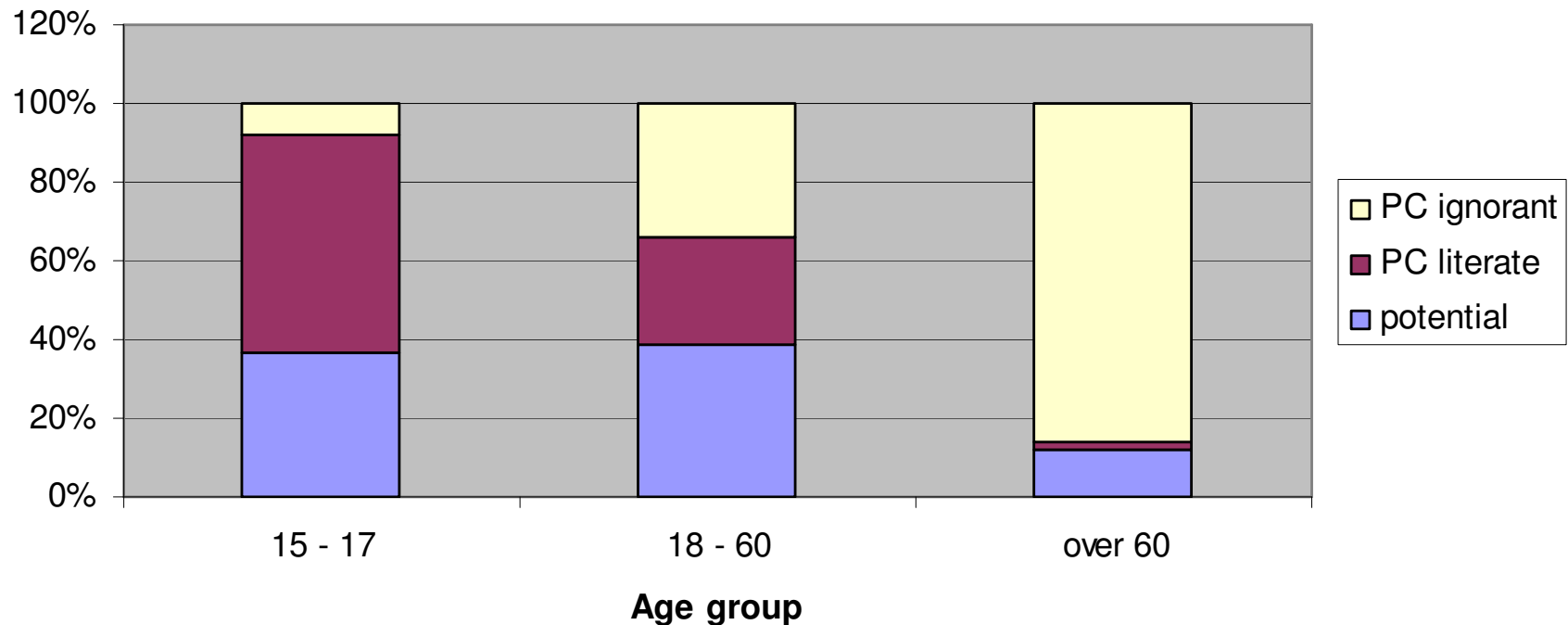


E-services in Czech Republic

- **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

Readiness of Czech population to use e-services

Computer literacy (Source: STEM/MARK)



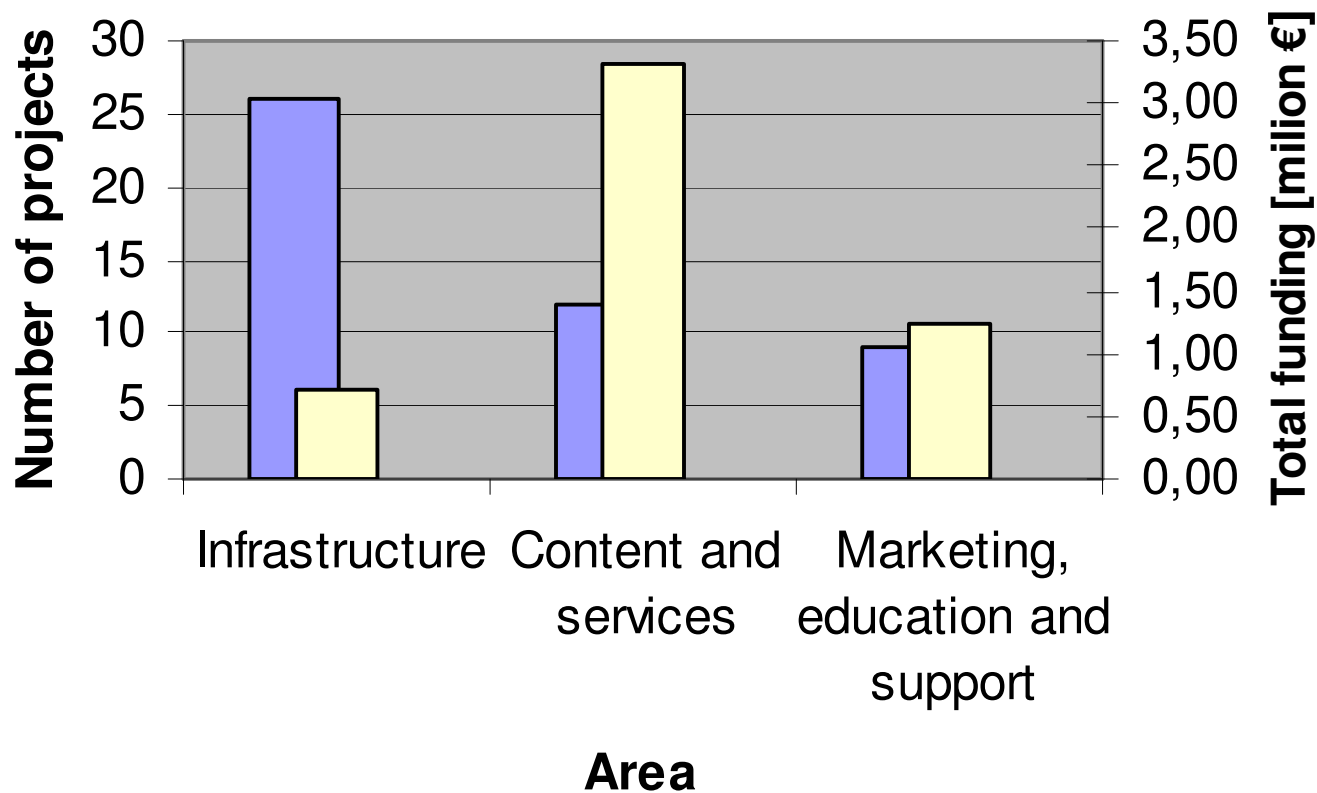
Regulatory environment in the CR

- ***Regulatory bodies:***
 - Ministry of Informatics
 - Czech Telecommunication Office
 - Antimonopoly Office
 - Radio and Television Council
- ***National broadband strategy***
 - Approved by the government on 26.1. 2005
 - Goals: All public institutions connected to Internet by 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



■ Number of projects ■ Total funding proposed [€]

Barriers, risks and prospects in developing broadband in CR

The potential of ADSL is not fully used:

- the ADSL market share of the incumbent is currently more than 80% and is still rising
- alternative operators **just resale** of the incumbent's ADSL services (LLU is insignificant)
- **bit stream** and ADSL interconnection are not yet available
- the “**naked DSL**” service, i.e., without having to pay a fixed charge for renting the line, is not available

Risk: FTTx not exempted from LLU obligation

Prospects:

- **Increasing role of wireless: WiFi, WiMax (potential competitor to DSL and cable)**
- „Free municipal wireless“?

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**
- The 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.