



Broadband investment perspectives



September 2006



Broadband in general

The issue of broadband access is not treated as a technological innovation only but as a key prerequisite for the establishment of the knowledge-based society.

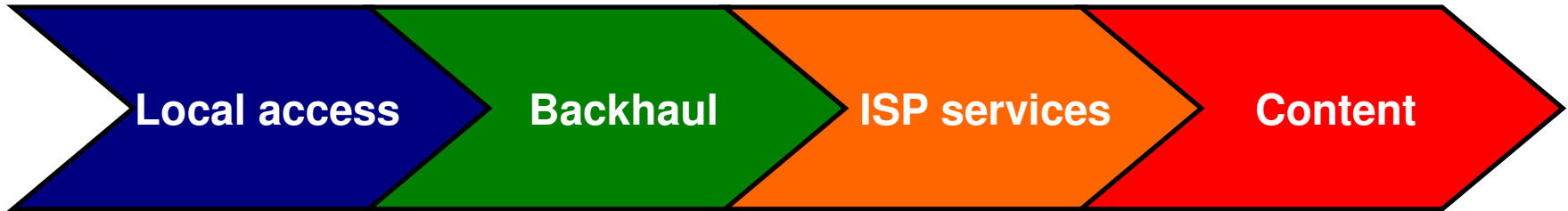
Each EU country had expressed the will to proceed with all necessary actions and the corresponding responsibility for the design , planning & implementation of the relevant projects towards the “information society” concept.

The significance of the broadband part in this Action Plan is proven as it includes :

- The widespread availability & use of broadband networks
- Services “upon” broadband infrastructure (eHealth , eLearning , eBusiness , eGovernment)

Broadband access is perceived as the mean in order to improve Citizen’s “every day” life

The Broadband “value chain”



Specifying the Value Chain

<i>Value part</i>	<i>Type (indicative)</i>	<i>Role</i>	<i>comments</i>
ACCESS	xDSL , CABLE , WLL, FTTx	Incumbent , OLO	<i><u>The power is concentrated at the incumbent level with a minor participation of OLO’s mainly through LLU</u></i>
BACKHAUL	Transmission lines (SDH , WDM, metroETH, Wireless)	Incumbent , OLO	<i><u>The main power is concentrated at the incumbent level but OLOs develop own infrastructure</u></i>
ISP SERVICES	E-mail , web access , services	OLO , ISP , ASP	<i>The services provided are mainly Web services</i>
CONTENT	Video , audio , data	Content providers , ASP	<i>The role of the content providers on this part is getting stronger by the time through valuable content provisioning</i>

The decision making considerations

COUNTRY

- EU member
- Euro zone member
- GDP

REGULATORY FRAMEWORK

- Long term techno economic perspective
- EU best practices

Analysts perception (e.g. Greece is the country with the lowest regulatory risk for the incumbent, Merrill Lynch)

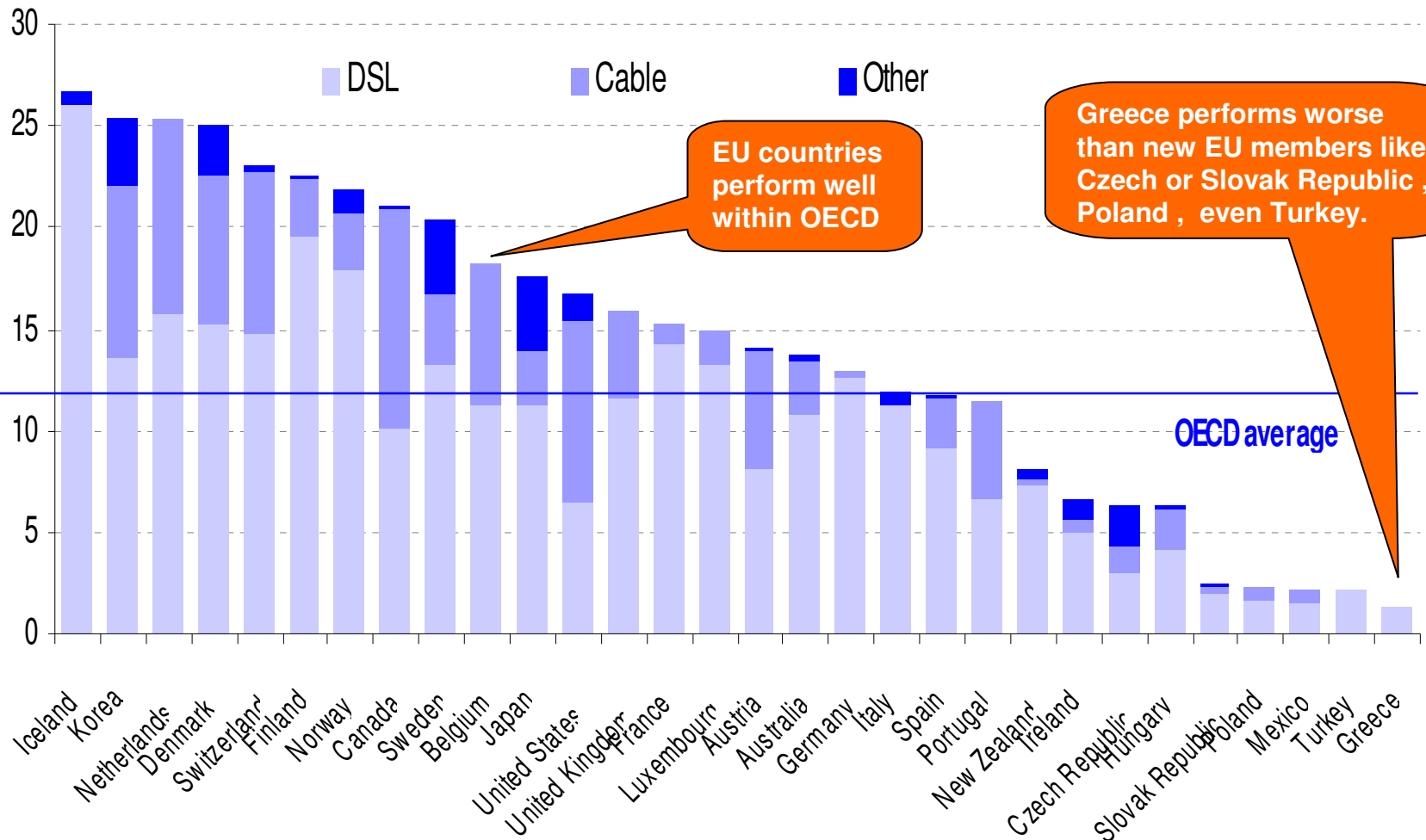
MARKET CONDITIONS

- PC penetration
- Internet penetration
- Broadband penetration

Market long run sustainability

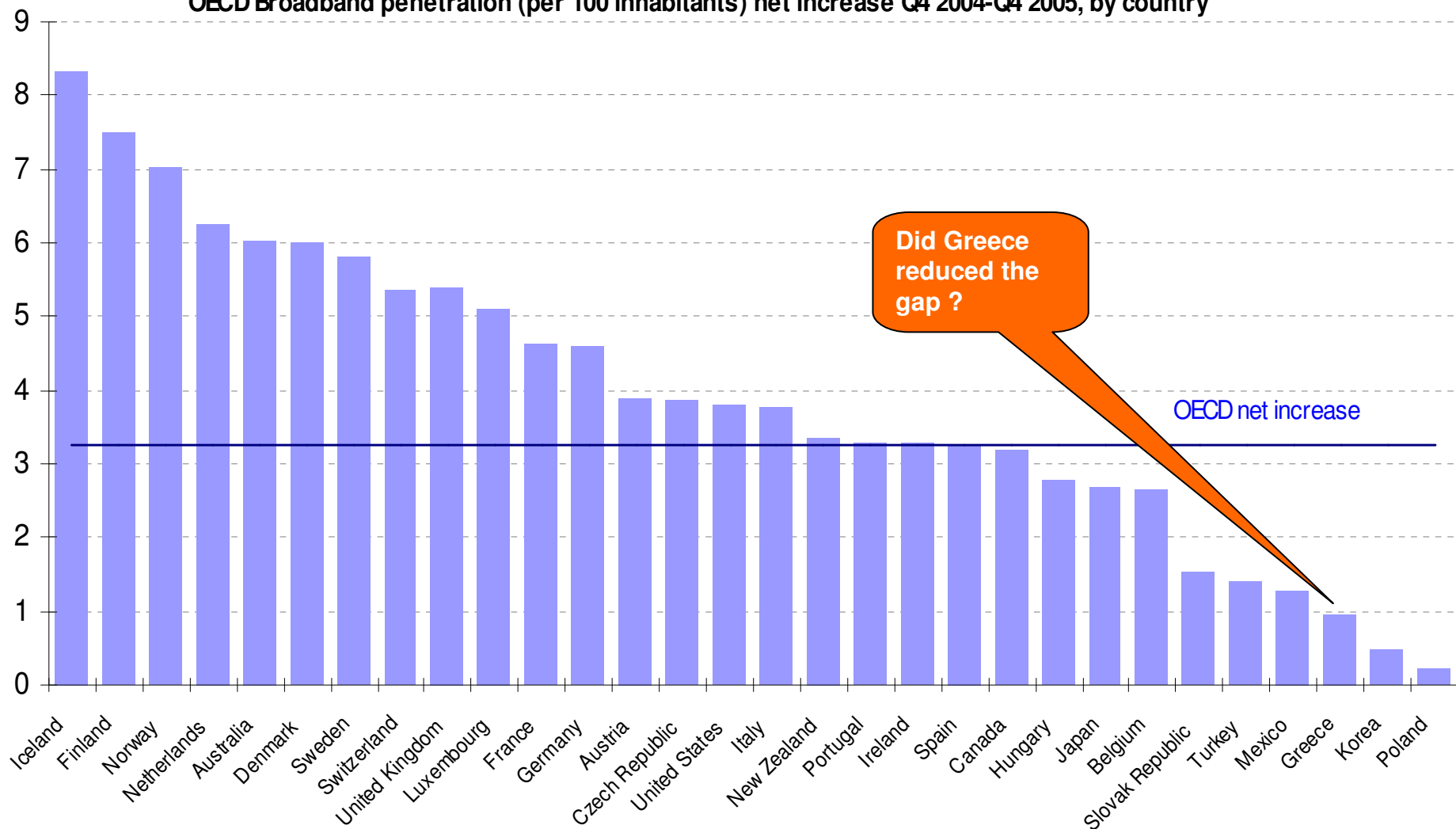
Broadband penetration – the actual picture

OECD Broadband subscribers per 100 inhabitants, by technology, December 2005



Broadband penetration – the speed of development

OECD Broadband penetration (per 100 inhabitants) net increase Q4 2004-Q4 2005, by country



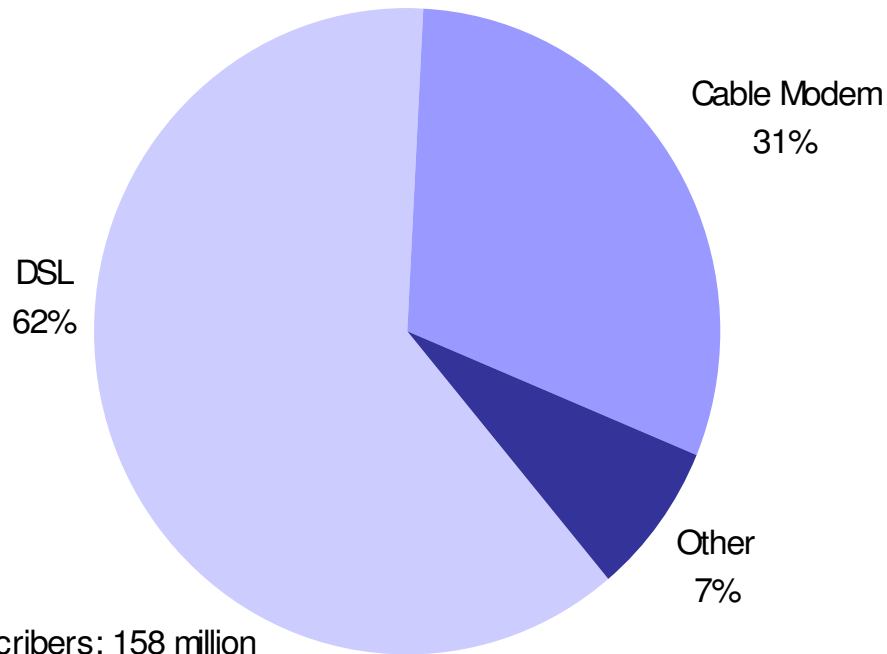
Did Greece reduced the gap ?

OECD net increase

* Source : OECD / DEC 2005

Broadband penetration – the dominant technology

OECD Broadband subscriptions, by technology, December 2005



- Especially in Europe the % of xDSL is higher reaching 75%

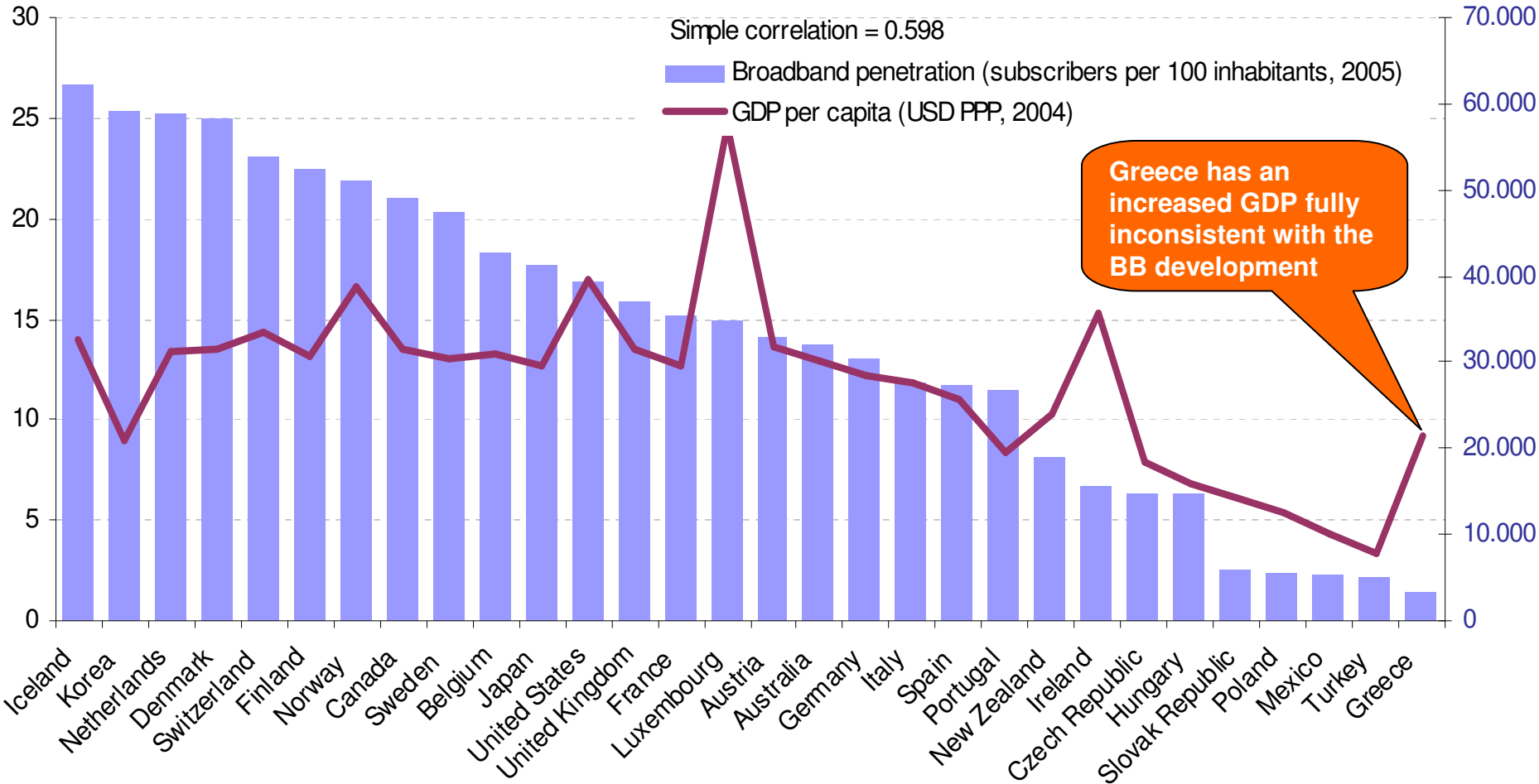
- It is clear that is xDSL technology that is running the business of BB

Broadband penetration – the economic conditions of the market

OECD broadband penetration and GDP per capita

Broadband penetration

GDP per capita



* Source : OECD / DEC 2005

Focusing on aDSL “Bitstream” in Greece

OTE never considered the OLO's as partners in order to create a Win-Win situation :

OTE DEPLOYMENT

- The capacity constraints that shown up due to OTE's planning, where the demand overcame the supply and there was a queue of applications for DSL.
- The communication/educational effort presenting the benefits of the BB never happen (recently OTE on the BB)

OTE WHOLESALE OFFER

- The economic conditions of the wholesale offer of OTE were not encouraging. The basic retail vs wholesale discount is so low that cannot lead to competitive offers (price , promotion , advertising) on behalf of the OLO's/ISP's.
- The provisioning & the assurance / SLA of the service was inadequate

Focusing on LLU in Greece

The LLU project is still far away in Greece due to :

REGULATORY ENVIRONMENT

The unclear & immature regulatory environment in conjunction with OTE's behavior. The RUO introduced was not solid enough in order to facilitate the deployment of the LLU.

- Lack of efficient provisioning & assurance procedures.
- Lack of physical collocation offer.
- Lack of Service Level Agreement.

COSTS

The total costs (cost of line , cost of sites , leased lines , e.t.c) for providing the service are very high. (Only recently the costs of line rental were reduced – especially for shared access)

Broadband development - the benefits

FOR THE SOCIETY

- Greece will meet **EU standards** by means of market development.
- Greek citizens will be benefit by the new services offered that will **improve their daily life** and will lead to the new **knowledge based era**.
- The Telecom industry will strengthen in order to sustain or **create new jobs** , through investments to profitable sectors.

FOR OTE

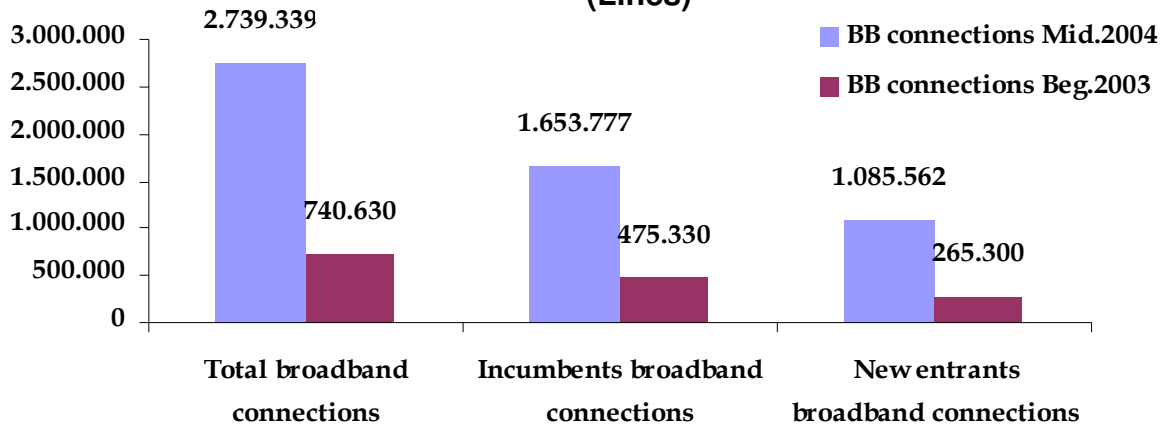
- OTE will identify **new revenue streams** in order to overcome the main threat on the traditional Fixed Telephony market which is represented by the Mobile penetration.
- OTE can develop a sustainable & growing **Carrier to Carrier unit (Wholesale)** which utilizes perfectly the core competence of every incumbent which is the backbone & access infrastructure.

FOR OLO

- The alternative carriers will achieve **healthy financial growth** that can support further investments mainly on LLU.
- The competitive environment will be attractive for **further development avoiding risk aversion**.

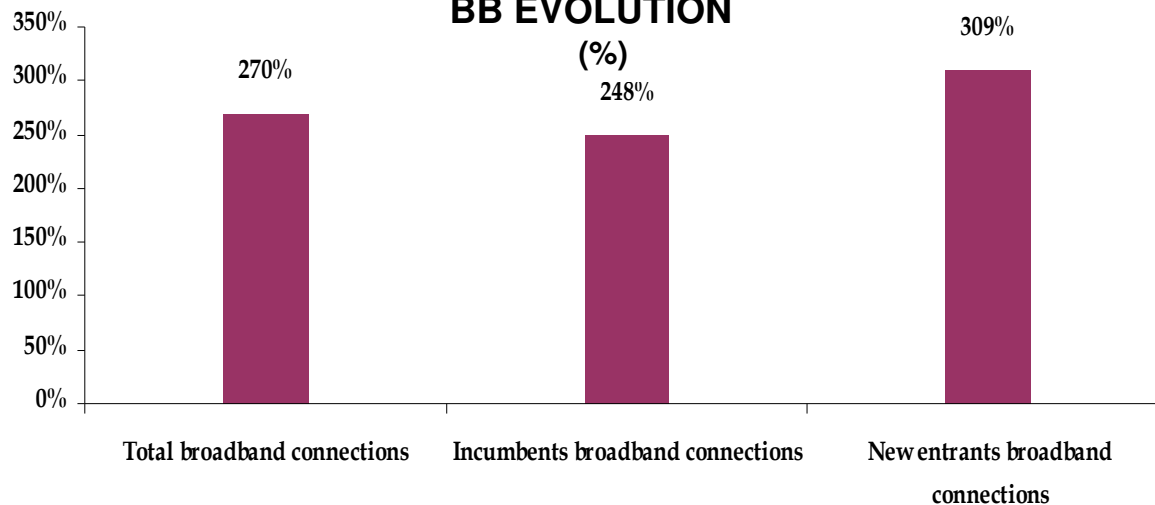
The Italian broadband explosion

BB EVOLUTION (Lines)



The lines increased by 2.000.000 in 18 months

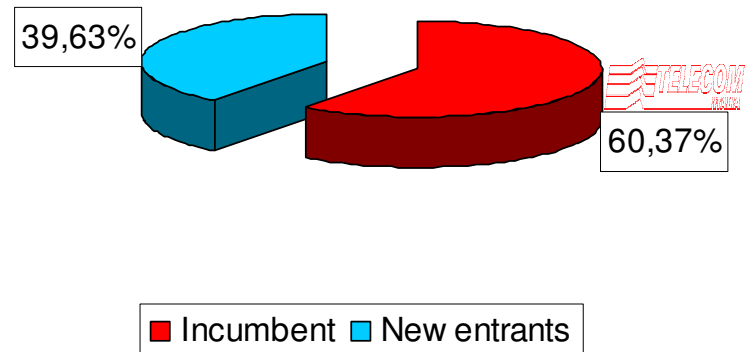
BB EVOLUTION (%)



The overall market growth reached 270% in 18 months

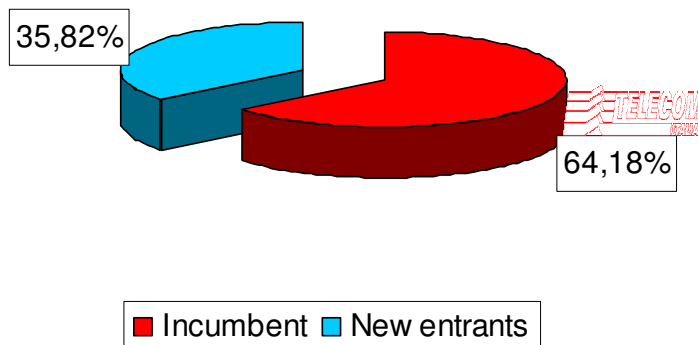
The incumbent's benefit (market enlargement)

TOTAL BROADBAND ACCESS MID.2004



The regulatory environment in comparison with TI's will to evolve the market lead to the spectacular results. Three main directions were followed:

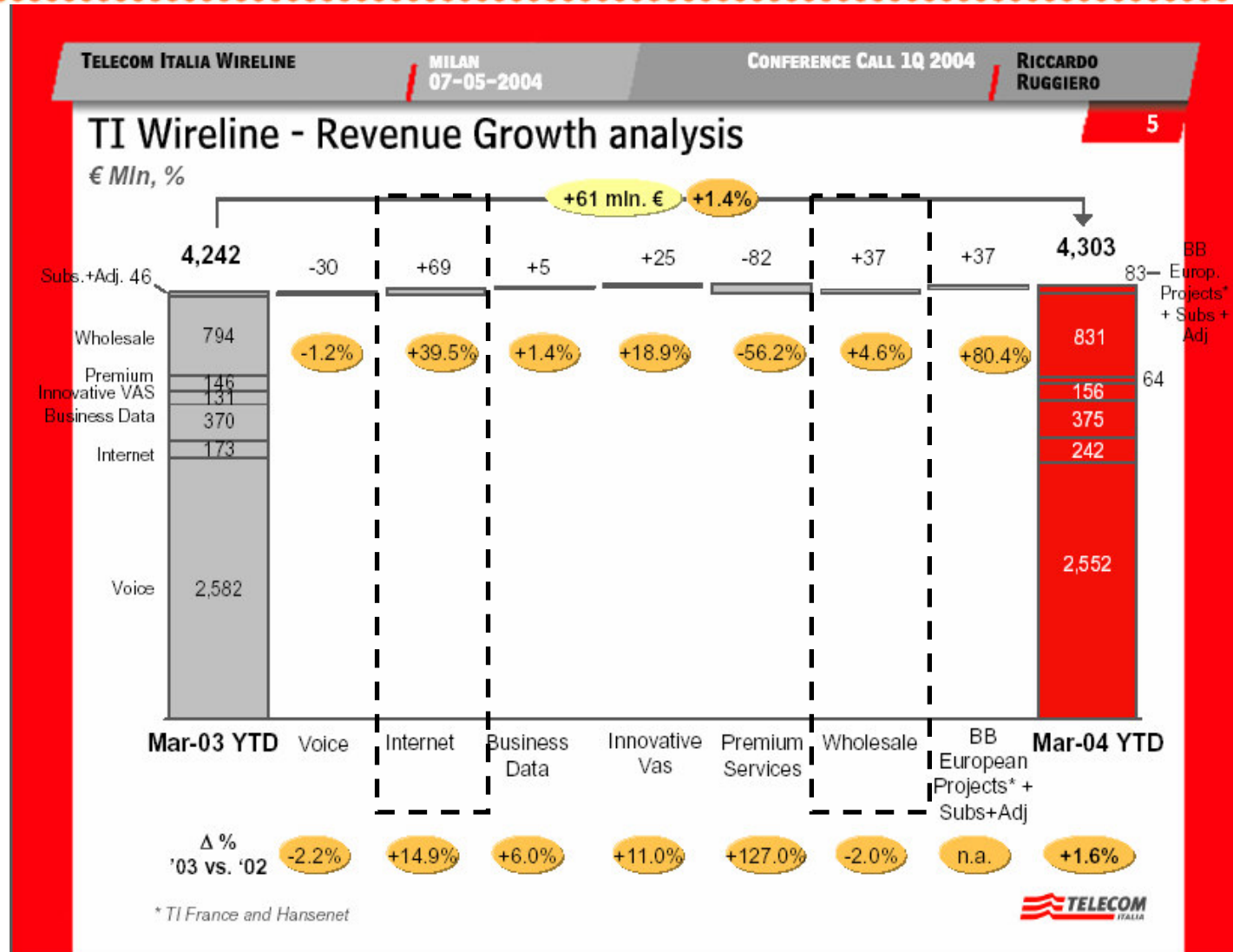
- Aggressive wholesale aDSL offer (retail – up to 60%)
- Facilitation of LLU
- EU funding through relevant programs



While the market “run” with a growth index of 270% the incumbent lost only 3,5% of the market share. The benefits for TI from this growth were stunning.

The incumbent's benefit (new revenues streams)

Internet Business had the highest growth due to aDSL revenues

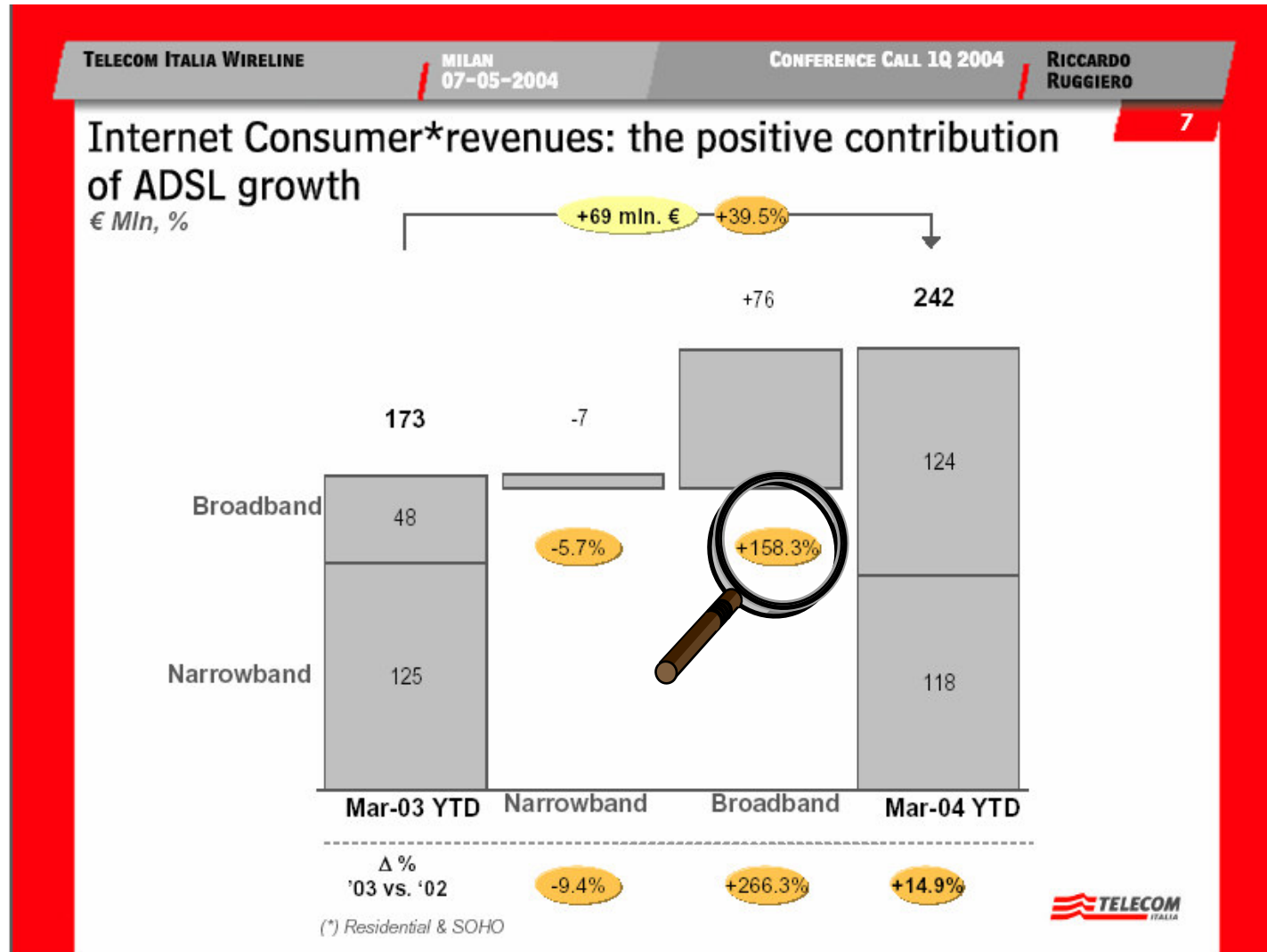


* Source : TI conference call 07/05/2004 , Riccardo Ruggiero

The incumbent's benefit (broadband Internet)

TI's aDSL growth was the key driver for the 40% increase on Internet revenues

The Broadband revenues "run" with +158%

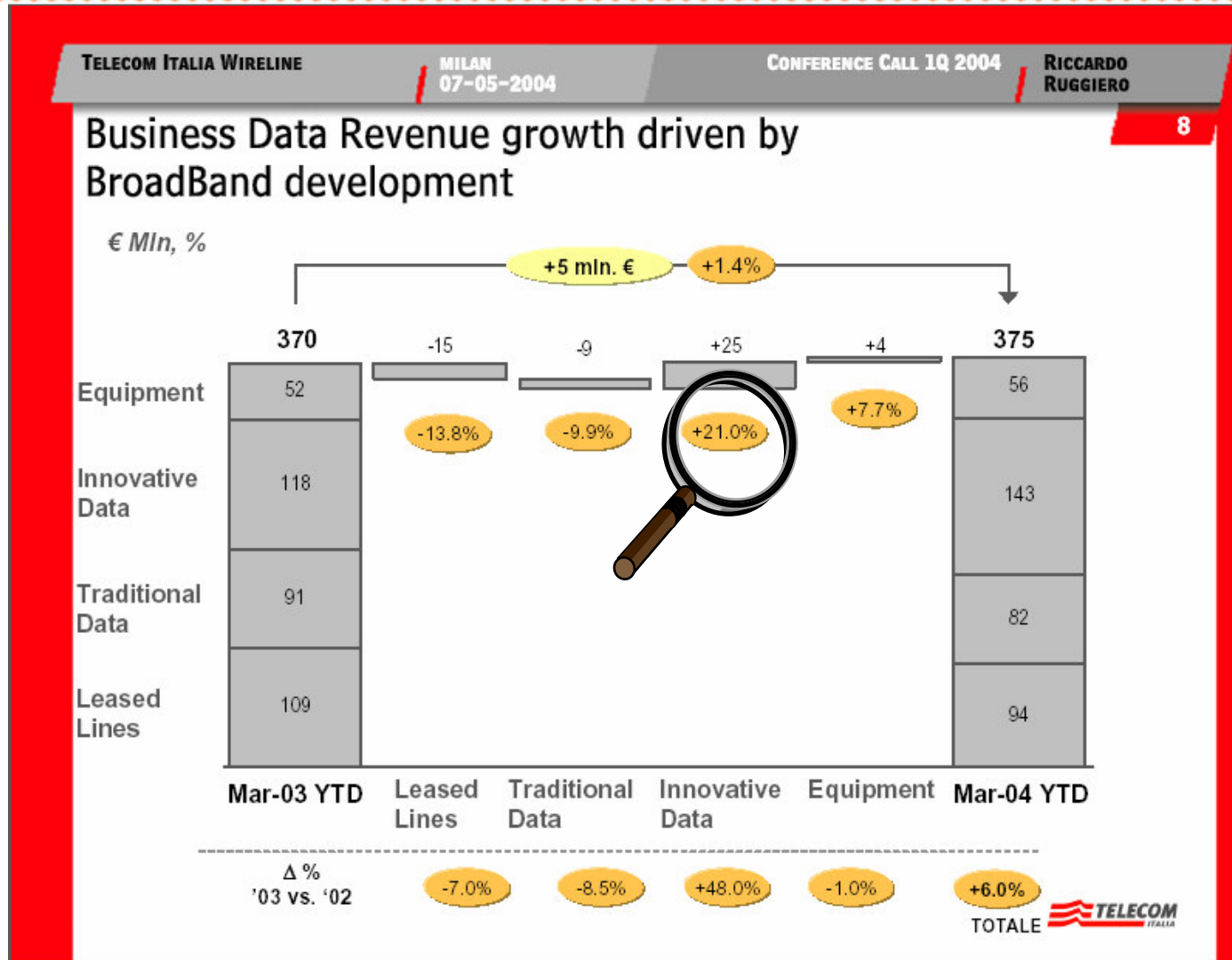


* Source : TI conference call 07/05/2004 , Riccardo Ruggiero

The incumbent's benefit (DSL data)

Only Innovative Data had a growth of 21%

Innovative data covered the loss of Traditional data & Leased Lines



* Source : TI conference call 07/05/2004 , Riccardo Ruggiero

THANK YOU

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