Overview of Ireland's Broadband Performance

This year's broadband benchmarking update is published in easy-to-read slide format in order to communicate more effectively the main messages arising from the benchmarking analysis.

November 2006

Forfás

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INTRODUCTION

Background

▶ Since 2002, Forfás has produced a series of periodic reports that benchmark Ireland's comparative performance in meeting the broadband needs of the enterprise base.

▶ The most recent report, published in December 2005, found that although there have been a number of significant developments in the Irish broadband market in recent years, Ireland's relative performance has not improved.

▶ The overarching objective of this benchmarking study is to provide an update of the gaps between Ireland and competitor countries in meeting the broadband needs of industry on a number of key issues such as take-up, prices, quality/choice and availability.

WHY IS BROADBAND IMPORTANT?

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Broadband and Enterprise Development

► Advanced telecommunications services are critical for the attraction of foreign direct investment, for the development of indigenous industry and the promotion of the knowledge economy.

► The increasing importance of services to the economy, in particular those that are structured around electronic transactions and information flows, makes it essential that Ireland has access to a highly efficient and reliable communications system.

► For SMEs, effective use of ICT allows them to compete more effectively with their counterparts in other markets, for example by reducing costs and improving the quality of services to their customer base.

# Broadband & Productivity

Broadband enables higher productivity by:

▶ allowing firms to cast their net wider when looking for suppliers or seeking new market opportunities to increase their customer-base;

▶ more effectively linking business functions e.g. sales/design/manufacturing/supply chain/stock control/accounts; and

▶ empowering employees in the field to add more value for clients in a shorter time.

Societal Benefits of Broadband

► For Government, broadband can improve the efficiency, availability and reach of public sector services in areas such as health, education and other government services;

► For consumers, broadband can enhance the quality of life through economic, social and cultural development; and

► For small, rural, and remote communities it can be an enabler for economic and social inclusion.
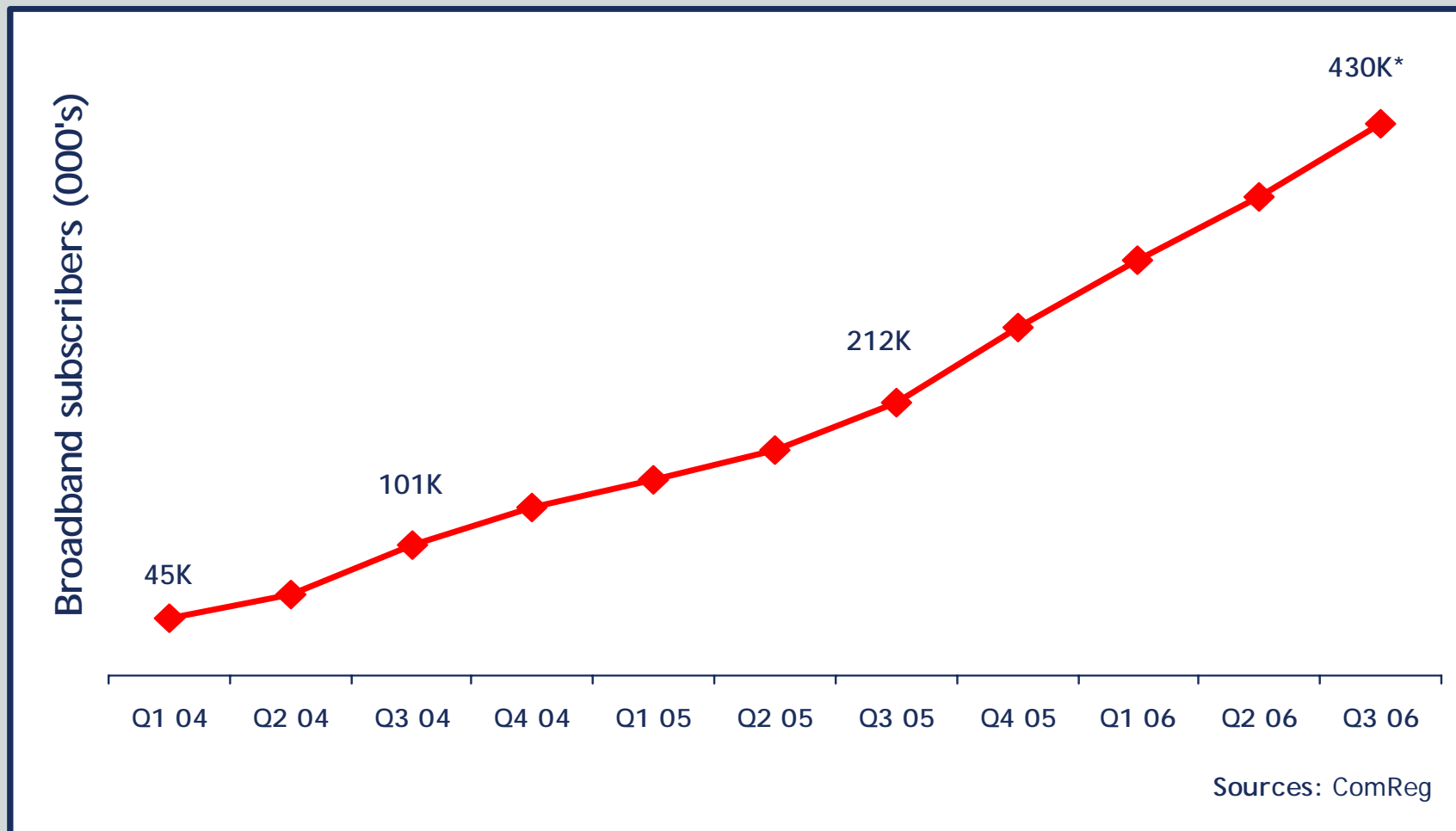
RECENT BROADBAND DEVELOPMENTS IN IRELAND

Internet Subscribers

Source: ComReg
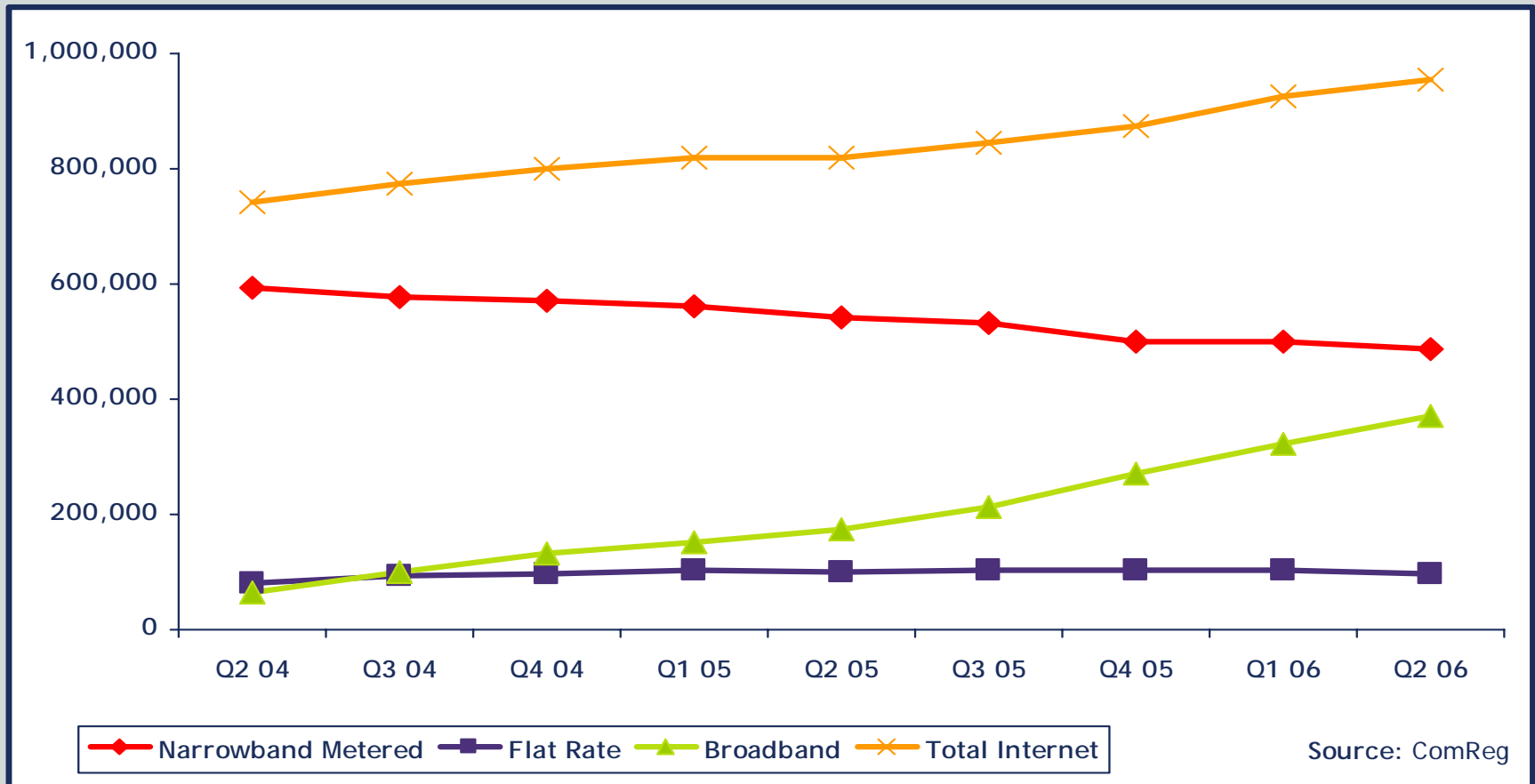
- Total number of internet subscribers has increased 17% year on year;
- Decline in narrowband metered subscribers in recent quarters while broadband take-up continues to grow; and
- Flat-rate subscribers are largely unchanged.

Growth in Broadband Subscribers

Broadband subscribers (000's)

430K*

212K

101K

45K

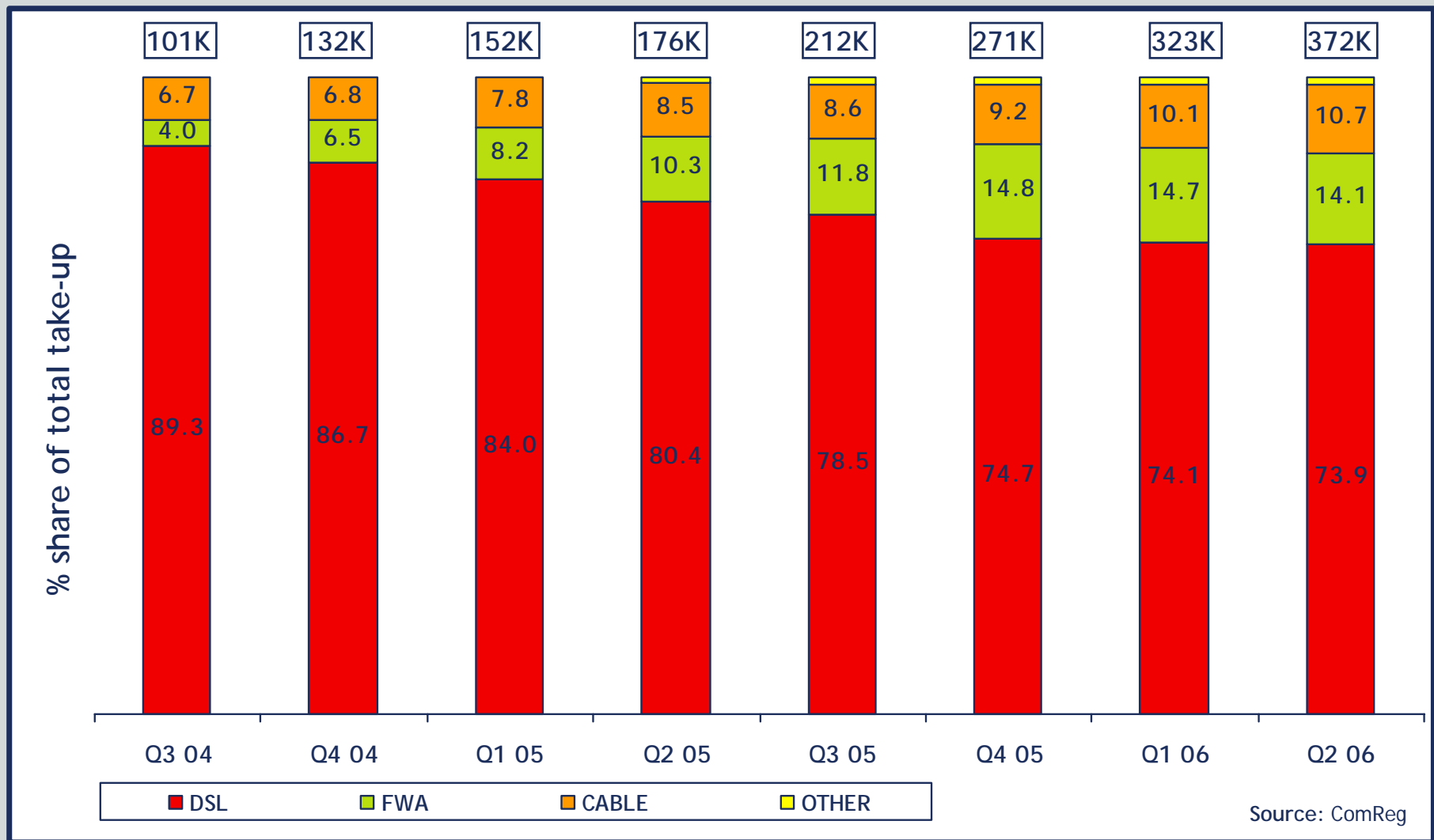Q1 04　Q2 04　Q3 04　Q4 04　Q1 05　Q2 05　Q3 05　Q4 05　Q1 06　Q2 06　Q3 06

Sources: ComReg

Note: * Q3 2006 is estimated.

- In Q3 2006, there were approx. 430,000 broadband subscribers in Ireland, up from 212,000 subscribers in Q3 2005. That represents an annual increase of 103%.

Broadband Take-up by Platform

% share of total take-up

|	Q3 04	Q4 04	Q1 05	Q2 05	Q3 05	Q4 05	Q1 06	Q2 06
Total	101K	132K	152K	176K	212K	271K	323K	372K
CABLE	6.7	6.8	7.8	8.5	8.6	9.2	10.1	10.7
FWA	4.0	6.5	8.2	10.3	11.8	14.8	14.7	14.1
DSL	89.3	86.7	84.0	80.4	78.5	74.7	74.1	73.9

Legend: ■ DSL ■ FWA ■ CABLE □ OTHER

Source: ComReg

Note: FWA = Fixed Wireless Access

- DSL continues to lose share to FWA and cable which between them now account for one in four broadband subscribers.
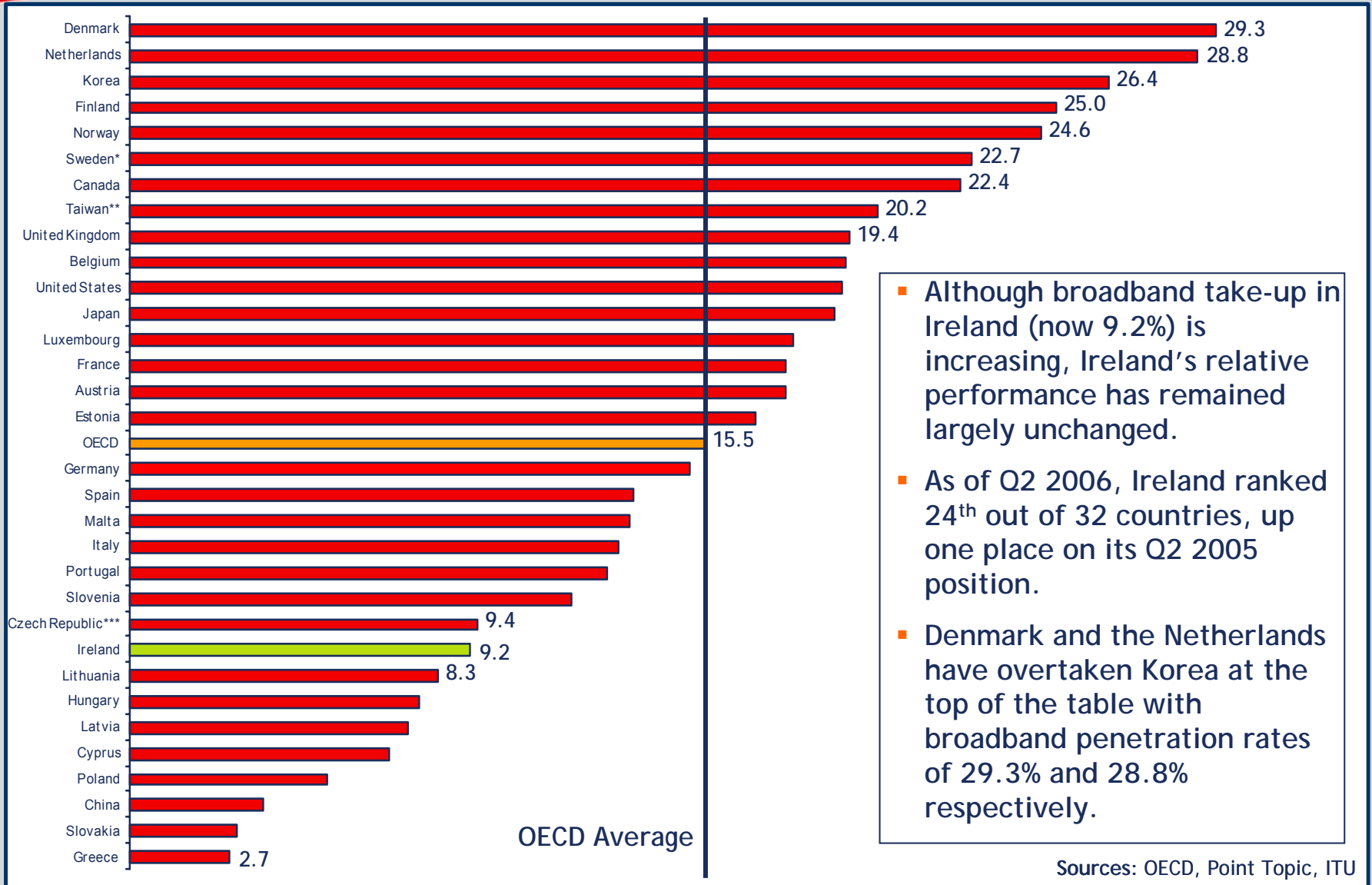
Price of Entry-Level Broadband

Source: Forfás
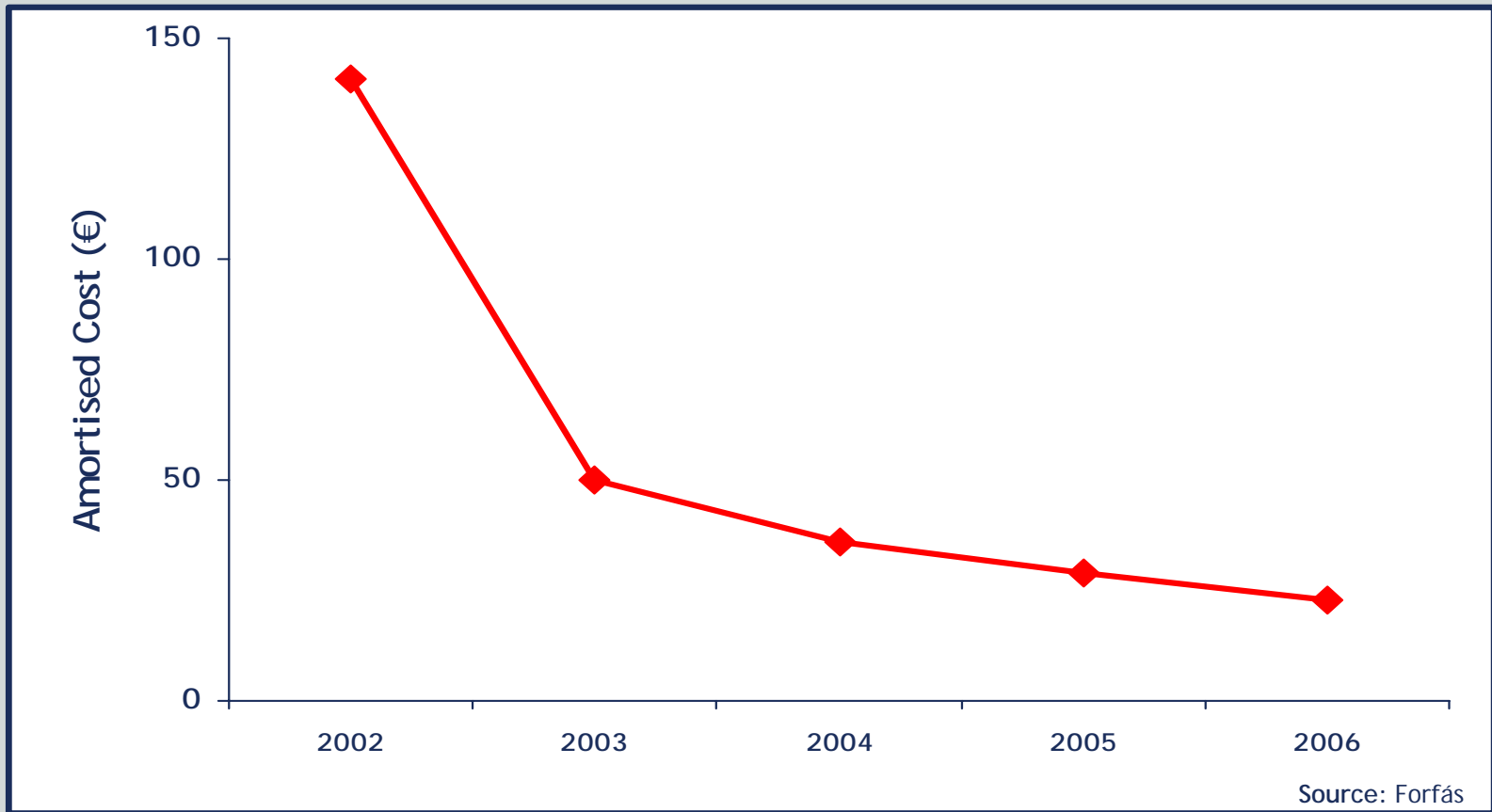
- The cost of entry level DSL continues to fall.

HOW DOES BROADBAND TAKE-UP IN IRELAND COMPARE?

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Broadband Take-up
(% of population – June 2006)

- Although broadband take-up in Ireland (now 9.2%) is increasing, Ireland's relative performance has remained largely unchanged.

- As of Q2 2006, Ireland ranked 24th out of 32 countries, up one place on its Q2 2005 position.

- Denmark and the Netherlands have overtaken Korea at the top of the table with broadband penetration rates of 29.3% and 28.8% respectively.

Sources: OECD, Point Topic, ITU

Notes: * Data for Sweden is based on preliminary estimates (OECD); ** Data for Taiwan is Q4 2005; *** Data for Czech Rep includes a large number of fixed wireless broadband connections provided over mobile networks (OECD).

Broadband Take-up by Household
Q1 2006

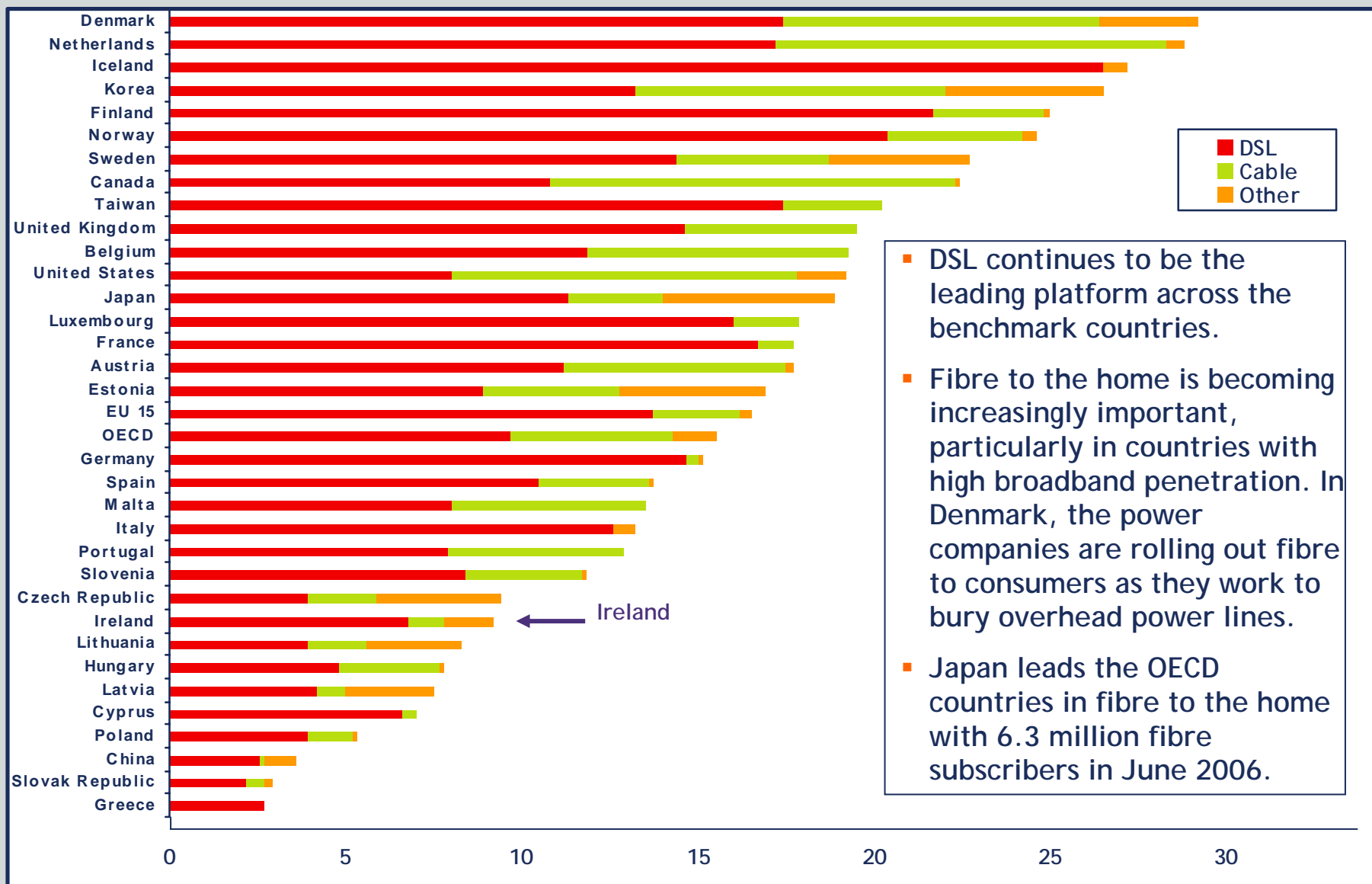| Country	%
Netherlands	66%
Denmark	63%
Norway	57%
Finland	53%
Sweden	51%
Belgium	48%
UK	44%
Luxembourg	
Estonia	
Slovenia	
Germany	
EU-15	34%
Austria	
EU-25	32%
France	
Spain	
Portugal	
Latvia	
Poland	
Hungary	
Lithuania	
Italy	16%
Ireland	13%
Cyprus	12%
Slovakia	11%
Greece	4%
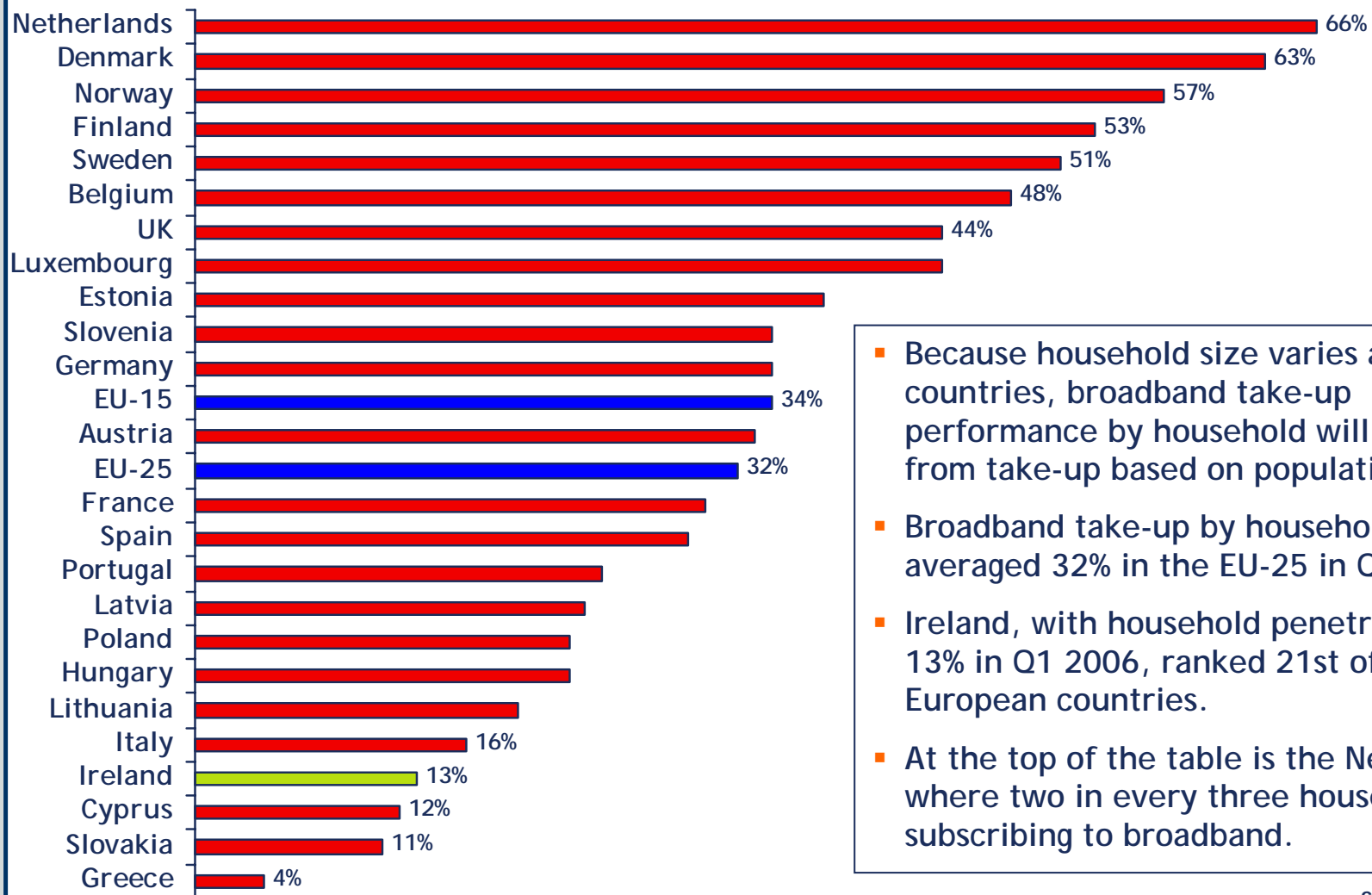
- Because household size varies across countries, broadband take-up performance by household will differ from take-up based on population.

- Broadband take-up by household averaged 32% in the EU-25 in Q1 2006.

- Ireland, with household penetration of 13% in Q1 2006, ranked 21st of 24 European countries.

- At the top of the table is the Netherlands where two in every three households is subscribing to broadband.
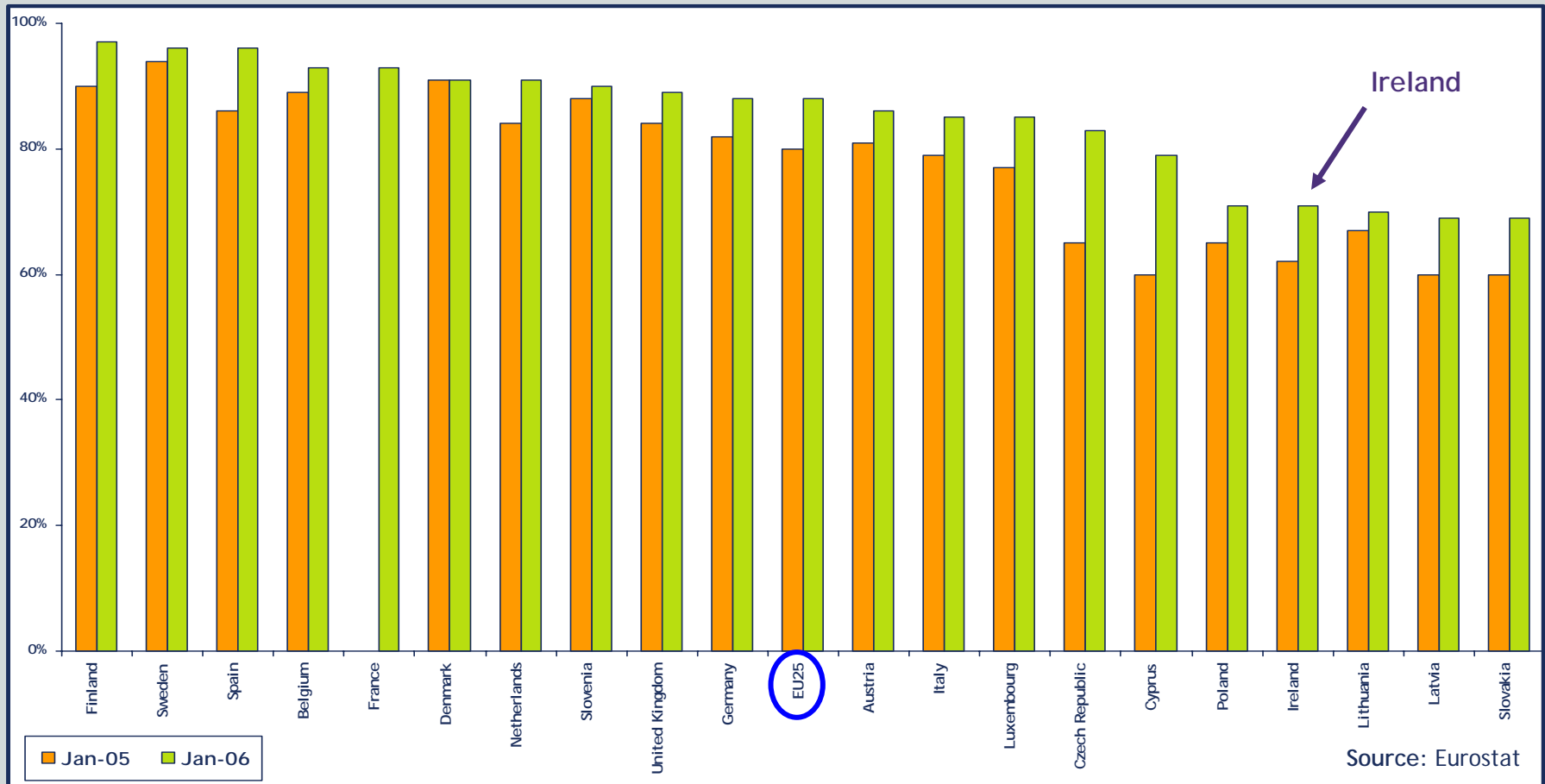
Sources: Eurostat

Note: Data was unavailable for the Czech Republic and Malta.

Broadband Take-up by Platform
## (% of population – June 2006)

Legend:
- DSL
- Cable
- Other

Countries (top to bottom): Denmark, Netherlands, Iceland, Korea, Finland, Norway, Sweden, Canada, Taiwan, United Kingdom, Belgium, United States, Japan, Luxembourg, France, Austria, Estonia, EU 15, OECD, Germany, Spain, Malta, Italy, Portugal, Slovenia, Czech Republic, Ireland, Lithuania, Hungary, Latvia, Cyprus, Poland, China, Slovak Republic, Greece

Ireland (arrow pointing to Ireland bar)

- DSL continues to be the leading platform across the benchmark countries.

- Fibre to the home is becoming increasingly important, particularly in countries with high broadband penetration. In Denmark, the power companies are rolling out fibre to consumers as they work to bury overhead power lines.

- Japan leads the OECD countries in fibre to the home with 6.3 million fibre subscribers in June 2006.

Note: See previous slide

Sources: OECD, Point Topic, ITU

Broadband Take-up by Medium-sized Firms
(50-249 employees)

Ireland

Note: 2005 data was not available for France.

- Although broadband take-up by medium-sized firms in Ireland increased from 62% in January 2005 to 71% in January 2006, Ireland continues to lag its European counterparts. The EU-25 average is 88%.

Broadband Take-up by Small-sized Firms
(10-49 employees)

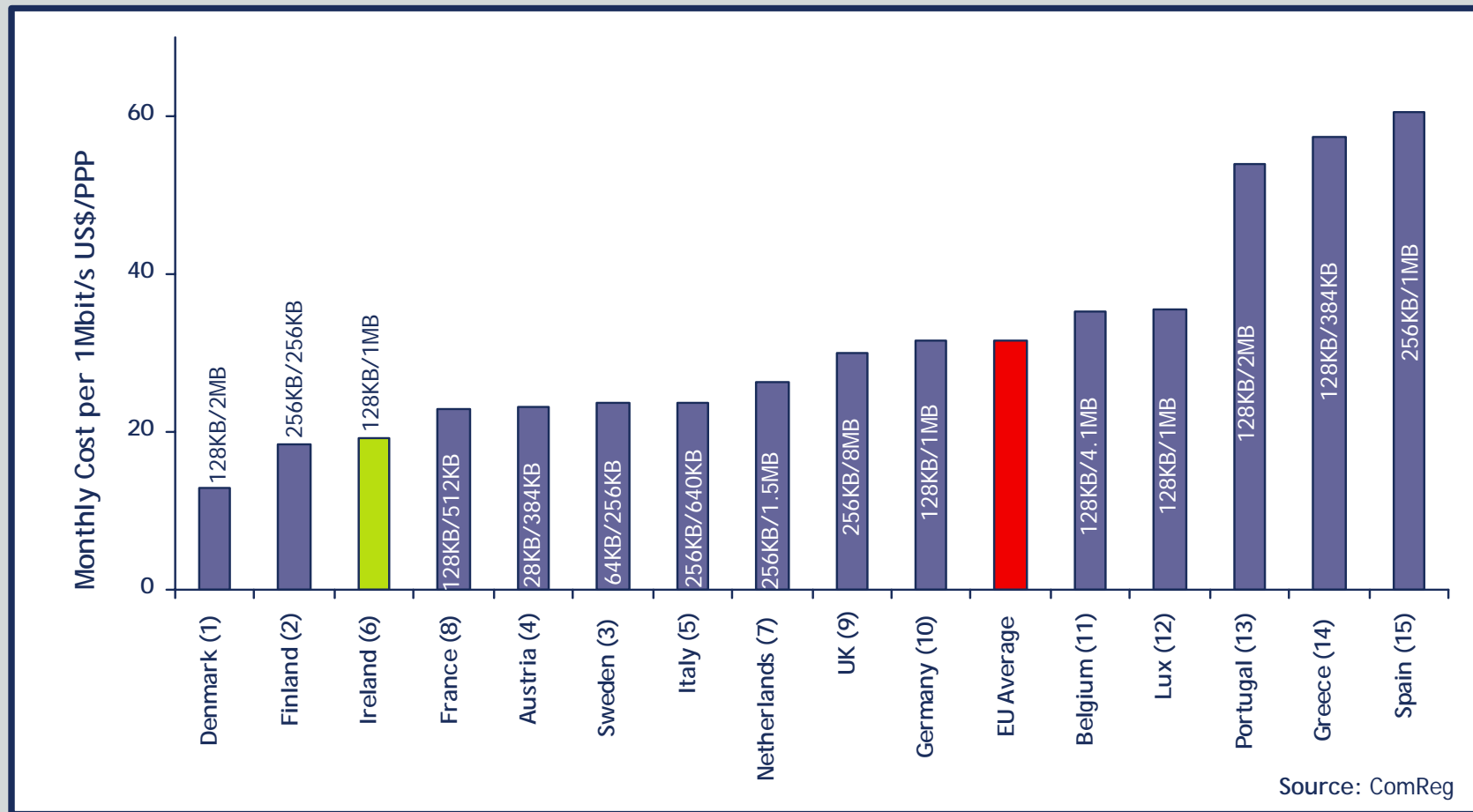Ireland

Legend: ■ Jan-05 ■ Jan-06

Source: Eurostat
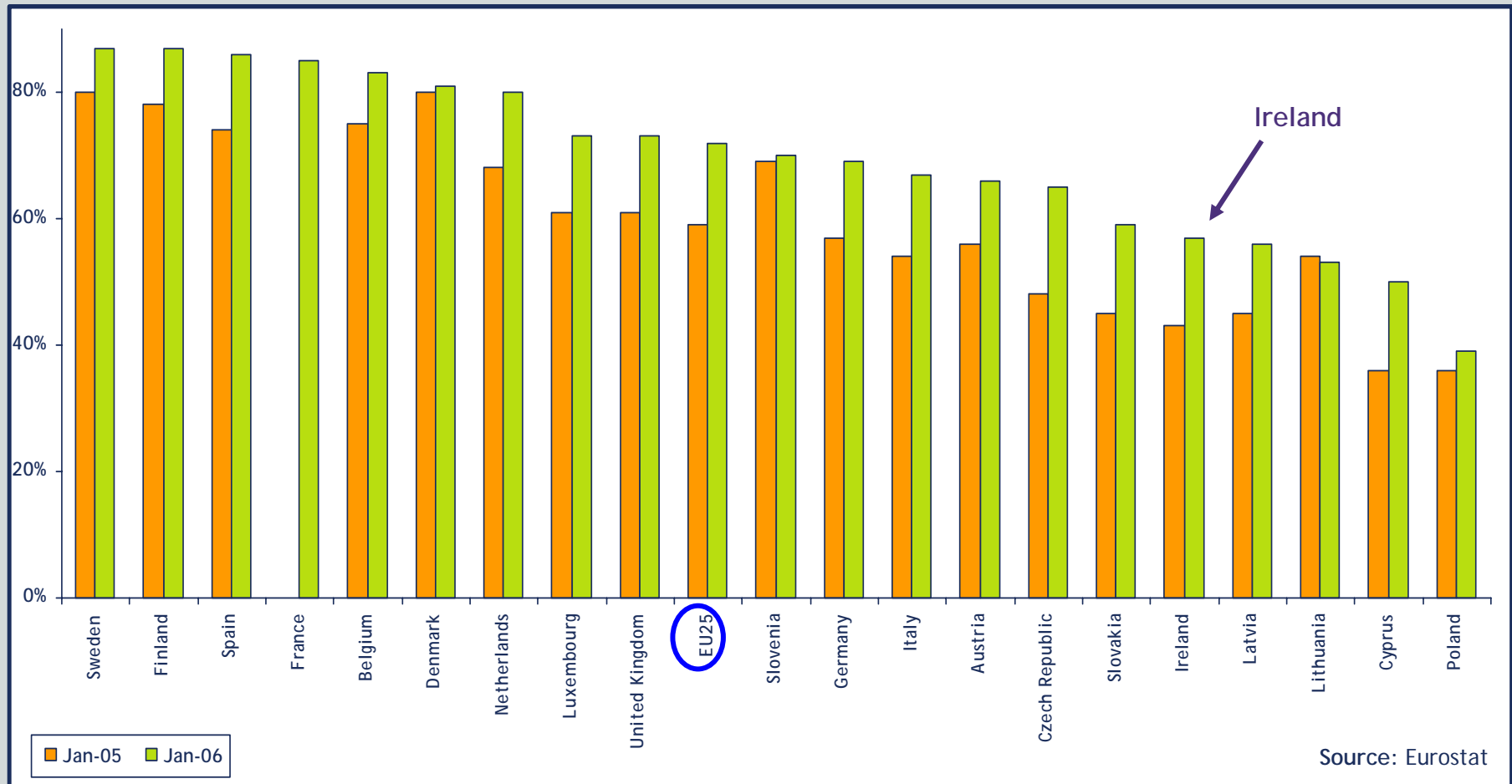
Note: 2005 data was not available for France.

- **Broadband take-up by small-sized firms in Ireland rose from 43% in January 2005 to 57% in January 2006 but the EU-25 average is 72%.**

# SUPPLY-SIDE ISSUES

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Entry Level Broadband Costs
May 2006

Monthly Cost per 1Mbit/s US$/PPP

- Denmark (1): 128KB/2MB
- Finland (2): 256KB/256KB
- Ireland (6): 128KB/1MB
- France (8): 128KB/512KB
- Austria (4): 28KB/384KB
- Sweden (3): 64KB/256KB
- Italy (5): 256KB/640KB
- Netherlands (7): 256KB/1.5MB
- UK (9): 256KB/8MB
- Germany (10): 128KB/1MB
- EU Average
- Belgium (11): 128KB/4.1MB
- Lux (12): 128KB/1MB
- Portugal (13): 128KB/2MB
- Greece (14): 128KB/384KB
- Spain (15): 256KB/1MB

Source: ComReg

Note: The numbers in brackets represent each Member State's respective rankings as of Nov 2005.

- **For entry-level DSL, Ireland compares well on price relative to the EU-15, ranking 3rd out of the EU-15 countries.**

2 Mbit/s SDSL Services
September 2006

12 Months Amortised Costs in Euro/PPP (VAT excluded)

Source: Teligen
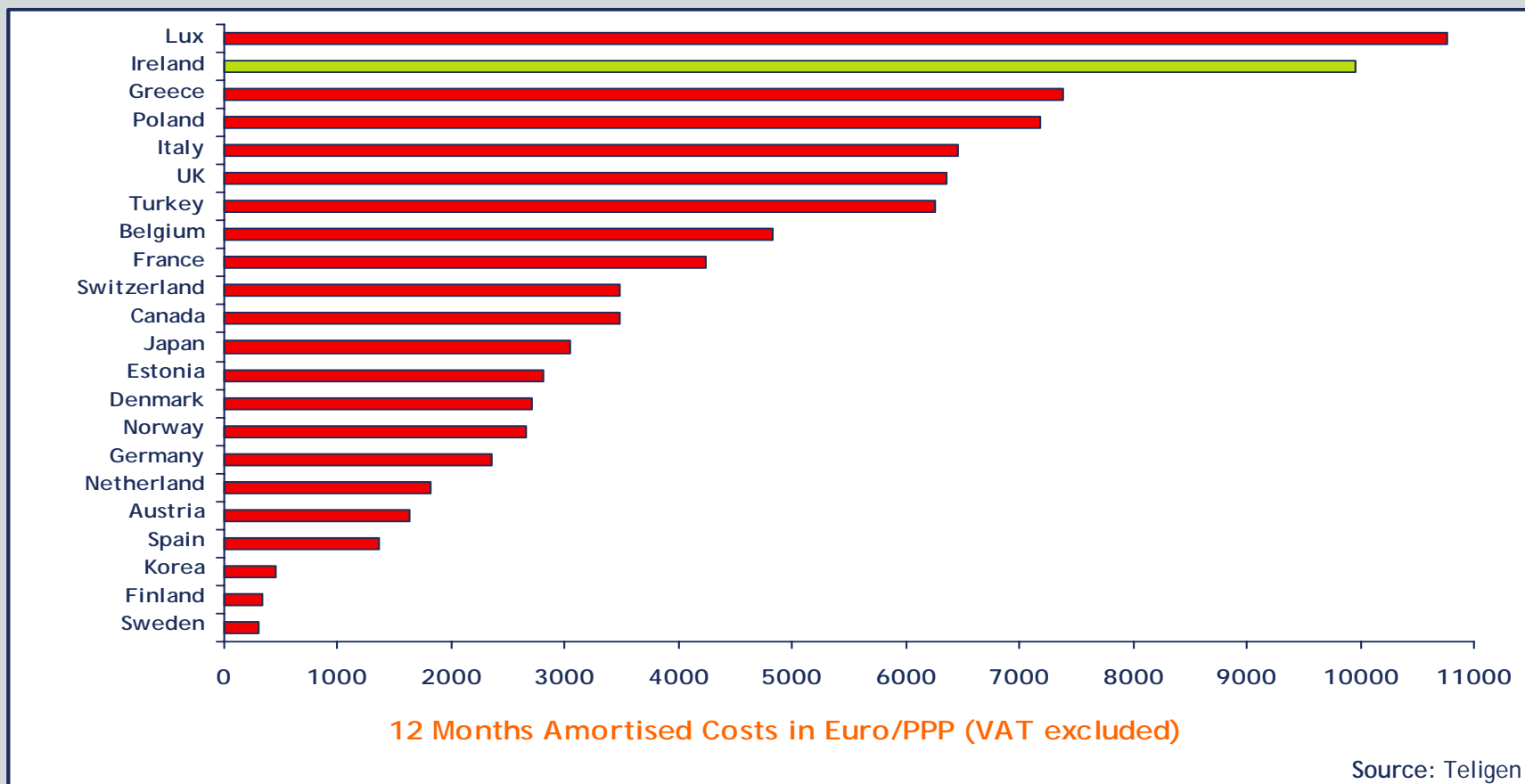
Notes: SDSL services are symmetric broadband services i.e. they allow the same upload and download speeds. Unlimited usage allowed per month with the exception of Austria where it is limited to 35Gb per month.

- Ireland is the second most expensive for 2 Mbit/s SDSL services of the 22 benchmark countries listed. Furthermore, SDSL services are not widely available in Ireland as the incumbent service provider does not currently offer any.

34 Mbit/s Leased Lines Costs
September 2006

12 Months Amortised Costs in Euro/PPP (VAT excluded)
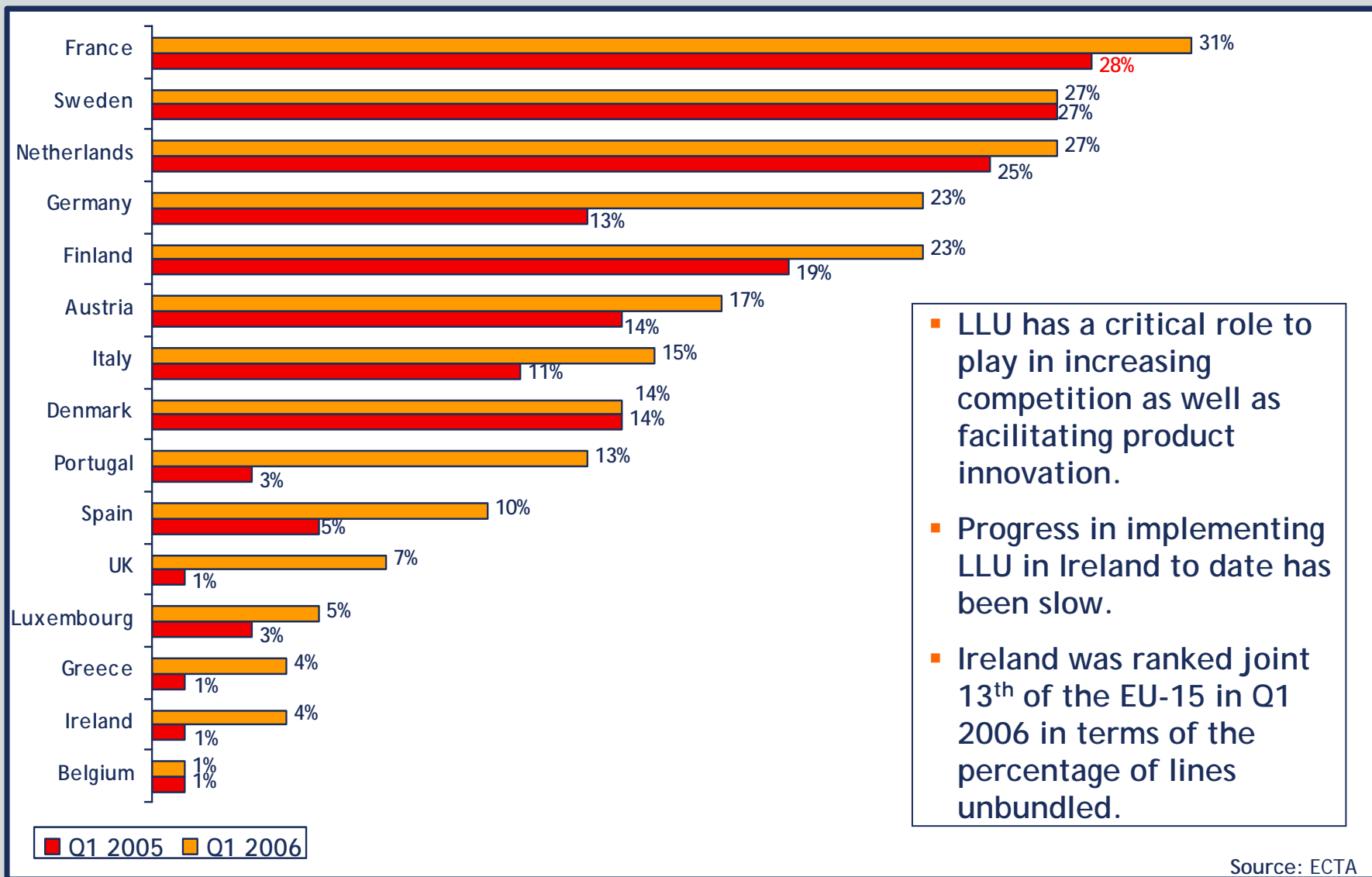
Source: Teligen
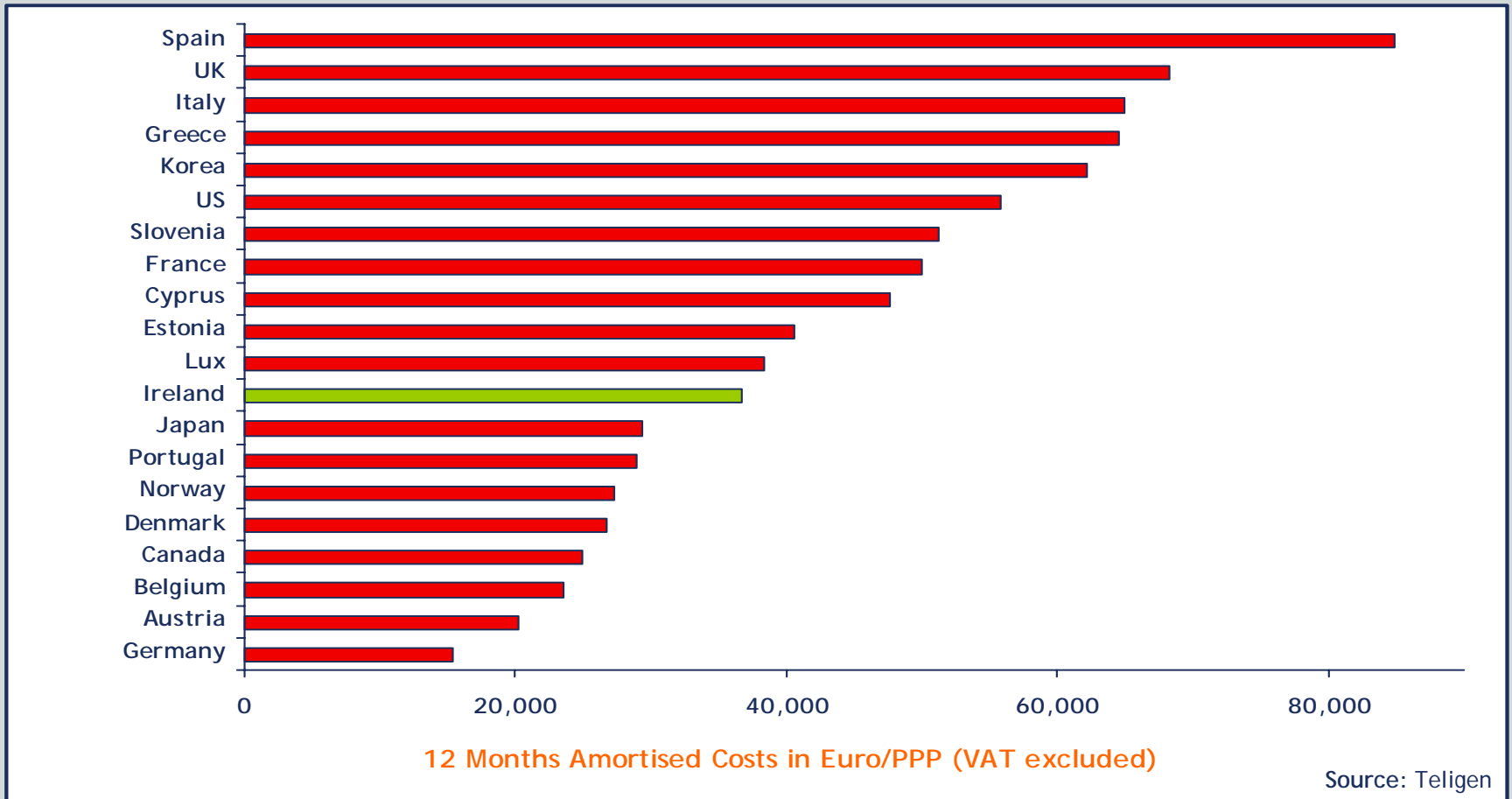
- Ireland compares favourably for more advanced services such as 34 Mbit/s – 2Km leased lines which tend to be used by larger companies. Ireland was ranked 9th cheapest of 20 benchmark countries.

Broadband Availability

▶ In 2005, the European Commission estimated that DSL coverage in Ireland based on population stood at 72%, making it the second lowest of the EU-15 countries. Rural DSL availability was just 38% of the population.

▶ The European Commission is currently updating this data but it will not be published until later in the year.

Local Loop Unbundling (LLU)

Bar chart of percentage of lines unbundled by country, Q1 2005 and Q1 2006:

Country	Q1 2005	Q1 2006
France	28%	31%
Sweden	27%	27%
Netherlands	25%	27%
Germany	13%	23%
Finland	19%	23%
Austria	14%	17%
Italy	11%	15%
Denmark	14%	14%
Portugal	3%	13%
Spain	5%	10%
UK	1%	7%
Luxembourg	3%	5%
Greece	1%	4%
Ireland	1%	4%
Belgium	1%	1%

Legend: ■ Q1 2005 □ Q1 2006

- LLU has a critical role to play in increasing competition as well as facilitating product innovation.

- Progress in implementing LLU in Ireland to date has been slow.

- Ireland was ranked joint 13th of the EU-15 in Q1 2006 in terms of the percentage of lines unbundled.

Source: ECTA

Quality of Service

| Country	Fastest Asymmetric Business Broadband offering available from the Incumbent Telco
Ireland	5Mbit / 512Kbit
Denmark	8Mbit / 768Kbit
Netherlands	18Mbit / 1Mbit
France	20Mbit / 1Mbit
Sweden	24Mbit / 1Mbit

Source: Point Topic

► Focus groups held by Forfás in early 2006 highlighted the relative lack of quality offerings in the Irish broadband market as a barrier to SMEs competing effectively with their counterparts in other markets.

► Taking the incumbent's fastest asymmetric (i.e. faster download speed than upload speed) broadband service for business in a selection of European countries illustrates the gap between the broadband offerings available to Irish companies and those of their competitors.

► In addition, eircom currently only offers asymmetric services and for many companies outside the large urban centres, it is often the only broadband option available. More and more companies, including smaller companies with fewer than 50 employees, require high speed, symmetric broadband services to send and receive large files quickly and cost effectively.

DEMAND-SIDE ISSUES

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Creating Awareness

▶ Focus groups held by Forfás in early 2006 suggest that a lack of awareness of the benefits of broadband is the main reason why micro-enterprises (fewer than 10 employees) are not currently subscribing to broadband services. This appears to be largely due to a fear of technology more often than not because of a lack of knowledge or exposure to ICT.

▶ International evidence suggests the most effective awareness/training programmes for small businesses involves business/ICT advisors working on a one-to one basis with companies to develop integrated ICT solutions to meet their particular business needs.

▶ This type of programme is very resource-intensive but a number of countries are investing in such initiatives in order to promote wider and more effective ICT use among SMEs. A small number of Irish SMEs have benefited from similar initiatives in the past through a pilot programme run by Enterprise Ireland and a series of EU funded programmes undertaken by Údarás na Gaeltachta.

PC Penetration & ICT Literacy (2006)

Source: Eurostat, OECD
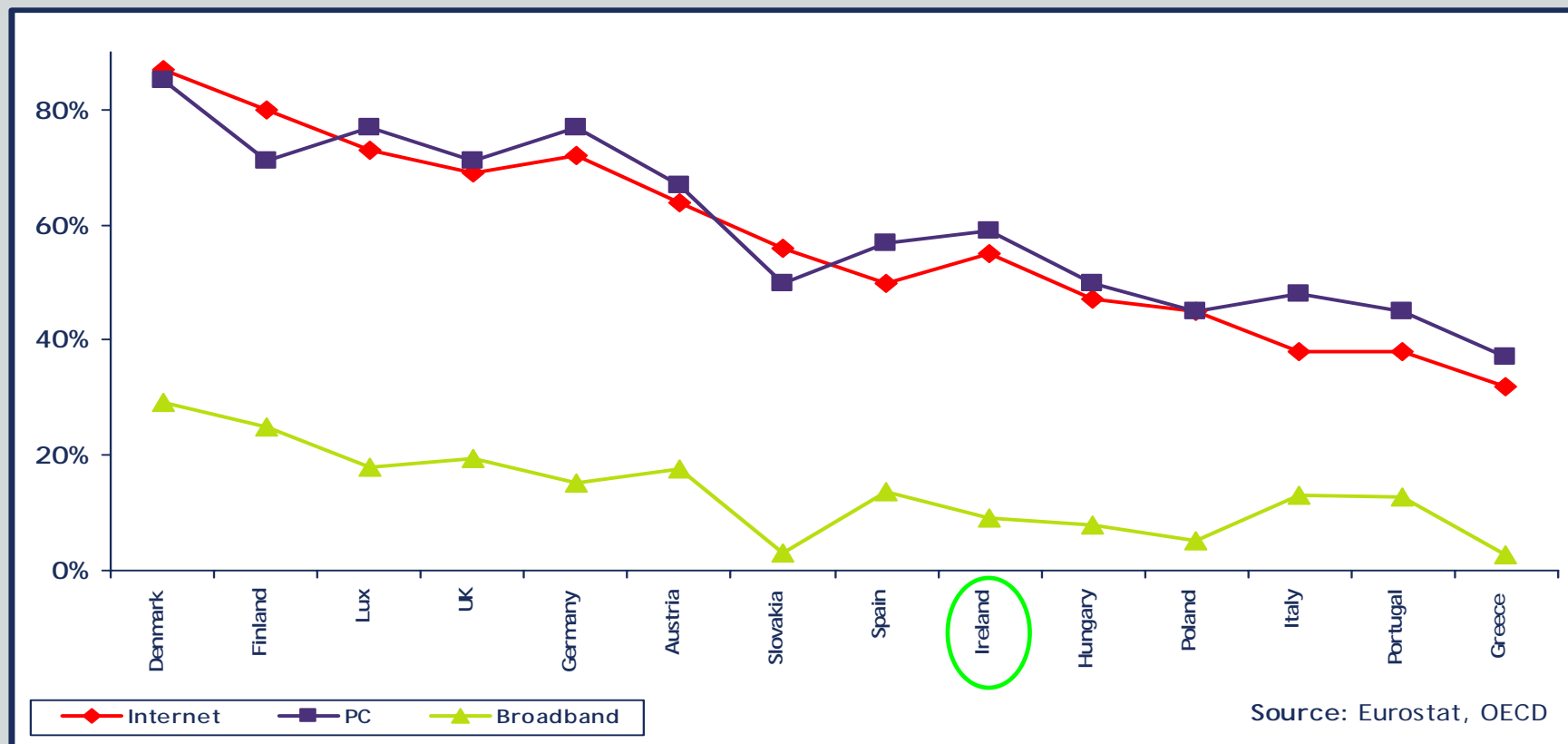
- There appears to be a positive relationship between PC/Internet penetration and broadband take-up though the direction of the causality is not clear. As well as high PC penetration being a driver for broadband take-up, strong broadband penetration can also drive PC take-up.

- PC penetration in Ireland increased to 59% in 2006 while Internet penetration was 55%. The EU-15 average Internet penetration was 54%.

KEY FINDINGS & CONCLUSIONS

Recent Developments

- ► **Increased broadband take-up**
  - 430,000 broadband subscribers in Ireland in Q3 2006
  - 86% of corporates subscribe to broadband
  - Improved take-up by SMEs
    - Small – up from 43% in Jan 2005 to 57% in Jan 2006
    - Medium – up from 62% in Jan 2005 to 71% in Jan 2006

- ► **Improvements in supply**
  - Excellent international connectivity
  - Rollout of MANS in 27 towns
  - 282K homes enabled for cable broadband
  - 85% of lines upgraded for DSL (approx. 72% of population)

- ► **More competitive prices**
  - Broadband prices have fallen since 2003 and Ireland now ranks amongst the most price competitive in Europe for entry-level DSL

- ► **Increasing awareness**
  - Dept of Communications' broadband awareness campaign during 2006
  - Increased advertising by service providers

What are the Key Issues to be Addressed?

- Limited availability of broadband services in regional locations

- Limited competition in the marketplace

- Lack of advanced services, e.g. symmetric services

- Lack of awareness of benefits especially among micro-enterprises (less than 10 employees)

Improving Availability

- ► Improving availability, particularly in regional locations, remains a significant challenge.

- ► The lack of access to even basic broadband services outside the main towns and cities continues to be a barrier to enterprise development and investment in these areas.

- ► Forfás welcomes the Minister for Communications, Marine and Natural Resources' recent announcement that he is exploring ways to extend broadband availability to all parts of the country. Any proposals to increase the availability of broadband services must ensure that the infrastructure is future-proofed and that it promotes competition in the market place.

- ► It might appear that high bandwidth broadband is unnecessary for the requirements of most Irish households and businesses today, but information content and requirements tend to increase rapidly, as the pace of change in computer speeds and capacities demonstrates.

Increasing Competition

▶ Countries with the highest broadband take-up rates are those that have competitive markets for the supply of broadband services. There is broad consensus internationally that inter-platform competition (e.g. between cable and DSL) has been one of the primary drivers of broadband take-up in many markets. In other markets, full implementation of LLU has allowed operators to innovate in terms of both product and pricing and has been a catalyst for step change in broadband supply and take-up.

▶ To increase competition and facilitate product innovation, we need to accelerate LLU implementation in Ireland and continue to promote inter-platform competition.

▶ If FWA is to continue to play a significant role in the Irish broadband market, we need to ensure that spectrum management policy facilitates future growth and expansion.

▶ The major investment plan underway by UPC Ireland, which will make cable broadband services available in the main urban centres (Dublin, Cork, Galway, Limerick and Waterford) in the next two years, is a welcome development.

▶ Increasing competition, both between and within platforms, will facilitate product innovation and the availability of advanced services.

Increasing Awareness Among SMEs

▶ International empirical research indicates that the alignment of business and ICT strategies is one of the most important factors in maximising the benefits of ICT use.

▶ The recent report of the Small Business Forum attributed the low uptake and limited use of ICT by small businesses to a low level of awareness of the benefits presented by technology. It recommended the introduction of an ICT Audit Scheme to enable small businesses to access professional advice on how to use ICT more effectively and strategically.

▶ In November, the Minister for Enterprise, Trade and Employment announced that plans for such an initiative were at an advanced stage. Over the next 3 years, it is envisaged that several thousand small businesses will undergo a highly subsidised ICT Audit of their existing systems.

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