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TELECOM 88

ADDENDUM TO THE COVER NOTE

from:	Secretary-General of the European Commission, signed by Ms Patricia BUGNOT, Director
date of receipt:	17 May 2004
to:	Mr Javier SOLANA, Secretary-General/High Representative
Subject:	COMMISSION STAFF WORKING PAPER: Annex to the Communication from the Commission "Connecting Europe at High Speed: National Broadband Strategies"

Delegations will find attached Commission document SEC(2004) 599.

Encl.: SEC(2004) 599

COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 12.5.2004
SEC(2004) 599

COMMISSION STAFF WORKING PAPER

Annex to the

COMMUNICATION FROM THE COMMISSION

”Connecting Europe at High Speed: National Broadband Strategies”

{COM(2004) 369 final}

TABLE OF CONTENTS

ANNEX 1

BROADBAND TECHNOLOGIES FOR FAST INTERNET ACCESS

1. Legacy infrastructure

- ***Digital Subscriber Line technology [DSL]*** allows voice and data services to share the same telephone line, using a multi-frequency modem. DSL exists in several different versions. Asymmetric DSL (ADSL), where more bandwidth is allocated to downloading than to upstream, is the version used today by most residential users. It is available over a distance up to 3 kilometres from the local telephone exchange. Very-high-rate DSL (VDSL) offers the fastest DSL speeds, up to 50 Mbit/sec over short distances up to 300 metres, and may become an important alternative to optical fibre access.

- ***Cable:*** Cable broadband access is an important competitor to ADSL in countries with well developed cable television networks. Similarly to DSL, a multi-frequency modem is used to transmit data as well as TV channels. Users have a shared-access Ethernet-type connection through the cable from their PC to their Internet service provider, so the available bandwidth per user depends on the number of users connected to the same cable.

2. New infrastructure

(a) Wire-line infrastructure

- ***Fibre-To-The-Home/Building/Curb [FTTH, FTTB, FTTC]*:** Fibre optic cables can provide huge bandwidth (Gigabits/sec), over long distances, by using light waves for transmission. Fibre is now the standard core network technology, but the initial installation cost can be relatively high for access networks. Fibre is generally used in hybrid access networks [FTTC, FTTB], where the fibre is used in conjunction with other wireline and wireless technologies (eg cable), which provide the final link to the end-user. Hybrid networks can be incrementally upgraded to provide more bandwidth per user, by moving the fibre connection closer to the user, and ultimately all the way to the home {FTTH}.

- ***Powerline Communication [PLC]*** technology is a relatively new way to deliver broadband Internet access, over existing electrical power cables, by using multi-frequency modems. PLC is a promising alternative to other wireline technologies, since electrical power lines form a very extensive network throughout Europe. Broadband Internet access through power-line is already available in some cities in Spain. The main limitation to the technology may be interference from powerline to wireless communications. PLC may therefore not become widely deployed until issues of operating frequencies and interference thresholds are resolved. As with cable, the users share the available bandwidth, which is also distance-dependent.

(b) Wireless infrastructure

- ***Fixed Wireless Access (FWA)*** includes a number of wireless technologies, providing Internet access from point to- fixed (multi-) points. FWA technology has been used in particular in areas that fixed lines do not reach, but suffers commercially from the existence of a number of proprietary solutions, with different frequencies and bandwidth, and from the variation in spectrum allocation and licencing arrangements in different countries.

- ***Wireless Local Area Networks (WLAN):*** WLANs (also known as WiFi) allow users to connect to a Ethernet-type local area network through a wireless connection. There are now several versions of the WLAN IEEE 802.11 standard (a, b, g…). WLANs have a limited range, around 100 metres, and share the bandwidth, which can be up to 50 Mbit/sec, between all the users of each base station (often called a "hotspot"). The original public deployment was in locations such as airports, but WLAN usage is now being extended to provide coverage also in remote and rural areas where fixed infrastructure construction costs are uneconomic.

- ***Free space optics*** is a technology which makes use of laser transmission to communicate data through the atmosphere, and is somewhat analogous to FWA. The laser technology allows very fast transmission, does not require radio spectrum and its installation cost is relatively cheap. Its main limitation concerns the way humidity, fog and wind may disturb the transmission through the atmosphere, and it is restricted to point-to-point links.

- ***Satellite*** technologies emerge as viable options for remote and rural areas and provide the advantage of ubiquitous coverage, rapid deployment, and are often useful in combination with terrestrial technologies. However, they suffer from latency (delay) problems, limited bandwidth, congestion of bandwidth in the presence of simultaneous users, and high costs of terminal equipment.

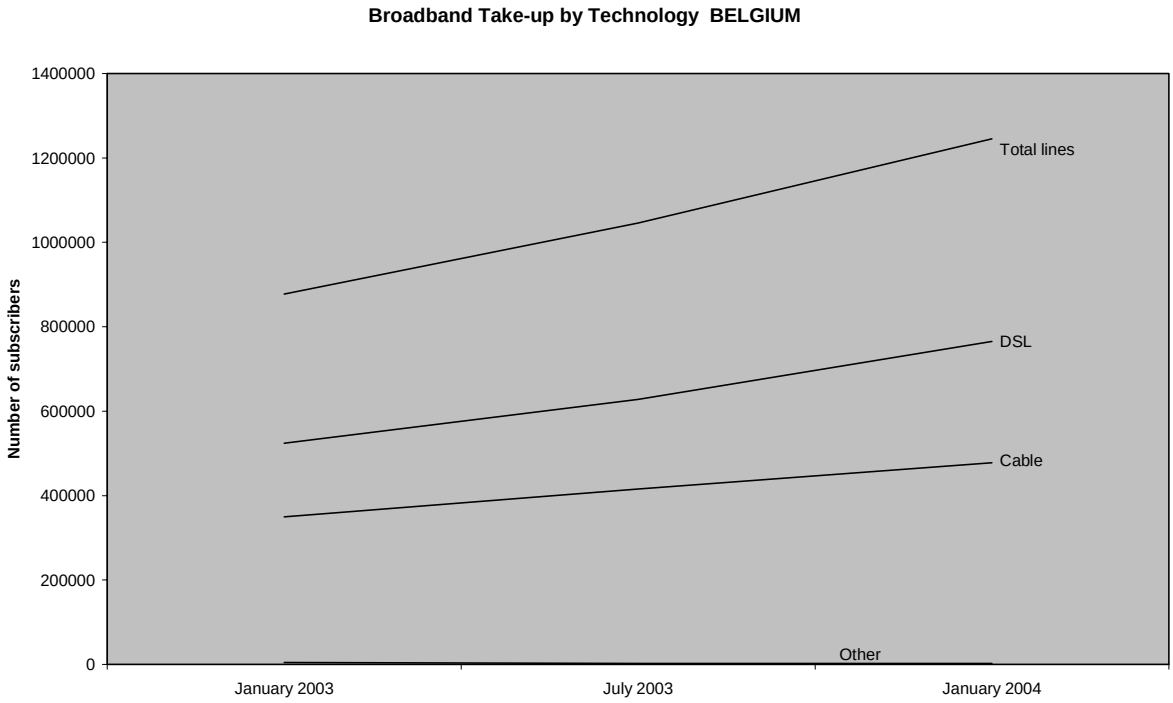
- ***High Altitude Platforms [HAPS/LAPS]*** is a relatively novel technology, proposing the use of airships, slow-flying aircraft and tethered balloons to provide wireless access over extended areas. As in the satellite case, HAPs are best integrated with the terrestrial wireless technologies. However, unlike in the case of satellite, the latency is small, and bandwidth is not as limited, as a number of technologies can co-exist on the same platform (e.g., TV broadcast, mobile telephony and FWA).

- ***Mobile communications networks:*** Compared to the previous generation, the new Third Generation Mobile Communications technology (3G) provides for high data rates and allows Internet access on-the-move.

ANNEX 2

SUMMARY OF NATIONAL BROADBAND STRATEGIES

BELGIUM



1. Background

Driven by competition between DSL and cable, started off by cable TV operators' investment to upgrade their networks and provide cable modem services, broadband coverage in Belgium is among the highest in the EU. In January 2004, DSL represented around 61% of the broadband market, 86% of which provided by Belgacom. A significant number of independent Internet Service Providers (ISPs) is trying to gain market shares through the resale of Belgacom DSL products. The main cable operator Telenet also has a large share of the cable market, 38% of the total broadband market in January 2004. Both DSL and cable operators offer very high baseline speeds (3Mb/s and 4Mb/s respectively) at relatively low prices compared to other EU countries.

2. The strategy

The objective of the Belgian government is to achieve 2.5 million households as well as 500,000 small and medium enterprises (SMEs) and independent professionals to be connected to broadband by 2006. This objective is planned to be realised through two main strands of

actions: an improvement in the offer of services and a reduction in retail prices as a result of increased competition. In November 2003, the federal government called upon operators to put on the market a "light" offer, with lower prices and reduced speed.

The strategy of the federal government is complemented by a strategy for Flandres, Wallonia and the Brussel's region.

(1) Coverage of under-served areas

Already having good coverage, Belgium has no plans to use public funds to bring broadband to under-served areas.

There is no legislation impeding network provision by municipalities, which have historically invested in cable networks where no private network already existed.

(2) Stimulating use in the public sector

The offer of services is planned on two levels: (1) a "lead by example" approach, whereby the government can show the way for instance by digitalising the federal scientific and cultural heritage; (2) and by encouraging research and development of broadband-enabled applications. These actions must be accompanied by an effort to stimulate consumers' trust in information society services such as electronic signature and e-payments.

Since 2002, the federal government has been investing in a federal portal offering the first interactive applications such as "tax-on-web", and is now committed to the development of broadband-enabled applications. Belgium is one of the first countries in the world to have developed the electronic identity card which, especially in the area of healthcare, can bring important benefits.

(3) Connecting public administrations, schools and hospitals

Schools, libraries and hospitals are already connected to the Internet thanks to the "I-Line" project launched in 1998. Since 2002, the government has been ensuring that these are broadband connections on the basis of special tariffs.

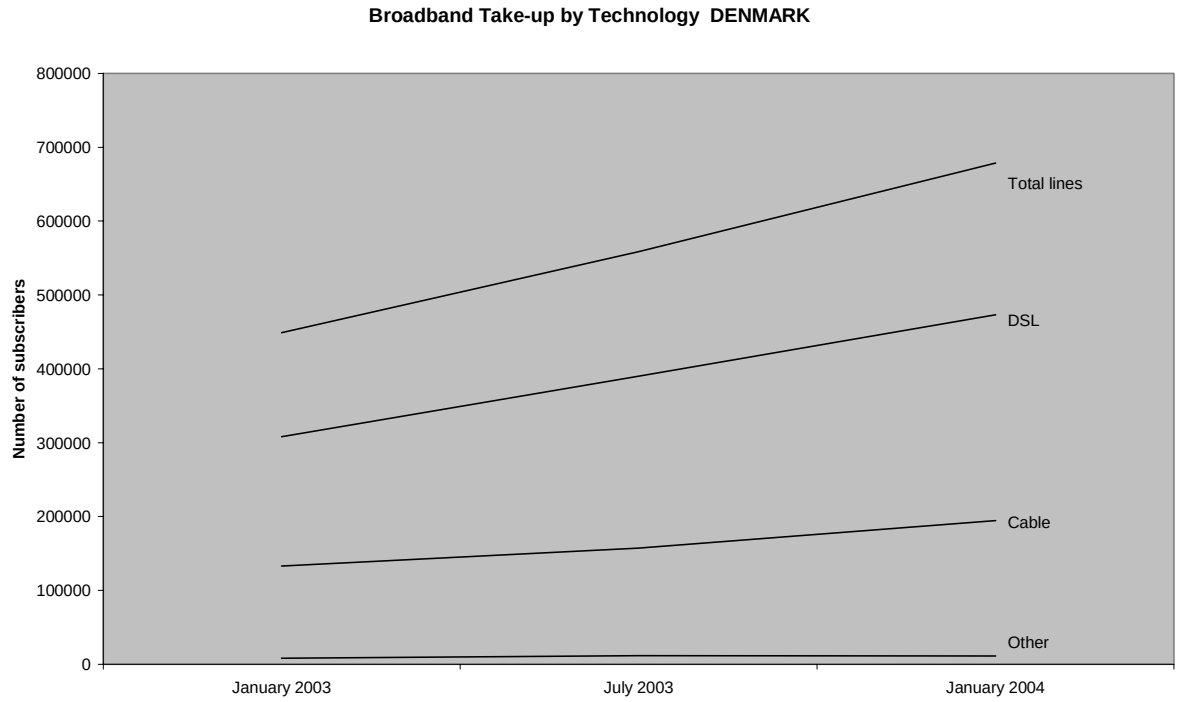
(4) Connecting SMEs

There have been marketing activities to demonstrate the advantages of broadband technology to SMEs, e.g. the Agoria road show of 2001/2002 on "virtual entrepreneurship", on the basis of the Finnish example to stimulate the use of ICT by enterprises.

(5) Other measures

A working group for the 'Observatoire des Droits de l'Internet' formulated some recommendations in 2003 to bridge the digital divide, with particular emphasis on continued training supported by ICT and stimulating youngsters' interest in new technologies.

DENMARK



1. Background

Denmark is the leading EU country in terms of broadband penetration (12.7% of population in January 2004) and has a variety of platforms on offer. DSL represents the largest share of the market (almost 70% in January 2004), followed by cable (29%) and other technologies, mainly Fixed Wireless Access. The country also features one of the highest levels of PC penetration and Internet use in the EU. The incumbent TDC owns both DSL and cable infrastructure. Its market share in the DSL market reaches 79% in January 2004. Some independent ISPs sell DSL services using unbundled local loops, which represents the main form of access for new entrants. On the cable market the competition is more intense and, as a consequence, TDC services are sold at a lower price than its own DSL services. In general, prices for broadband services are relatively high for high-speed un-metered offers, with low cost alternatives available only in the form of low-cost metered services.

2. The strategy

The Danish Ministry of Information Technology and Research launched in June 2001 "From Hardware to Content – Strategy for Fast, Cheap and Secure Internet to all of Denmark", based on three principles: a market-based infrastructure, demand-driven deployment and the public sector as an "IT locomotive". The 2001 strategy is still valid.

(1) Coverage of under-served areas

A mapping of broadband coverage is available and updated to 2003. Broadband is already on offer to at least 95% of the population, and increased rollout is expected to be market driven or the result of demand-side policies. No public funds are therefore planned to be used.

However, municipality-driven wholesale networks exist and there is no limitation as to where they can be established.

(2) Financial incentives

Tax incentives for broadband connections target employees.

(3) Stimulating use in the public sector

The government of Denmark is working to encourage broadband take-up in both the public and private sectors. Public institutions have the responsibility of developing broadband applications and the Ministry of Science, Technology and Innovation is currently working on a strategy for e-Learning. This strategy will stimulate the development of broadband applications.

For health services, the focus is on the introduction and adoption of electronic case records, establishment of a general and neutral access route to the health sector via a national health portal, and further development of the health care data network and the use of telemedicine.

(4) Connecting public administrations, schools and hospitals

Almost, if not all, public administrations are connected to broadband.

All public and private basic schools have been offered to connect to broadband through the Danish Sectornet at reduced prices. Most schools have broadband connections, either through Sectornet or otherwise.

All public hospitals are connected to broadband.

(5) Connecting SMEs

Denmark's Ministry of Science and Technology has launched an initiative to stimulate take-up of broadband by SMEs. The programme will provide SMEs with training and assistance through private consultants and help them overcome practical problems and increase competency related to starting out in eBusiness. Consultants, trade associations and regional business organisations will help 60 SMEs realise their first gains from eBusiness, e.g. establishing an electronic catalogue for eBusiness portals. The experience and good practice stemming from the 60 pilot projects will then be shared with other Danish SMEs.

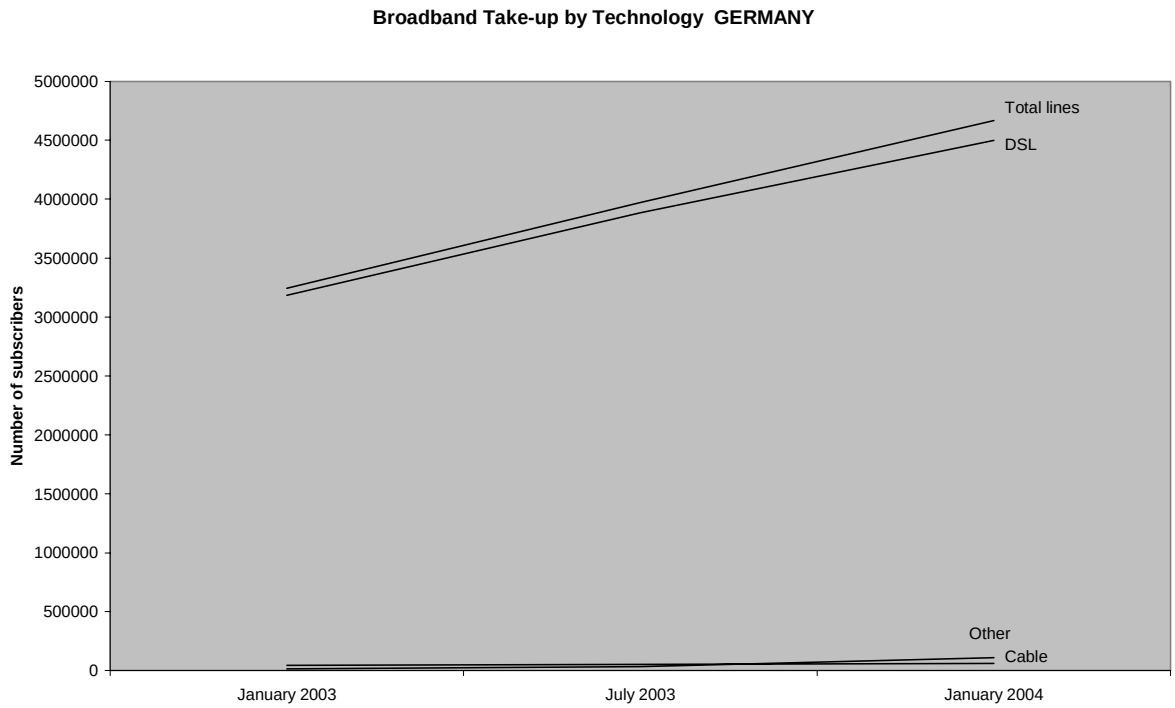
(6) Initiatives addressing the development of new content

The Virtual Art Gallery, where users are able to compose their own exhibition.

Bibliotek.dk, the first world's library on the web.

The Culture Network Denmark, general portal for access to cultural subjects.

GERMANY



1. Background

Broadband penetration in Germany achieves 5.7% in January 2004. The market is the most concentrated in the Union, with an 88% market share of the incumbent Deutsche Telekom. The few entrants in the DSL market make a relatively high use of unbundled loops, while bitstream and resale access are not available. DSL dominates the broadband scene with a share of 96%. Cable modem services are available in some parts of the country, but have a very low take-up, and most of cable TV networks have not yet been upgraded to broadband capabilities. Satellite, FTTH and PLC share another 2.3% of the market.

2. The strategy

Broadband is part of the D21 initiative, Germany's largest Public Private Partnership aiming at fostering the information society in Germany.

(1) Coverage of under-served areas

The Federal Government considers that availability of DSL and satellite is widespread and does not envisage the use of any public funding. A priority is to stimulate the upgrading of cable for broadband, in particular through the restructuring of cable operators. Major improvements in coverage are also linked to the digital switchover. A study is under way to provide a detailed mapping of broadband availability.

(2) Stimulating use in the public sector

e-Government is an integral part of the strategy with specific goals, with a particular focus on:

- the identity card to be introduced by 2008,

- e-Health services (through health cards and electronic medical prescriptions by 2006),
- employment services (through the job-cards and the on-line job search activities)
- the provision of 440 federal public services on line as well as e-procurement by 2005.

(3) Connecting public administrations, schools and hospitals

Most public administrations and all schools are already connected to broadband.

In the area of healthcare, the Federal Government has launched a project called bIT4health (better IT for health) which will define a framework architecture for a telematics infrastructure based on the latest legislation for smartcards for health professionals and insured citizens by 1 January 2006. As part of this project all healthcare establishments will be connected and interoperable.

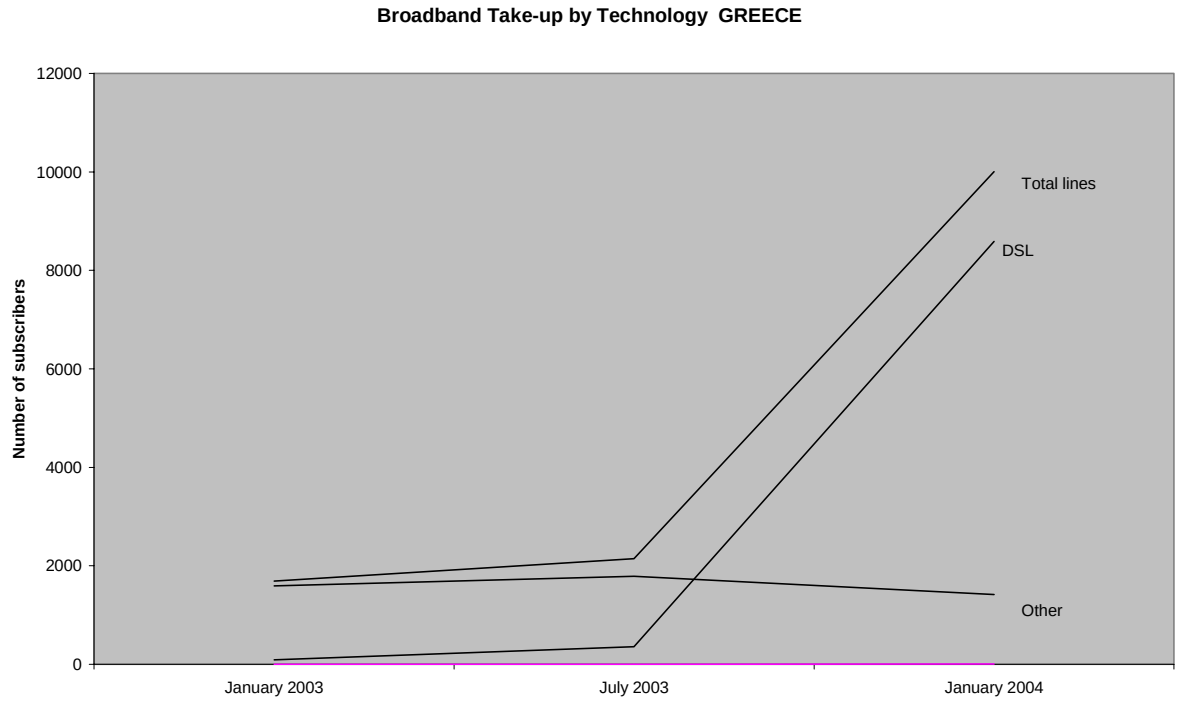
(4) Connecting SMEs

Together with the sectoral association Bitkom, the federal government will promote broadband use by SMEs via the 'SME centre of excellence' by means of an information campaign, free consultancy services for broadband usage, awards for innovative projects.

(5) Other measures

The government is active in awareness-raising amongst users and a number of initiatives are planned by the individual Länder.

GREECE



1. Background

Currently Greece has a low level of broadband penetration (0.1% of population in January 2004) but there are signs that the market is starting to take off. The main technological platform is DSL (86% of total broadband market), with the largest share of the market in the hands of new entrants through unbundled local loops and bitstream access.

2. The strategy

A broadband task force was established in 2002 to develop the national strategy. The document produced by the task force is a White Paper which identifies points for discussion and makes proposals and suggestions for improving the availability of broadband.

The essential elements of the Greek strategy are the creation of conditions for a healthy competitive markets, the public intervention in under-served areas, and the importance of the role of the information society as a driver for social and geographical cohesion. The country is divided into four regions. Each region will be open for tender. Contracts will be awarded where low tariffs for end users are offered.

The Greek government has set up a Task Force.

(1) Coverage of under-served areas

A mapping of current coverage is available.

€200 million will be invested through Public Private Partnerships (60% public money) to build LANs in under-served areas. 75% of the public funding will come from Structural Funds.

Objectives in this area include connecting all cities with over 10 000 inhabitants to a fibre-optic network by end 2006; and implementing the Metropolitan Area Networks in 50 larger cities by end 2005.

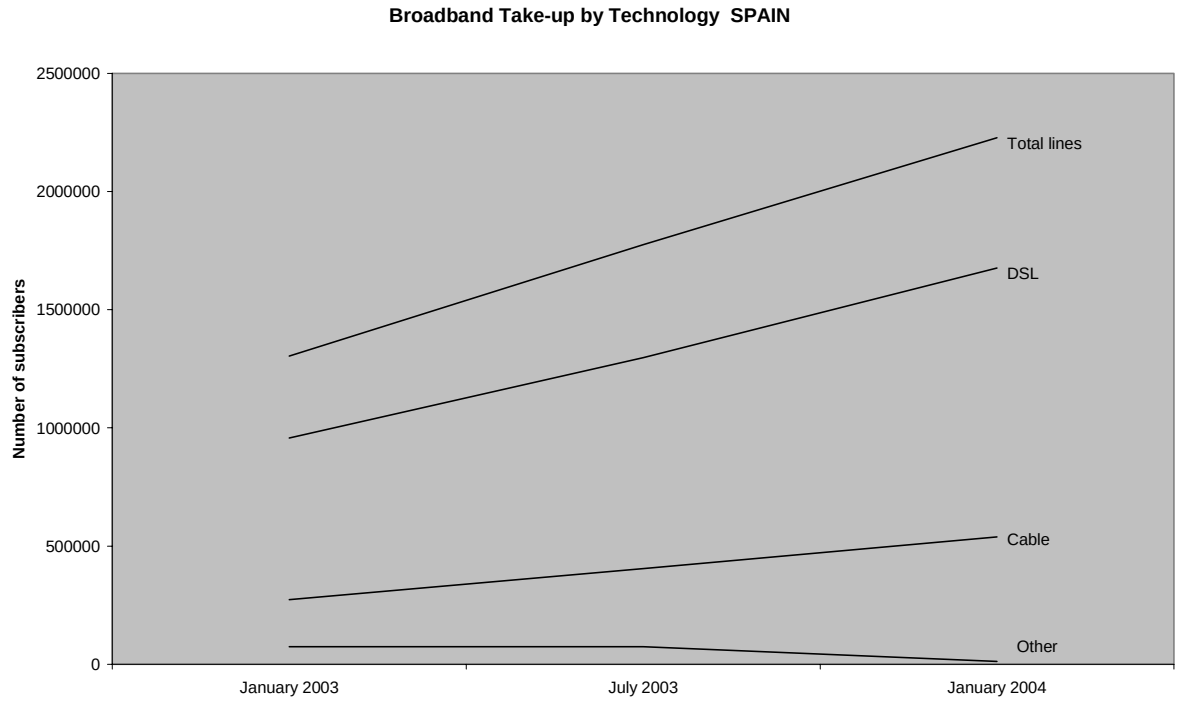
(2) Connecting public administrations, schools and hospitals

The SYZEFXIS project aims to provide broadband access to the entire population of public buildings (including administration, schools, hospitals, local administrations, etc), on the basis of demand aggregation. It is a €71,5 million project, currently in the tendering process. Satellite infrastructure will be used to connect remote public administration sites.

(3) Connecting SMEs

SMEs can receive funding for initial installation costs and service costs for the creation of wireless hotspots via ADSL, LMDS and satellite link technologies.

SPAIN



1. Background

Broadband penetration in Spain (5.6% of population in January 2004) is mainly split between DSL (75%) and cable (24%). ISPs access the DSL market, dominated by Telefonica with a 74% share, through bitstream access, and some have recently started to use unbundled loops (end-to-end resale of Telefonica's wholesale services is not available).

2. The strategy

The Ministry of Science and Technology launched the "Broadband Strategy in Spain" based on three main goals: promoting the availability of broadband connectivity and services, particularly in rural and less favoured areas; encouraging the use of new Information Society services among the less favoured communities; and promoting the use of ICT for economic growth. The objective is the achievement of a 10% penetration rate by the end of 2005, with no region below 8%.

(1) Coverage of under-served areas

Mapping of coverage will result from a study being launched.

Roadmap:

- Launch of a study and industry consultation to identify "areas 1" (where broadband is not foreseen to be available in the coming years) and "areas 2" (where the existing infrastructure is the incumbent's only). The objective is the achievement of a total of 2 million new connections in these areas.

- Use of funds within the Budget Law; Public Administration funds and Structural funds. The funds available within the Budget Law take the form of long-term

reimbursable loans to operators for the deployment of infrastructure in selected areas. The amount foreseen for 2003 was € 23 millions. This could increase to € 55 millions in 2004 and € 110 millions in 2005 and 2006. The operators will be selected through open competitive tender procedures and subject to obligations, such as geographical price averaging and providing open access to other operators.

- Coordination of activities with local and regional administrations through an appropriate forum;
- Assessment of current needs (unsatisfied demand)
- Assessment of the total cost of the investment

(2) Stimulating use in the public sector

The España.es initiative includes information-society strategies and aims at the development of the electronic administration

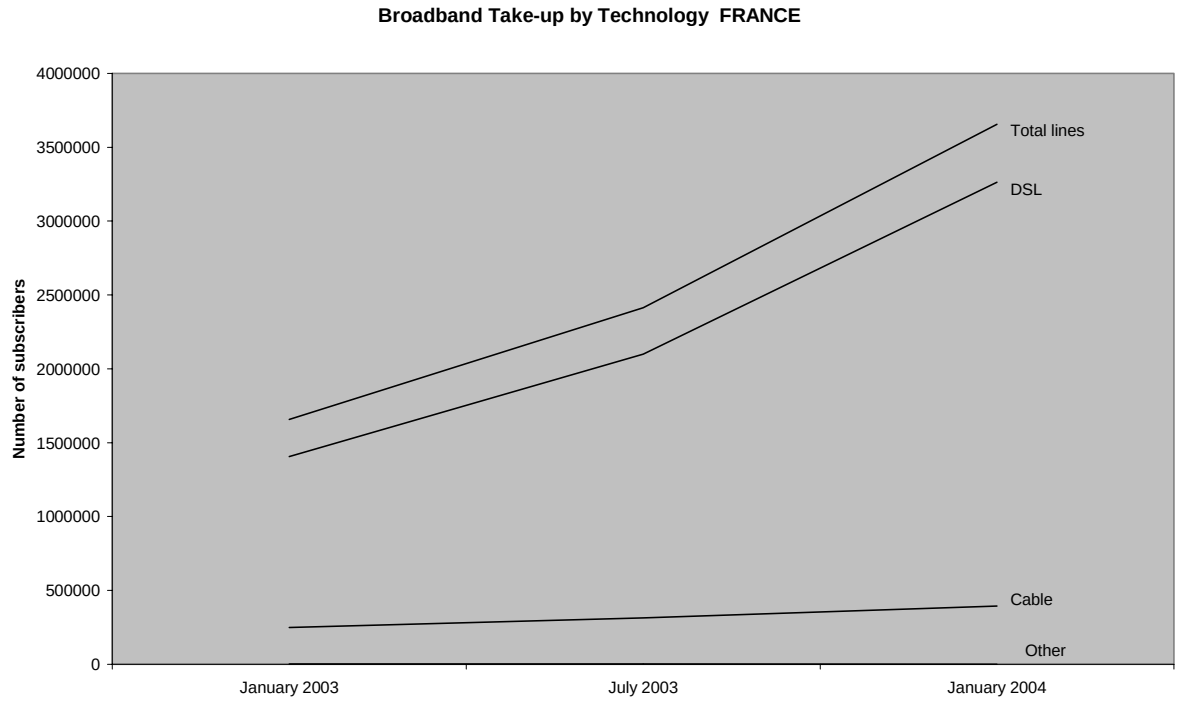
(3) Connecting public administrations, schools and hospitals

More than € 30 million have been earmarked to provide libraries of at least 1,500 municipalities with satellite connections.

The Red-es program foresaw an open tender to offer satellite access to 4000 schools and libraries.

The educacion.es initiative aims at improving the educational system through improved access, teacher training, and web site with relevant content and services.

FRANCE



1. Background

The growth of broadband penetration rate in France has been one of the fastest in the EU during the second half of 2003, reaching 6.2% of the population in January 2004 (from 4.09 in July 2003). Broadband is dominated by the DSL platform (89% share), with France Telecom having a 59% market share. New entrants enter the DSL market mainly through resale of France Telecom wholesale services, although use of bitstream and undundled access is increasing.

2. The strategy

The RE/SO 2007 plan for the information society announced in November 2002 set the objective of attaining 10 million users by 2007. The main key factors for the success of broadband are recognised to be the increased coverage of under-served areas to reach citizens in all geographical and social situations, the development of attractive services which must remain a priority for research policy and for market players, and consumers' confidence in terms of quality and security.

(1) Increasing coverage of under-served areas

Ortel supplies detailed information on broadband availability and take up.

France Telecom committed to upgrade most of the exchanges, but policies will be put in place to ensure that all citizens have broadband access. Policies will be articulated around the following items:

(i) facilitate local activities in thinly-populated areas;

(ii) create a fund to support broadband deployment and stimulate regions to use Structural Funds on the basis of the Commission's guidelines for electronic communications;

(iii) stimulate the development of alternative technologies by removing administrative obstacles and launching tendering processes. One example is being carried out with the satellite industry and the National Centre for Space Studies (CNES) to offer by 2007 bidirectional satellite broadband for less than € 50 per month and with terminals at less than € 300. Another example relates to the establishment of fibre optic regional or metropolitan networks in 2005 to enhance competition and connect 90% of industrial areas by 2010.

As support measures, la 'Caisse des Dépôts et Consignation', which supports regional and local development through preferential loans, has identified 29 projects of local communities for an investment level equal to € 700 million, of which 60 million will result from a contribution of the financial institution itself.

Structural Funds have already been used for broadband, and part of the reserve of the European funds will be allocated for increasing coverage in disadvantaged regions.

(2) Stimulating use in the public sector

One major objective is the development of the electronic administration through a strategic plan regarding the period 2004-2007, at a cost of € 1.8 billion (benefits are estimated at 5 billion). The plan foresees the development of 140 innovative services and a significant increase in the exchanges between users and administrations over the Internet through new procedures.

In the area of healthcare, the government intends to stimulate the constitution of networks of experts and the use of shared medical dossiers.

(3) Connecting public administrations, schools and hospitals

All public hospitals are connected to broadband and the Ader network has interconnected all ministries. Local and regional initiatives will play an important role in connecting the remaining administrations.

Many French schools are connected to broadband, but to a variable degree. Local and regional initiatives will play an important role. Through the RE/SO 2007 plan, the government aims at supplying one computer every three students in secondary education establishments, one computer every two students in universities and one computer in every household with a school child by 2007.

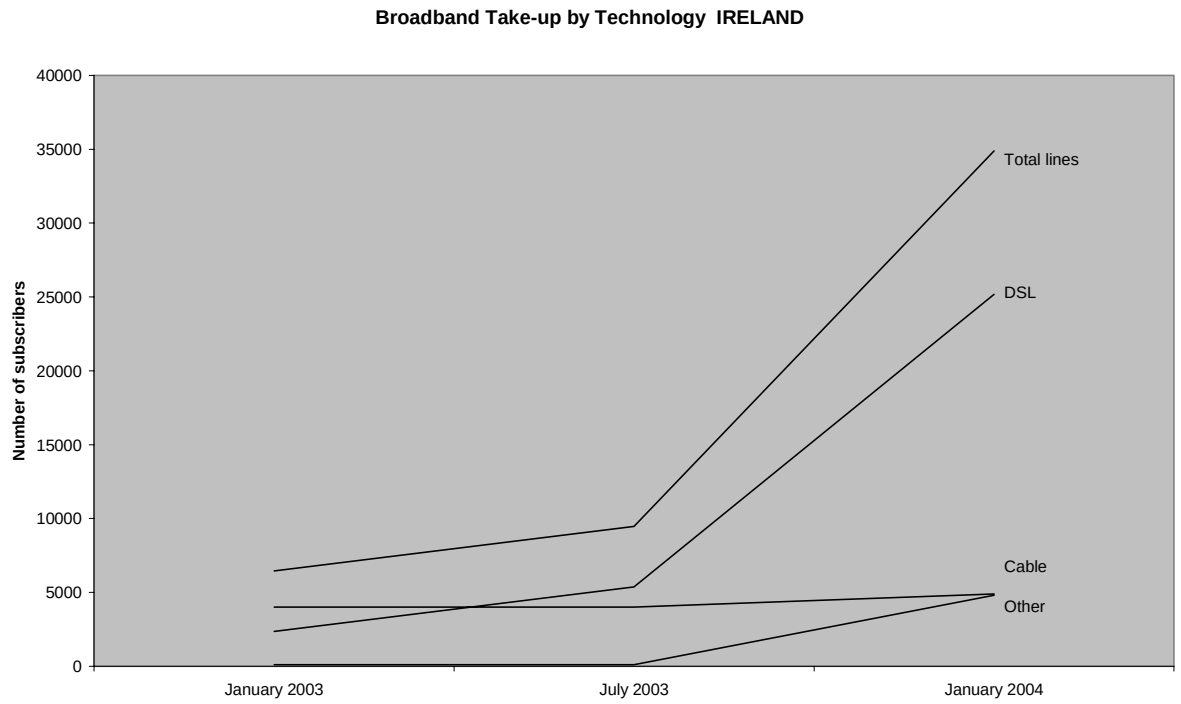
(4) Connecting SMEs

A high priority for France, the objective is to stimulate the development of appropriate applications and facilitate the integration between supplier and customer.

(5) Other measures include:

- A campaign called "*Internet declaré d'utilité tout public*" launched in November 2003 aims at promoting the use of ICT and of the Internet in particular.
- Promotion of ICT training.
- Further promotion of public access points (more than 2500 are currently available).

IRELAND



1. Background

Broadband penetration in Ireland was at 0.9% of the population in January 2004. This result may look surprising in a country where the diffusion of ICT has played an important role in the economic development of the last few years. PC penetration and Internet use per households are significantly above the EU average.

As of June 2003 the number of DSL subscribers was just above the number of cable subscribers and slightly below Fixed Wireless Access (FWA), although the geographical reach of FWA and cable is very limited. The situation has changed in the second half of 2003, with DSL increasing significantly its market share. Access prices are relatively high, particularly for high-speed offers.

2. The strategy

Ireland aims at attaining a top position amongst OECD countries for broadband connectivity by 2005, with broadband being available throughout the territory. Ireland also aims to be the first European country to have wide availability of at least 5Mbs to the home and higher speeds for business users within ten years. To achieve widespread connectivity it is clear to the government that action must be taken urgently. The strategy has five main strands: broadband infrastructure; the legal and regulatory environment; e-Business, lifelong learning and e-Inclusion.

(1) Increasing coverage of under-served areas

Under the National Development Plan 2000-2006, an indicative € 200 million, part-funded by the ERDF, has been set aside for broadband infrastructure projects.

The Irish Metropolitan Area network initiative involves the construction of high-speed fibre-optic rings linking the key business districts in 19 towns and cities across the country within a partnership with local and regional government organisations. These Metropolitan Networks will provide broadband to businesses, schools, hospitals and private users on an open-access basis. More than € 64 million has been committed to the first phase of this programme in 2003-2004, with infrastructure expected to be operational in the second half of 2004. A neutral Management Service Entity will manage the networks. This initiative is further complemented by € 140 million of Exchequer Funding to be invested until 2007 to provide open access broadband infrastructure in all cities and towns with a population greater than 1,500, with a Group Broadband Scheme to facilitate smaller communities to pool their broadband demands and ensure connectivity from a range of providers.

€ 140 million of Exchequer funding will be invested between now and 2007 (€ 35 million per annum) providing open access broadband infrastructure in all cities and towns with a population greater than 1,500. In particular:

- Connecting 88 towns of 1500+ population to broadband with Community Broadband Exchanges and strategic fibre optic metropolitan area networks
- A Group Broadband Scheme facilitating the pooling of demand in smaller communities with grant support from central government
- A website is available for registering demand and obtaining information on prices from alternative providers

New regional high-speed broadband connectivity framework deals on backbone networks were announced, improving the economic case for providing broadband in the regions. Broadband will be available on the ESB Telecom fibre optic network, whose construction was supported through Structural Funds.

Other measures include co-investment with private partners in backbone infrastructure in the regions.

Development of infrastructure in 15 locations through the Clàr areas (characterised by declining population). € 500,000 is available.

(2) Stimulating use in the public sector

Major upgrades to European and US connections for educational and research institutions are foreseen, enabling digital libraries, virtual laboratories and telemedicine.

(3) Connecting schools

- Providing schools with affordable broadband connections. Ongoing discussions with industry are likely to result in a voluntary agreement with the ICT sector to deliver broadband to all primary and post primary schools by the end of 2005.
- Establishing an IT Industry Advisory Group to formalise links between the IT industry and schools to extend the boundaries of traditional education through the use of ICT.

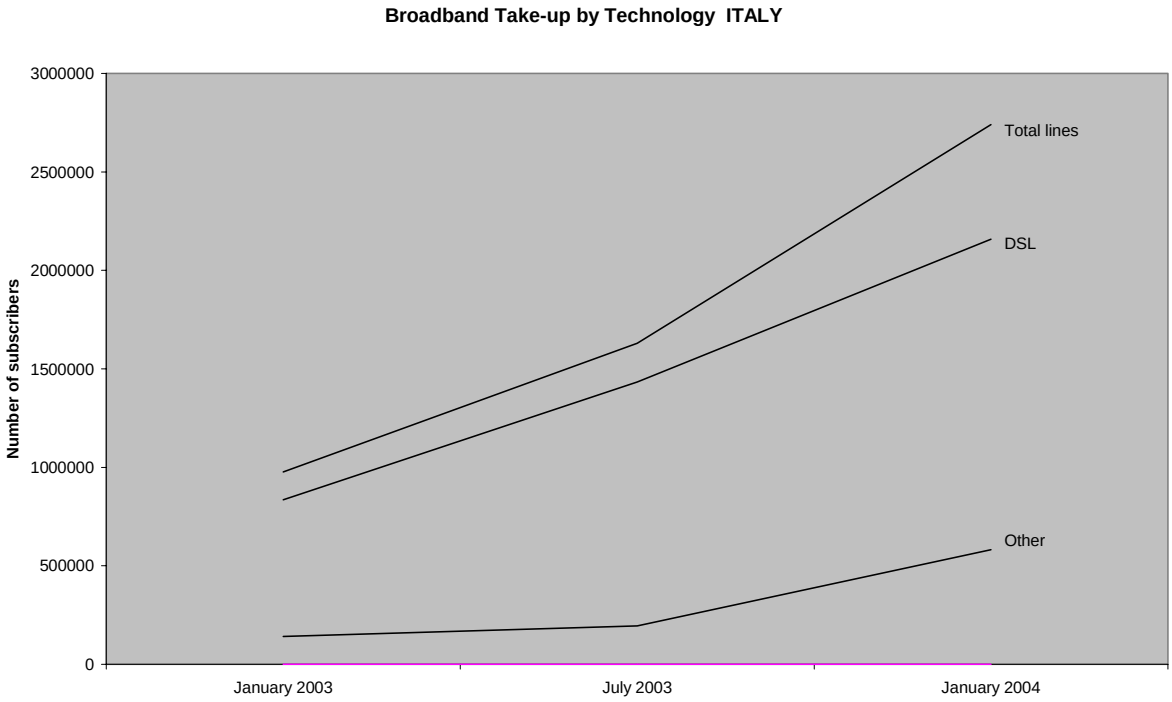
(4) Initiatives addressing the development of new applications and content

The Digital Hub project provides start-up facilities for companies, currently including digital media companies covering e-Learning, e-Publishing, web development, to undertake R&D into digital industries.

(5) Other measures

- Co-funded trials in Powerline Communications Systems
- Promoting participation in the Information Society though a local authority-led initiative aimed at developing IT skills and providing local content;
- Piloting the development of low-cost ISPs, web-hosting and technical support solutions for community and voluntary groups;
- Developing a programme of structured support to build and enhance ICT capacity among community and voluntary organisations;
- Other e-Inclusion projects (such as the pilot that provided 100 000 people in the South West and Shannon regions with basic ICT training);
- Developing guidelines for electronically delivered services to minimise the risk of introducing accessibility barriers by service providers in the public and private sectors.

ITALY



1. Background

Italy experienced significant growth in broadband take-up in the second half of 2003, reaching 4.8% of the population in January 2004 (up from 2.82 in July 2003). No cable TV network is available in the country and, as a consequence, no broadband cable modem services are provided. The market is dominated by DSL (79% of total broadband in January 2004) while the remaining share is split between Fibre-to-the-Home (FTTH) and other technologies, with the 3G platform starting to have a significant number of subscribers. The incumbent Telecom Italia continues to have the largest share of the DSL market (77%), while some independent ISPs are gaining shares through bitstream access and local loop unbundling. Resale of wholesale DSL services are not available in Italy.

2. The strategy

In 2001 the Ministry for Innovation and Technology and the Ministry for Communication established a Broadband Taskforce that examined the situation and made recommendations to the government on actions to reduce the digital divide. Early in 2002, the Task Force became a permanent committee with responsibility for co-ordinating and directing broadband initiatives.

The strategy foresees two main lines of action: incentives to stimulate investment in infrastructure and demand stimulation through the development of digital content and of online innovative services.

(1) Increasing coverage of under-served areas

Mapping is available through the 'Broadband observatory', a three-year project monitoring broadband coverage.

A program for broadband development in Southern Italy through a five year strategy co-ordinated by the National Agency for Enterprise Development and Investments "Sviluppo Italia" has been set up. 60% of the cost will be covered through public money. Implementation is taken care of by two agencies, one for infrastructure and one for services.

(2) Financial incentives

For broadband, contributions are in place for digital TV (€ 150) and to broadband access (€ 75).

For PCs:

- "PC for the young", 150 euro for the purchase of a PC to youngsters under 16 years old;
- "PC for teachers", benefits similar to those available in public administrations
- "PC for families", 200 euro bonus for the purchase of a PC for each family whose annual income is below 15,000 euro.
- "PC for schools"

(3) Stimulating use in the public sector

Broadband is considered the necessary infrastructure to ensure efficient administrations' back-office interoperability. RUPA, the interconnecting network between public administrations, enables this process and supplies e-government services on the territory.

Teleworking experiences in the public sector are meant to stimulate similar initiatives in the private sector.

e-Government regional projects are in their second phase of development extending the services to the largest number of local administrations.

e-Procurement is considered a demand-aggregation opportunity. CONSIP, a public information service agency, is currently working on an auction aggregating public demand for broadband services and on aggregation of public demand for innovative services requiring broadband connectivity.

In the area of e-Learning, distance learning is particularly relevant. An eLearning project is setting criteria for reciprocal recognition of university degrees.

In the area of e-Health, the Information Society Committee of Ministers approved broadband telemedicine projects.

(4) Connecting public administrations, schools and hospitals

Currently around 30% of public administration offices have broadband and there is a target to take this to over 80% by end of 2005.

80% of main Italian schools are connected to broadband and the rest will be connected by end of 2004. The projects foresee the strengthening of wireless communications with 802.11 standard in schools and universities (€ 25 million are earmarked for 2004).

7% of hospitals have broadband at present and the 2005 target is 85%. An ongoing project aims at the development of an integrated communications broadband network to deliver services for GPs, providing them with enhanced communications and life-long learning.

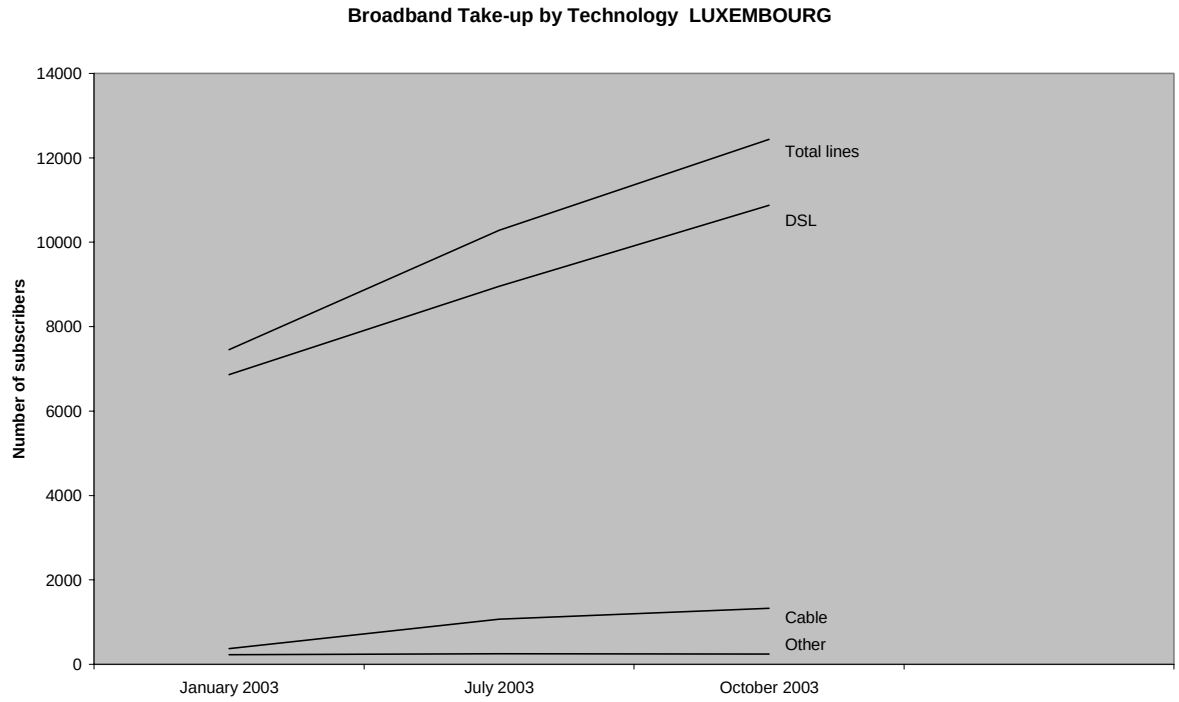
(5) Connecting SMEs

Enterprises with less than 50 employees are laggards in terms of broadband connections. The government is committed to promote the use of ICT for these companies. The project "*Agire Digitale*" aims at showing the role of ISPs as 'Application Service Providers' to accelerate effective use. This issue acquires particular relevance in Italy where SMEs constitute 99.5% of companies.

(6) Other measures

- € 29.5 million are earmarked for creating public access points enabling advanced services
- Diffusion of videoconferencing systems and upgrading of the infrastructure to provide Voice over the Internet throughout regions (€ 26 million)

LUXEMBOURG



1. Background

Broadband penetration in Luxembourg was 2.8% of population in January 2004. Although broadband take-up is relatively small, PC penetration and Internet connections are among the highest in the EU.

The market is dominated by DSL, where the incumbent EPT has a share close to 90%. There is a virtually non-existing availability of wholesale access supplied by the incumbent to new entrants (in terms of full unbundled lines, shared access and wholesale DSL lines supplied via bitstream or resale) and prices for unbundled loops are among the highest in Europe. Broadband access prices are relatively expensive compared to other European countries in terms of the price and performance ratios available.

2. The strategy

The government aims at ensuring broadband access at affordable prices to 95% of the population by 2005 and to all public administrations.

(1) Increasing coverage of under-served areas

A mapping of coverage of infrastructure is available.

Between 6 and 8% of households in Luxembourg do not have the possibility of accessing broadband Internet. The government intends to look into satellite and UMTS technologies to extend connectivity. Use of structural funds could be envisaged to guarantee coverage

(2) Stimulating use in the public sector

The Luxembourg government is encouraging use of broadband and has launched several applications requiring high-speed networks, e.g. in e-Government and in the fields of research and culture. The National Audio-visual Centre is archiving films electronically for downloading and similarly the National Library of Luxembourg is making a lot of its documents available online. A cultural portal is being developed and the government is encouraging the creation of public access points.

(3) Connecting public administrations, schools and hospitals

All administrations are connected to the national network RACINE and are equipped with symmetric connections of at least 256 Kbps.

All secondary schools are connected to broadband via the RESTENA backbone (Réseau Téléinformatique de l'Education Nationale et de la Recherche). As an ISP, RESTENA offers free broadband to all teachers. It is, however, the communes which have responsibility for primary schools in Luxembourg. Many of these have ISDN connections and a project to convert these connections to ADSL is under preparation.

The E-ducnet project foresees the installation of broadband infrastructure for educational and research establishments.

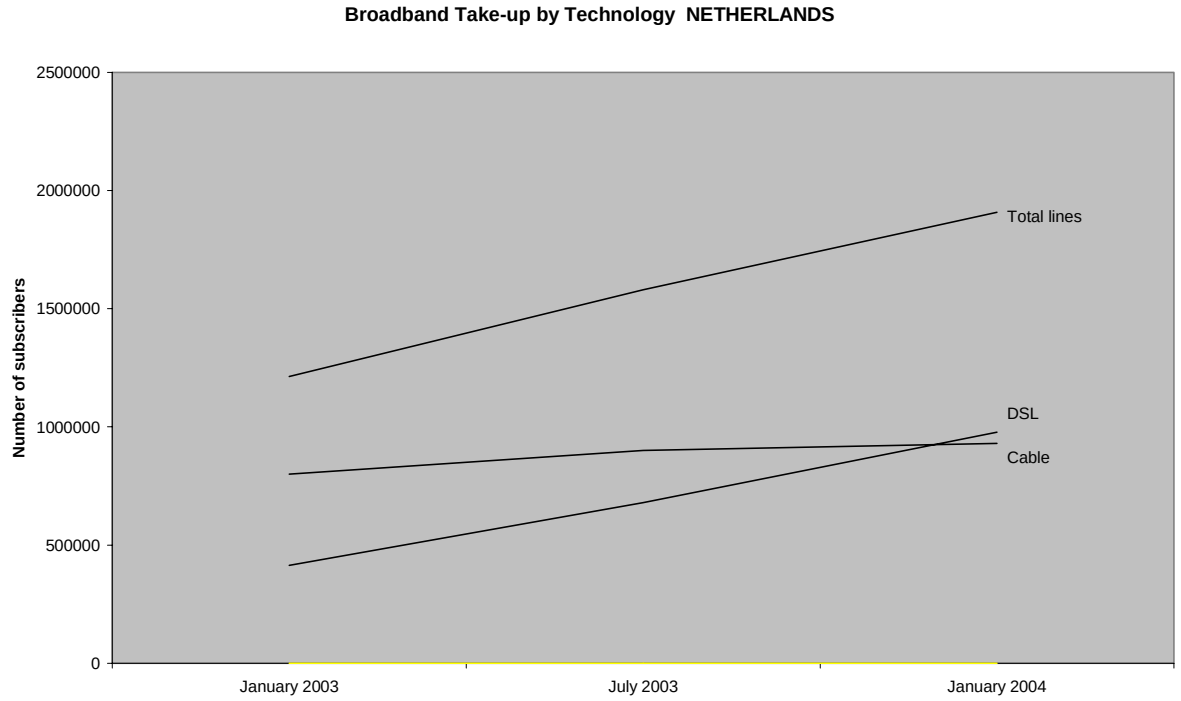
The Ministry of Education has also developed a learning portal that allows teachers and students to access e-Learning applications via the Internet.

Luxembourg's hospitals are connected to the Internet via a high-speed network called "Healthnet" which allows the secure transfer of medical data.

(4) Other measures

- The government is encouraging the modernisation of the cable network.
- Promotion of security

The NETHERLANDS



1. Background

The Netherlands is amongst the leading EU countries in terms of broadband penetration, with a take-up of 11.9% of population in January 2004. The broadband market is equally split between DSL and cable, with DSL catching up during the last couple of years. Cable operators were the first to offer broadband services in 1999, heavily investing in the upgrading of a network which was already providing cable TV throughout most of the Dutch territory. The incumbent KPN started to provide DSL services one year later. As of January 2004, the DSL market is dominated by KPN (79%), while independent ISPs provide their services through unbundled loops. The result of such a fierce platform competition can be seen in the relatively low prices of broadband services and in the high-speed offers available.

2. The strategy

In December 2002, the Dutch government launched a broadband action plan comprising five pillars: legislation; knowledge distribution; aggregating demand; co-ordinating government initiatives and the high-level counselling group. It consulted a broadband expert group made of CEOs of leading ICT companies in the Netherlands which presented its vision in the report "Holland Broadbandland" and gave its advice on the national broadband strategy. The government's action plan is based on this report. The broadband monitoring group will provide external reflection to the government on the effectiveness of the action programme.

(1) Increasing coverage of under-served areas

To encourage operators to offer broadband to households and SMEs in underserved areas, consumers and local governments are organising themselves to aggregate demand. ISPs are also helping make demand by these groups known. Other examples of "demand bundling" are seen at the regional and at the national level within a sector, e.g. education, agriculture,

defence and transport. The most promising solution in the eyes of the Dutch government is cross-sector regional demand whereby consumers, schools, libraries, hospitals and companies in one region bundle their demand.

This resulted in a number of trials and experiments. The results showed that demand, even in rural areas, was large enough for private companies to invest in broadband. Telecom operators and cable companies have announced to speed up deployment, which will result in 97% coverage by the end of 2004.

(2) Financial Incentives

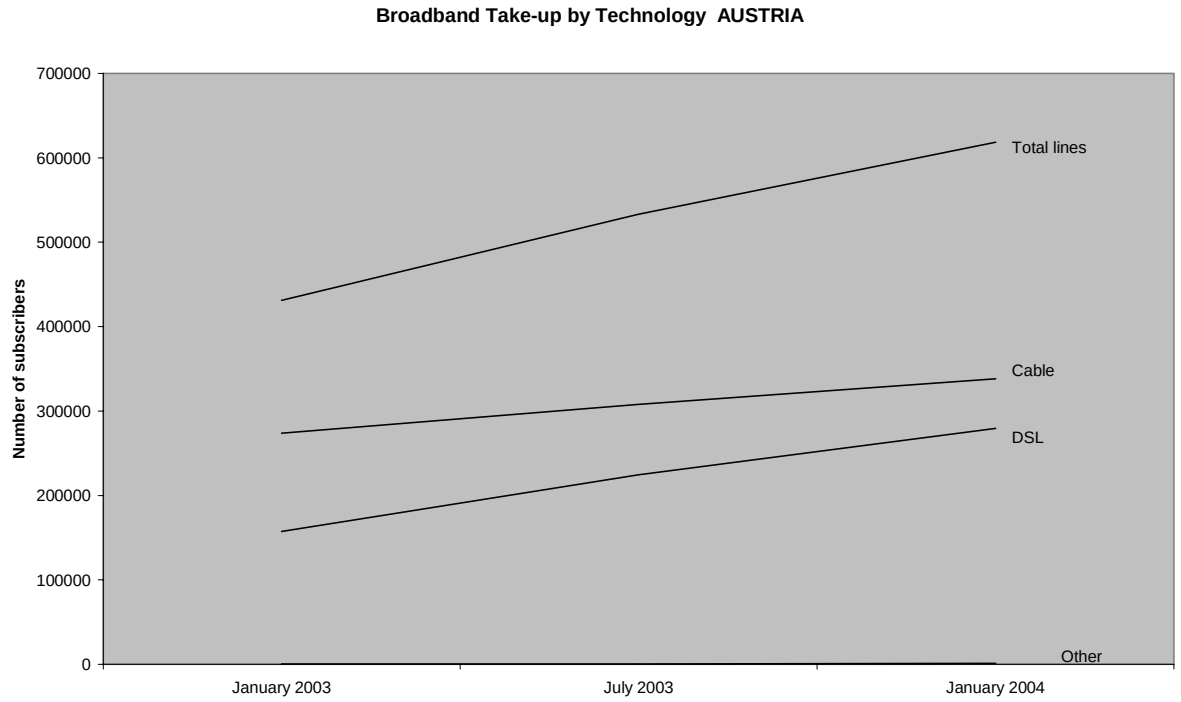
Incentives for take-up have only been experimented with, e.g. the demand incentive scheme in the region of Eindhoven. This gives consumers in the area of Kenniswijk a subsidy when they buy a broadband connection with at least one service, e.g. Internet. A study of financial arrangements will be published end of 2003.

(3) Other measures

- establishment of a Broadband Expertise Centre to spread knowledge on broadband for organisations and institutions that do not have ICT as their core task

- the establishment of broadband demonstration areas in libraries

AUSTRIA



1. Background

Broadband penetration in Austria reached 7.6% of population in January 2004. Austria is one of the very few countries in the EU where the number of cable modem subscribers is greater than the number of DSL subscribers: DSL represents 45% and cable 55% of the total broadband market, although ADSL take-up is increasing faster. The incumbent Telekom Austria holds 75% of the DSL market, while new entrants offer attractive packages using bitstream access (73%) and unbundled loops (27%).

2. The strategy

The national broadband strategy for Austria was written by the Federal Ministry for Transport, Innovation and Technology and details the current situation of broadband rollout and take-up. It states that while the new regulatory framework and the subsequent liberalisation of the telecom market have led to increased competition and lower prices, further initiatives will have to aim at stimulating demand.

(1) Increasing coverage of under-served areas

A mapping of the country to identify under-served areas is under preparation.

Examples of direct government involvement include the region of Niederösterreich which is carrying out a tender for the subsidised extension of broadband infrastructure.

Emphasis is on Public Private Partnerships: € 10 million have been set aside in the 2004 budget for an initiative to bring broadband to under-served areas.

The opportunity of using Structural Funds is still under discussion.

(2) Financial incentives

A tax-incentive for new broadband access has been introduced and applies to the whole country. All new broadband consumers as of 1 May 2003 can deduct both the access fee (maximum of €50) and the monthly payments (maximum of €40) until the end of 2004 from their income tax.

(3) Stimulating use in the public sector

e-Government projects are considered key demand-side policy, e.g. the project to create a federal level electronic file to achieve fast reaction and processing times. Other important e-Government services that Austria is developing are the Citizen Card, e-Security (electronic signature) and online availability of administrative services. This is assisted by all Austrian administrations at the federal level being connected to broadband.

The Austrian Chancellor is the head of the so-called "e-Government Platform", which includes representatives of all levels of government and the social partners. The Platform sets the targets for e-Government, agrees on a Roadmap and co-ordinates the work.

(4) Connecting public administrations, schools and hospitals

All public administrations at federal level are connected to broadband.

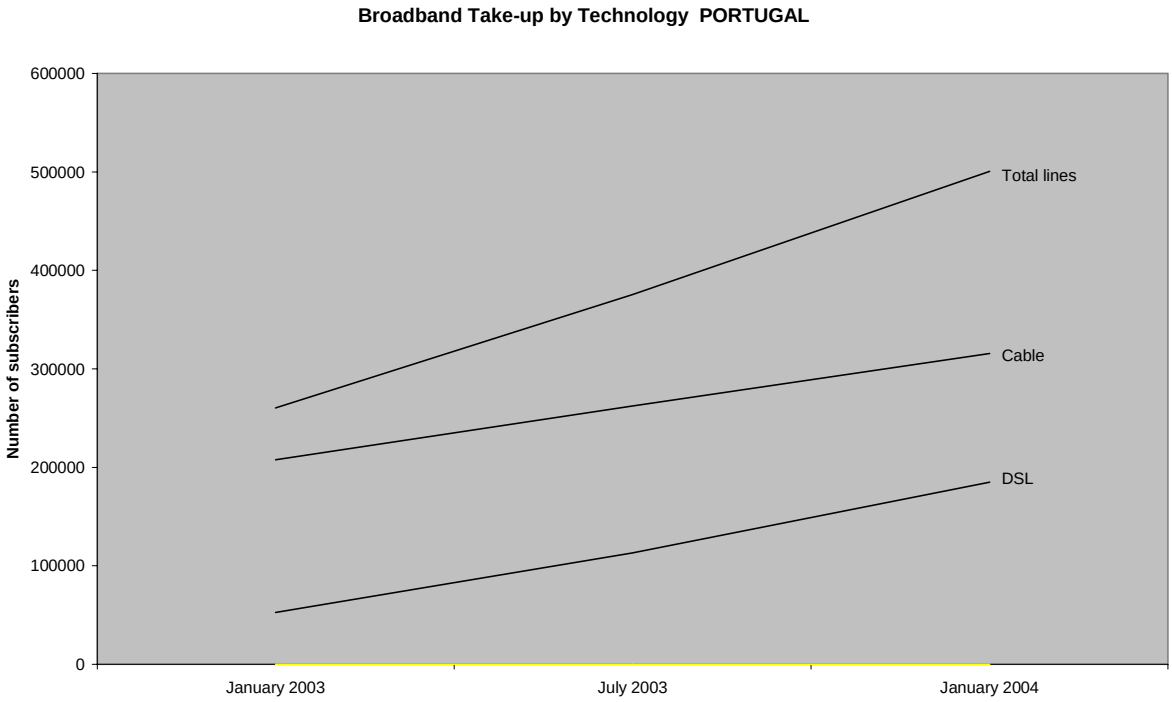
Over 99% of Austria's schools are connected to the ASN (Austrian School Network) and have access to the Internet. 25% of them have broadband access. 2200 schools have their own website. Universities are connected by the ACOnet and have access to the Internet with 1.5 Gbit.

The strategy foresees connection of all hospitals and the use of ICT for a "logical health care data net" with a chip card.

(5) Connecting SMEs

The initiative Protec 2000+ supports a number of eBusiness initiatives contributing to increase broadband take up by SMEs.

PORTUGAL



1. Background

Broadband penetration in Portugal was 4.9% of the population in January 2004. Portugal is one of the very few countries in the EU where the number of cable modem subscribers is greater than the number of DSL subscribers. However, Portugal Telecom, the incumbent, is the dominant provider of both DSL and cable modem services. Portugal Telecom has 87% of the DSL market while few independent ISPs provide DSL services mainly through bitstream access.

2. The strategy

The National Broadband Initiative of Portugal is part of the Information Society Action Plan and sets out specific targets to be achieved by 2005, in particular that 50% of all households and enterprises will have broadband access to the Internet by then. To achieve the aims of the strategy there are several projects which are grouped under the themes of Infrastructure and Access; Multimedia Content; Broadband Usage; Bridging the Digital Divide and National Competitiveness. In each area there will be a stakeholder group to mobilise economic and social actors such as the telecommunications companies and content providers. The groups will be co-ordinated by the a Global Coordination structure that will align resources and establish priorities in accordance with government objectives.

(1) Increasing coverage of under-served areas

Broadband access in less favoured areas is facilitated by the establishment of Community Networks. The target is to provide broadband access in 15 underprivileged municipalities by the end of 2004. Projects foreseen within this measure include the building of new

infrastructure, the sharing of infrastructure with private operators and taking advantage of existing public infrastructures.

Portugal is planning to use Structural Funds to bring broadband to under-served areas. A social cohesion approach (using a ranking model based on supply and demand-side criteria) and a market-based approach (using aggregation of public demand) will be necessary for areas to be considered eligible for public co-financing.

(2) Stimulating use in the public sector

e-Government initiatives can be found in the e-Government Action Plan.

(3) Connecting public administrations, schools and hospitals

Objectives include:

- connecting all central public administration offices and hospitals to broadband;
- achieving a broadband-connected PC/pupil ratio superior to the EU average;
- establishing at least 16 public access points with broadband per 100,000 inhabitants. In poorer municipalities access will be free.
- A broadband interoperability system that will sustain more effective communication and co-operation procedures in public services

One important project relates to the creation of virtual campuses and creating remote learning programs.

(4) Connecting SMEs

The national Information Society strategy of Portugal devotes considerable attention to SMEs, encouraging the development of Internet initiatives that induce the use of broadband services, stimulating investment in modernisation of working procedures and supporting young entrepreneurs in e-business. The two main targets are supporting broadband access and use in 10,000 SMEs until 2005 and supporting the development of websites of 10,000 SMEs over the same period.

(5) Initiatives addressing the development of new content

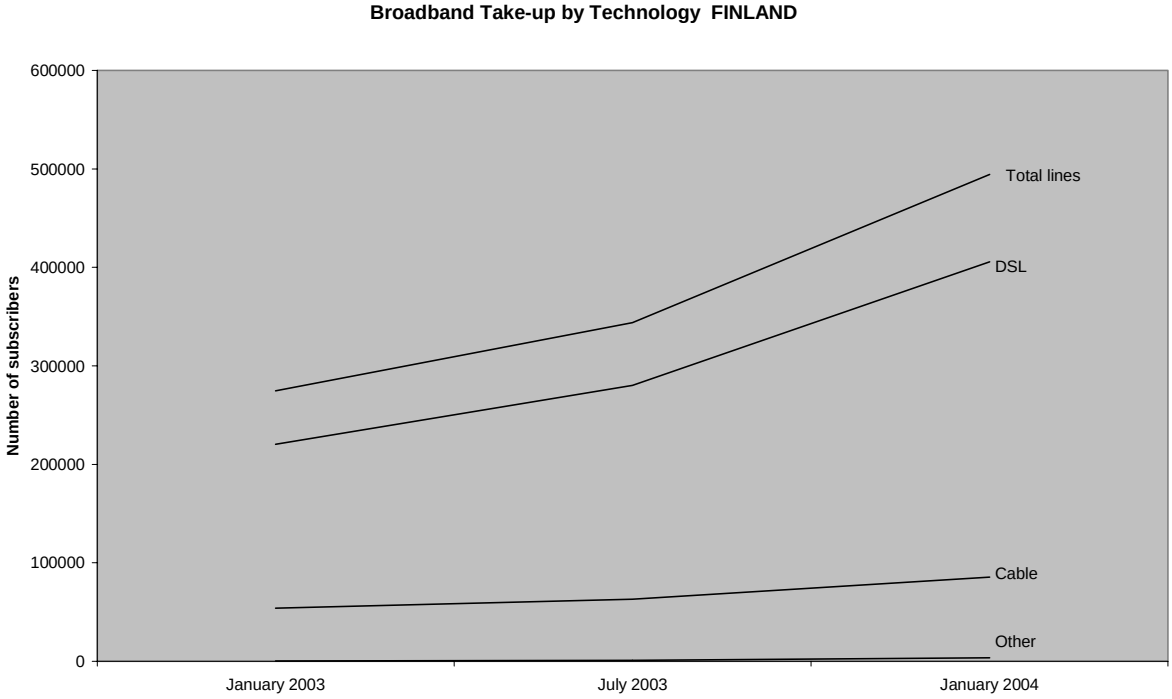
The objective is to triple software investment (currently 3% of GDP) and encourage the creation and implementation of 500 multimedia content and application projects by 2005 by expanding the role of the State as a driver of digital content, stimulating the content industry to digitalise thematic content, training professional specialised in the development of content for different formats, and offering awards for the best content disseminating best practices.

(6) Other measures:

- Increase PC penetration to achieve 55% of households disposing of a PC by 2005 through the creation of PC recycling centres and financial incentives.
- Ensure awareness of broadband benefits

- Promotion of IT training through introduction of IT certificates

FINLAND



1. Background

In January 2004 Finland reached the fifth position in the ranking of EU countries in terms of broadband penetration (9.5% of the population), following the traditional market leaders Denmark, Belgium, the Netherlands and Sweden. The key feature of the Finnish broadband market is the "shared access model" where owners of apartment buildings purchase high-speed broadband connections and then share them among users in that building via a Local Area Network (LAN). This model, originally introduced by small ISPs for the provision of DSL connections, is now followed also by incumbents. This makes the Finnish broadband market highly competitive, although this is not evident at a first glance. Users living in highly populated areas and willing to subscribe to services offered through the "shared access model" can enjoy extremely low prices. Prices for individual dwellings are, on the contrary, still relatively high.

2. The strategy

The strategy targets one million broadband connections by the end of 2005, with everyone having access to affordable broadband in the same timeframe. The strategy is based on the promotion of competition, in particular in the local loop, of the provision of services and content, on stimulating demand and developing support measures in under-served areas. The government also emphasises the importance of security to stimulate use. It will revise the privacy protection legislation and will actively implement the National Information Security Strategy.

(1) Increasing coverage of under-served areas

A mapping of coverage is available.

Regional councils and municipalities will jointly prepare a broadband strategy for their region and promote its implementation. The strategy will be based on estimates of future demand and market conditions in each municipality, identifying the main user segments in relation to service provision. National guidelines will be drawn up for regional councils and municipalities on the use of public funding in areas where commercial investment is lacking on the basis of the Commission guidelines published in July 2003.

Municipal wholesale networks exist and extend also to areas where private networks exist.

(2) Stimulating use in the public sector

The strategy foresees the expansion of municipal online services, e.g. a considerable proportion of municipal procurement to be handled online by end 2005.

(3) Connecting public administrations, schools and hospitals

Almost all public administrations are connected to broadband.

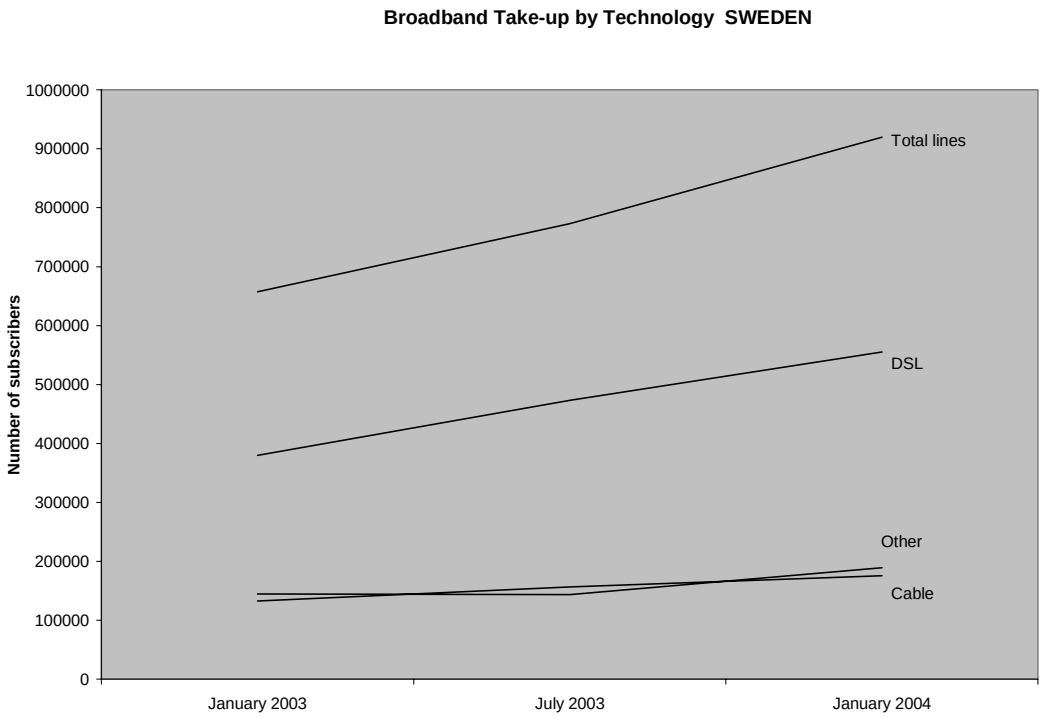
Most Finnish schools are connected to broadband. More broadband connections for schools and libraries will be provided ensuring access at reasonable price.

All public hospitals are connected to broadband.

(4) Other measures

- Implementation of the National Information Security Strategy, improving confidence in use of networks;
- Launch of a programme to raise awareness of protection against viruses among SMEs and the public;
- The modernisation of cable TV networks during 2004 to promote competition;
- Bringing telecommunications companies together to agree a code of conduct for encouraging the supply of broadband;
- Investigating obstacles to wider adoption of new broadband technologies;
- Investigating the scope for promoting use of fibre-optic cables in household broadband connections;
- Developing a strategy for barrier-free communications services for the disabled
- Implementation of the Ministry of Education’s 2010 strategy concerning culture in the information society
- Publicly available, regional broadband service points will be available free of charge

SWEDEN



1. Background

Sweden, together with Denmark, Belgium and the Netherlands, is one of the leading broadband markets in the EU. In January 2004 broadband penetration was 10.4% of population. Sweden was an early leader in broadband take-up in the EU and its success was driven by the new entrant B2 that started offering very high speed FTTH broadband services at low price, thus stimulating competition from the incumbent TeliaSonera in DSL and cable networks. An additional factor further increasing platform competition was TeliaSonera divestiture of its cable company (ComHen). In January 2004, DSL was the leading technology with 60% of the broadband market. The rest was split between cable (19%) and other technologies (21%), mainly FTTH. The initial competitive battle resulted in retail broadband prices exceptionally cheap. Such low prices proved unsustainable and have gradually risen, although they are still among the cheapest in the world, especially in terms of offers relating to high speeds.

2. The strategy

The government believes that all households and businesses in Sweden should, over the coming years, have access to an IT infrastructure with high transfer capacity. This is outlined in the IT Bill of March 2000, “An Information Society for all” and in the national strategy “Development of IT infrastructure – action to increase access throughout Sweden”. Although expansion of broadband network will mainly be market driven, overall responsibility for ensuring that the infrastructure can be accessed from all parts of Sweden remains with the State.

(1) Increasing coverage of under-served areas

The government acknowledges responsibility for ensuring that the infrastructure reaches all parts of the country, as rural, sparsely populated areas and towns with fewer than 3000 inhabitants are unlikely to be connected without assistance from the state. 30% of the population lives in rural areas and small towns.

The government has proposed a number of support measures, mainly in the form of funds earmarked primarily for the purpose of expanding coverage in these areas. Government subsidies are intended to be advanced primarily to network-builders operating in the private sector, but if private contractors are not interested, municipalities may build the infrastructure themselves. Funding is offered to the market in a public procurement process.

A total of SEK 5,250 million for the period 2000-2005 is allocated towards measures at the different levels of the network hierarchy.

- *National backbone network*

Municipal councils can apply for up to SEK 400 million to help cover the cost of connection to the backbone.

- *Regional networks*

Municipal councils can apply for support for regional network construction, linking the larger urban centres in each municipality. A total of SEK 1.9 billion has been set aside for this purpose.

- *Local networks*

Municipal council can apply for financial support for the expansion of local networks. A total of SEK 1.2 billion has been earmarked for this purpose.

- *Access networks* (see Existing financial incentives)

In addition to the money set aside by the Government, regional grants and structural funds for a combined total of SEK 575 million, may also be used as funding for the development of broadband infrastructure.

(2) Financial incentives

Individual subscribers may be eligible for tax relief for broadband access costs in excess of SEK 8,000. A maximum deduction of SEK 5,000 can be made on 50% of connection costs over SEK 8,000 and under SEK 18,000. A total of SEK 1.6 billion has been allocated for this purpose.

(3) Stimulating use in the public sector

The Swedish government has appointed a delegation in order to stimulate the development and usage of public e-services. The delegation will focus on e-services that benefit citizens and companies as well as the public sector.

(4) Connecting public administrations, schools and hospitals

Almost all public administrations are connected to broadband. The county administrative boards are connected to a synchronous connection of at minimum 2 Mbit/s. Almost all of the municipalities have a capacity of 2 Mbit/s or more.

Almost all Swedish schools are connected to broadband. The Universities are connected to SUNET (Swedish University Network) which has a capacity of 100 Mbit/s.

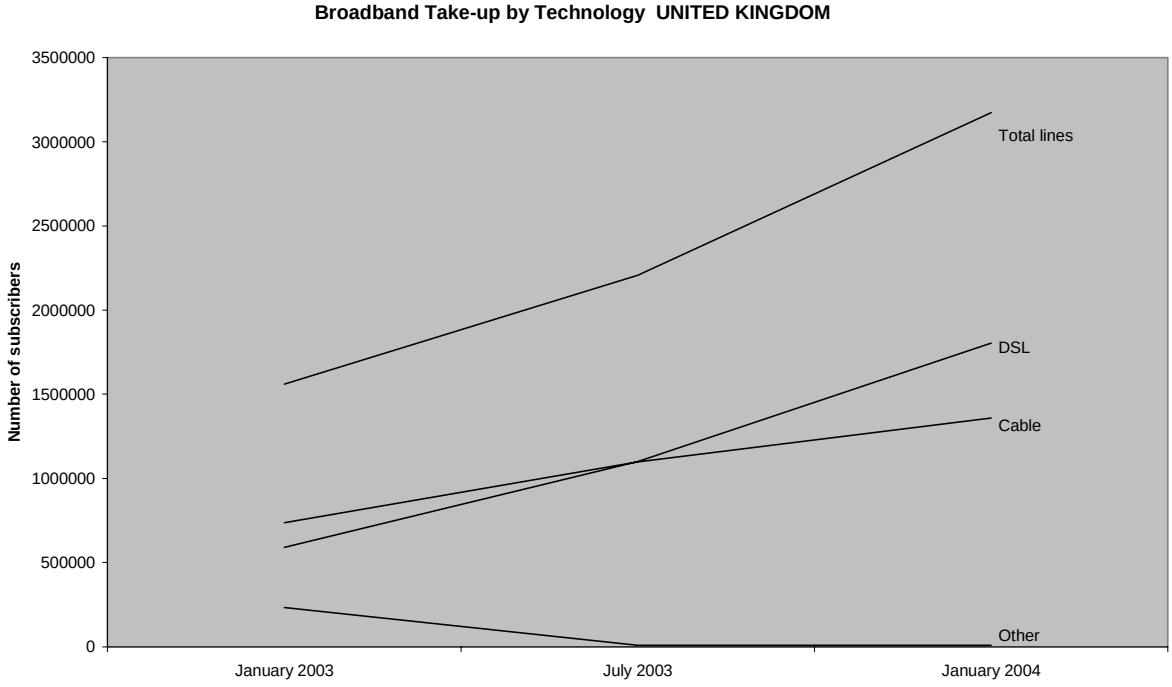
All public hospitals, health centres and public dental centres are connected to broadband.

(5) Connecting SMEs

62% of SMEs with more than 10 employees have broadband access. 34% of them have ISDN-access.

Sweden has had two programs to improve the IT competence in small companies. One of the programs was designed to increase the strategic IT competence in Sweden's small companies in order to increase their capacity to develop an improve competitiveness. The aim of the other program is to prioritise regional development by promoting modern information technology in small companies.

UNITED KINGDOM



1. Background

The UK witnessed considerable growth of broadband take-up in the last couple of years, achieving a penetration rate of 5.3% of population. The first launch of broadband services came from cable operators, but in the absence of a competitive DSL alternative from the incumbent BT prices were relatively high and services not particularly attractive. With the launch of BT and independent ISPs of DSL services, the UK saw an increase in take-up and a rapid decrease in prices. In January 2004, DSL represented 57% of the broadband market, with the incumbent BT holding the lowest DSL market share compared to other EU incumbents (46%). A range of independent ISPs resale BT's wholesale offer for their DSL services.

2. The strategy

In the UK the government has set a target of having the most extensive and competitive broadband market in the G7 by 2005. Progress towards the broadband target is measured bi-annually through the indicators of price, choice, regulatory regime, availability and market context. Advising the government on broadband policy is the Broadband Stakeholder Group, a body composed of public and private sector players, e.g. broadband service providers; the broadband content industry; central, regional and local government; consumer representatives; trade unions and trade associations. The strategy is based on the recommendations of the Broadband Stakeholder Group.

A central part of the strategy is represented by the Broadband Aggregation Project, aiming at connecting schools, general-practitioner practices, all hospitals and criminal justice organisations.

(1) Increasing coverage of under-served areas

Regional Aggregation Bodies will work with public sector bodies to aggregate demand with schools and hospitals benefiting first.

The DTI has also made available a £ 30 million Broadband Fund to the Regional Development Agencies to fund innovative pilot projects including pioneering new technologies.

Structural Funds are being used in isolated projects where they are practices on broadband roll-out and demand stimulation in rural areas.

(2) Connecting public administrations, schools and hospitals

£ 1 billion has been earmarked to increase broadband connectivity in the public sector for 3 years until 2006. 9 companies have been set up to aggregate demand on the regional basis and pass it to the private sector.

By 2006 all primary schools will get a minimum of 2Mbps two-way connection and secondary schools will 8Mbps.

Doctors' surgeries, hospitals, primary care trusts and health authorities to be wired up in order to implement electronic patient records and the NHS University for staff development through national aggregation bodies.

(3) Connecting SMEs

The DTI's "UK Online for Business" - a partnership between industry and government to help businesses in the UK (particularly SMEs) exploit the benefits of ICT through business advisors, events, publications, etc.;

A 100% tax credit for SMEs ICT investment has been set up to write off the cost of capital assets against the taxable profits of a business from 1 April 2000 to 31 March 2004.

(4) Other measures

- The criminal justice system will provide ICT infrastructure across the six major criminal justice organisations – police, crown prosecution service, magistrates courts, crown court, probation and prisons;

- Establishment of the Digital Inclusion Panel to identify groups at risk of digital inclusion, identify actions to encourage connection and make recommendations on how industry and government can together drive connection;

- Studies have been carried out into content and DRM and the DTI will be working with Regional Development Agencies and Devolved Administrations to implement pilots in broadband content stimulation.

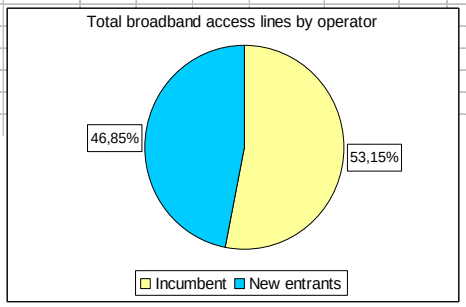
ANNEX 3

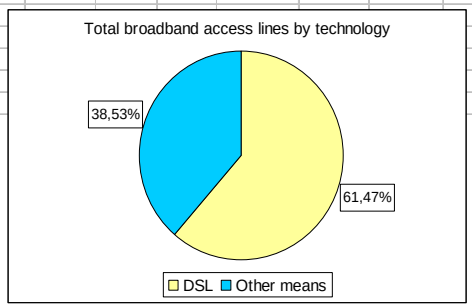
BROADBAND DATA BY COUNTRY AS OF JANUARY 2004

BELGIUM

RETAIL ACCESS										
Total broadband connections			1244736	Penetration rate (% of population)				12,1%		
of which	PSTN		765183							
	Other means		479553							
Incumbents broadband connections			661624	Incumbents broadband connections by other means						
of which	DSL over PSTN	53,15%	661608	WLL	0	0,00%	3G	0	0,00%	
	Other means	0,00%	16	Cable	0	0,00%	FTTH	0	0,00%	
				Leased Lines	16	0,00%	Satellite	0	0,00%	
				Other	0	0,00%	PLC	0	0,00%	
New entrants broadband connections			583112	New entrants broadband connections: DSL						
of which	DSL over PSTN	8,32%	103575	Full ULL	1359	0,11%		1,31%		
	Other means	38,53%	479537	Shared access	2314	0,19%		2,23%		
				Bitstream access	42340	3,40%		40,88%		
				Resale	57562	4,62%		55,58%		
				New entrants broadband connections by other means						
				WLL	0	0,00%	3G	0	0,00%	
				Cable	477745	38,38%	FTTH	0	0,00%	
				Leased Lines	1734	0,14%	Satellite	0	0,00%	
				Other	58	0,00%	PLC	0	0,00%	

MARKET SHARE		
	Incumbent	New entrants
Total broadband connections	53,15%	46,85%
DSL lines	86,46%	13,54%
Broadband lines by other means	0,00%	100,00%
	DSL	Other means
Total broadband access lines by technology	61,47%	38,53%



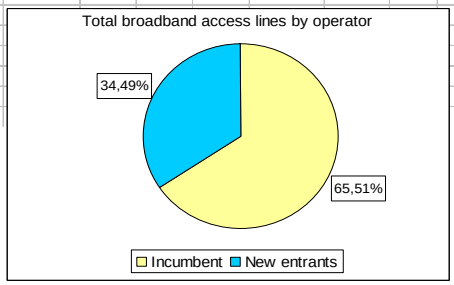


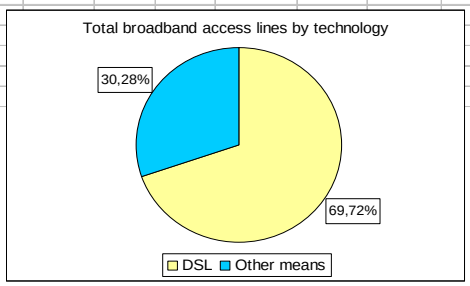
Source: Commission Services

DENMARK

RETAIL ACCESS										
Total broadband connections			678698	Penetration rate (% of population)				12,7%		
of which	PSTN		473193							
	Other means		205505							
Incumbents broadband connections			444641	Incumbents broadband connections by other means						
of which	DSL over PSTN	54,91%	372677	WLL	0	0,00%	3G	0	0,00%	
	Other means	10,60%	71964	Cable	68245	10,06%	FTTH	0	0,00%	
				Leased Lines	3719	0,55%	Satellite	0	0,00%	
				Other	0	0,00%	PLC	0	0,00%	
New entrants broadband connections			234057	New entrants broadband connections: DSL						
of which	DSL over PSTN	14,81%	100516	Full ULL	47324	6,97%		47,08%		
	Other means	19,68%	133541	Shared access	16067	2,37%		15,98%		
				Bitstream access	37125	5,47%		36,93%		
				Resale	0	0,00%		0,00%		
				New entrants broadband connections by other means						
				WLL	2171	0,32%	3G	0	0,00%	
				Cable	126062	18,57%	FTTH	0	0,00%	
				Leased Lines	4758	0,70%	Satellite	0	0,00%	
				Other	550	0,08%	PLC	0	0,00%	

MARKET SHARE		
	Incumbent	New entrants
Total broadband connections	65,51%	34,49%
DSL lines	78,76%	21,24%
Broadband lines by other means	35,02%	64,98%
	DSL	Other means
Total broadband access lines by technology	69,72%	30,28%



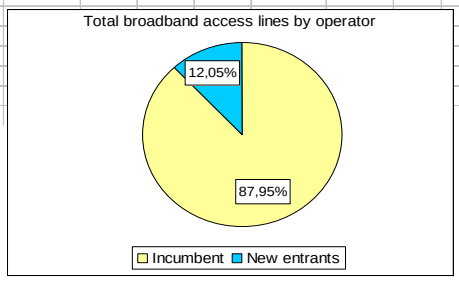


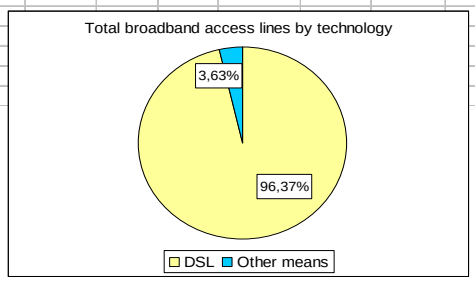
Source: Commission Services

GERMANY

RETAIL ACCESS												
Total broadband connections			4667457	Penetration rate (% of population)					5,7%		
of which	PSTN		4498086								
	Other means		169371								
Incumbents broadband connections			4105171	Incumbents broadband connections by other means							
of which	DSL over PSTN	87,84%	4100000	WLL	0	0,00%	3G	0	0,00%		
	Other means	0,11%	5171	Cable	0	0,00%	FTTH	n.a.			
				Leased Lines	n.a.		Satellite	5171	0,11%		
				Other	0	0,00%	PLC	0	0,00%		
New entrants broadband connections			562286	New entrants broadband connections: DSL							
of which	DSL over PSTN	8,53%	398086	Full ULL	398000	8,53%		99,98%			
	Other means	3,52%	164200	Shared access	86	0,00%		0,02%			
				Bitstream access	0	0,00%		0,00%			
				Resale	0	0,00%		0,00%			
				New entrants broadband connections by other means							
				WLL	n.a.		3G	0	0,00%		
				Cable	60000	1,29%	FTTH	56000	1,20%		
				Leased Lines	n.a.		Satellite	40000	0,86%		
				Other	n.a.		PLC	8200	0,18%		

MARKET SHARE			
		Incumbent	New entrants
	Total broadband connections	87,95%	12,05%
	DSL lines	91,15%	8,85%
	Broadband lines by other means	3,05%	96,95%
		DSL	Other means
	Total broadband access lines by technology	96,37%	3,63%



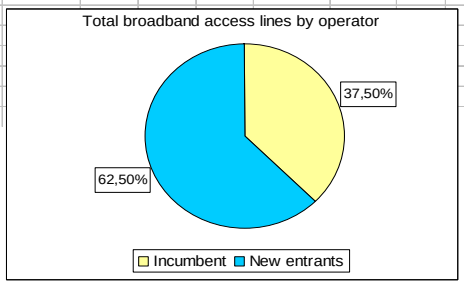


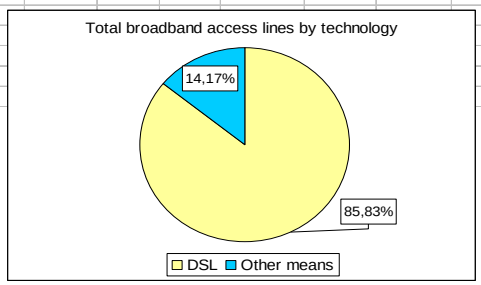
Source: Commission Services

GREECE

RETAIL ACCESS												
Total broadband connections			10006	Penetration rate (% of population)					0,1%		
of which	PSTN		8588								
	Other means		1418								
Incumbents broadband connections			3752	Incumbents broadband connections by other means							
of which	DSL over PSTN	37,50%	3752	WLL	0	0,00%	3G	0	0,00%		
	Other means	0,00%	0	Cable	0	0,00%	FTTH	0	0,00%		
				Leased Lines	0	0,00%	Satellite	0	0,00%		
				Other	0	0,00%	PLC	0	0,00%		
New entrants broadband connections			6254	New entrants broadband connections: DSL							
of which	DSL over PSTN	48,33%	4836	Full ULL	650	6,50%		13,44%			
	Other means	14,17%	1418	Shared access	5	0,05%		0,10%			
				Bitstream access	4181	41,78%		86,46%			
				Resale	0	0,00%		0,00%			
				New entrants broadband connections by other means							
				WLL	362	3,62%	3G	0	0,00%		
				Cable	5	0,05%	FTTH	0	0,00%		
				Leased Lines	1049	10,48%	Satellite	0	0,00%		
				Other	2	0,02%	PLC	0	0,00%		

MARKET SHARE		
	Incumbent	New entrants
Total broadband connections	37,50%	62,50%
DSL lines	43,69%	56,31%
Broadband lines by other means	0,00%	100,00%
	DSL	Other means
Total broadband access lines by technology	85,83%	14,17%



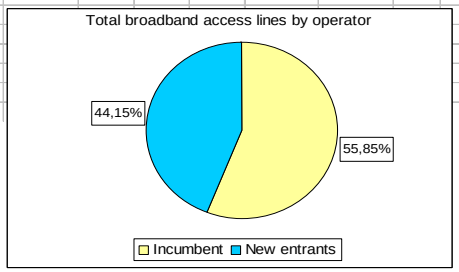


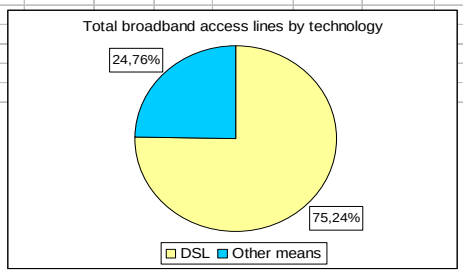
Source: Commission Services

SPAIN

RETAIL ACCESS										
Total broadband connections			2228169	Penetration rate (% of population)				5,6%		
of which	PSTN		1676466							
	Other means		551703							
Incumbents broadband connections			1244403	Incumbents broadband connections by other means						
of which	DSL over PSTN	55,81%	1243594	WLL	54	0,00%	3G	0	0,00%	
	Other means	0,04%	809	Cable	0	0,00%	FTTH	n.a.		
				Leased Lines	n.a.		Satellite	755	0,03%	
				Other	0	0,00%	PLC	0	0,00%	
New entrants broadband connections			983766	New entrants broadband connections: DSL						
of which	DSL over PSTN	19,43%	432872	Full ULL	16011	0,72%		3,70%		
	Other means	24,72%	550894	Shared access	5	0,00%		0,00%		
				Bitstream access	416856	18,71%		96,30%		
				Resale	n.a.					
				New entrants broadband connections by other means						
				WLL	5104	0,23%	3G	0	0,00%	
				Cable	539754	24,22%	FTTH	881	0,04%	
				Leased Lines	5062	0,23%	Satellite	2	0,00%	
				Other	91	0,00%	PLC	0	0,00%	

MARKET SHARE		
	Incumbent	New entrants
Total broadband connections	55,85%	44,15%
DSL lines	74,18%	25,82%
Broadband lines by other means	0,15%	99,85%
	DSL	Other means
Total broadband access lines by technology	75,24%	24,76%



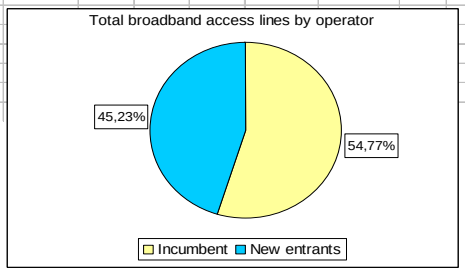


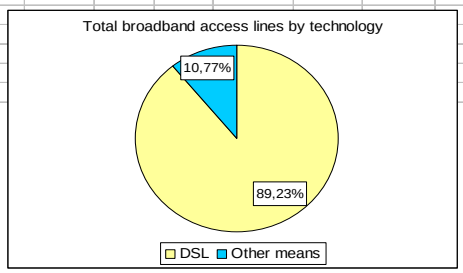
Source: Commission Services

FRANCE

RETAIL ACCESS											
Total broadband connections			3656654		Penetration rate (% of population)				6,2%		
of which	PSTN		3262800								
	Other means		393854								
Incumbents broadband connections			2002859		Incumbents broadband connections by other means						
of which	DSL over PSTN	52,55%	1921500		WLL	n.a.		3G	0		0,00%
	Other means	2,22%	81359		Cable	81359	2,22%	FTTH	0		0,00%
					Leased Lines	n.a.		Satellite	0		0,00%
					Other	n.a.		PLC	0		0,00%
New entrants broadband connections			1653795		New entrants broadband connections: DSL						
of which	DSL over PSTN	36,68%	1341300		Full ULL	3800	0,10%		0,28%		
	Other means	8,55%	312495		Shared access	272900	7,46%		20,35%		
					Bitstream access	159600	4,36%		11,90%		
					Resale	905000	24,75%		67,47%		
					New entrants broadband connections by other means						
					WLL	n.a.		3G	0		0,00%
					Cable	312495	8,55%	FTTH	0		0,00%
					Leased Lines	n.a.		Satellite	0		0,00%
					Other	n.a.		PLC	0		0,00%

MARKET SHARE			
		Incumbent	New entrants
Total broadband connections		54,77%	45,23%
DSL lines		58,89%	41,11%
Broadband lines by other means		20,66%	79,34%
		DSL	Other means
Total broadband access lines by technology		89,23%	10,77%



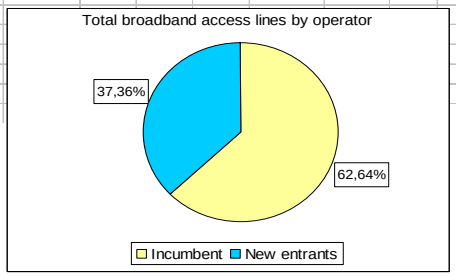


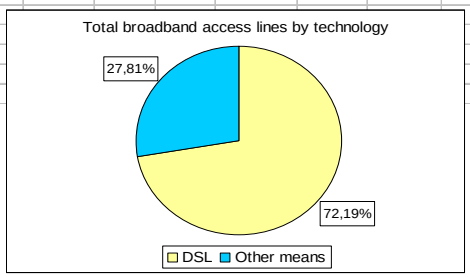
Source: Commission Services

IRELAND

RETAIL ACCESS										
Total broadband connections			34880	Penetration rate (% of population)				0,9%		
of which	PSTN		25180							
	Other means		9700							
Incumbents broadband connections			21850	Incumbents broadband connections by other means						
of which	DSL over PSTN	55,62%	19400	WLL	0	0,00%	3G	0	0,00%	
	Other means	7,02%	2450	Cable	0	0,00%	FTTH	0	0,00%	
				Leased Lines	2450	7,02%	Satellite	0	0,00%	
				Other	0	0,00%	PLC	0	0,00%	
New entrants broadband connections			13030	New entrants broadband connections: DSL						
of which	DSL over PSTN	16,57%	5780	Full ULL	280	0,80%		4,84%		
	Other means	20,79%	7250	Shared access	1100	3,15%		19,03%		
				Bitstream access	4400	12,61%		76,12%		
				Resale	0	0,00%		0,00%		
				New entrants broadband connections by other means						
				WLL	1000	2,87%	3G	0	0,00%	
				Cable	4900	14,05%	FTTH	0	0,00%	
				Leased Lines	900	2,58%	Satellite	200	0,57%	
				Other	250	0,72%	PLC	0	0,00%	

MARKET SHARE		
	Incumbent	New entrants
Total broadband connections	62,64%	37,36%
DSL lines	77,05%	22,95%
Broadband lines by other means	25,26%	74,74%
	DSL	Other means
Total broadband access lines by technology	72,19%	27,81%



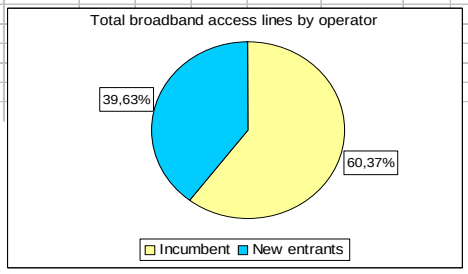


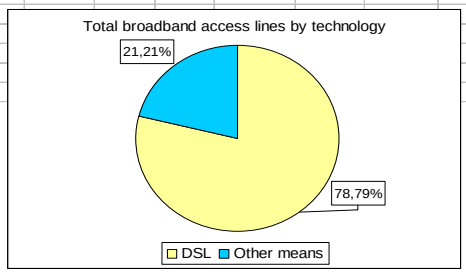
Source: Commission Services

ITALY

RETAIL ACCESS												
Total broadband connections			2739339		Penetration rate (% of population)				4,8%			
of which	PSTN		2158458									
	Other means		580881									
Incumbents broadband connections			1653777		Incumbents broadband connections by other means							
of which	DSL over PSTN	60,29%	1651522		WLL	0	0,00%		3G	0	0,00%	
	Other means	0,08%	2255		Cable	0	0,00%		FTTH	243	0,01%	
					Leased Lines	1227	0,04%		Satellite	785	0,03%	
					Other	0	0,00%		PLC	0	0,00%	
New entrants broadband connections			1085562		New entrants broadband connections: DSL							
of which	DSL over PSTN	18,51%	506936		Full ULL	210126	7,67%			41,45%		
	Other means	21,12%	578626		Shared access	0	0,00%			0,00%		
					Bitstream access	296426	10,82%			58,47%		
					Resale	384	0,01%			0,08%		
					New entrants broadband connections by other means							
					WLL	179	0,01%		3G	337400	12,32%	
					Cable	20	0,00%		FTTH	146835	5,36%	
					Leased Lines	3555	0,13%		Satellite	90617	3,31%	
					Other	20	0,00%		PLC	0	0,00%	

MARKET SHARE		
	Incumbent	New entrants
Total broadband connections	60,37%	39,63%
DSL lines	76,51%	23,49%
Broadband lines by other means	0,39%	99,61%
	DSL	Other means
Total broadband access lines by technology	78,79%	21,21%



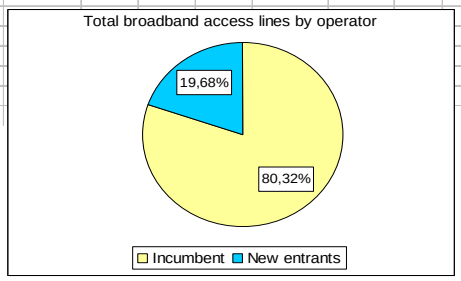


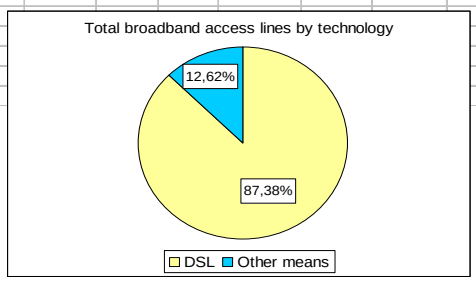
Source: Commission Services

LUXEMBOURG

RETAIL ACCESS												
Total broadband connections			12439	Penetration rate (% of population)					2,8%		
of which	PSTN		10869								
	Other means		1570								
Incumbents broadband connections			9991	Incumbents broadband connections by other means							
of which	DSL over PSTN	77,74%	9670	WLL	0	0,00%	3G	0	0,00%		
	Other means	2,58%	321	Cable	217	1,74%	FTTH	0	0,00%		
				Leased Lines	104	0,84%	Satellite	0	0,00%		
				Other	0	0,00%	PLC	0	0,00%		
New entrants broadband connections			2448	New entrants broadband connections: DSL							
of which	DSL over PSTN	9,64%	1199	Full ULL	1199	9,64%		100,00%			
	Other means	10,04%	1249	Shared access	0	0,00%		0,00%			
				Bitstream access	0	0,00%		0,00%			
				Resale	0	0,00%		0,00%			
				New entrants broadband connections by other means							
				WLL	25	0,20%	3G	0	0,00%		
				Cable	1110	8,92%	FTTH	0	0,00%		
				Leased Lines	110	0,88%	Satellite	0	0,00%		
				Other	4	0,03%	PLC	0	0,00%		

MARKET SHARE		
	Incumbent	New entrants
Total broadband connections	80,32%	19,68%
DSL lines	88,97%	11,03%
Broadband lines by other means	20,45%	79,55%
	DSL	Other means
Total broadband access lines by technology	87,38%	12,62%



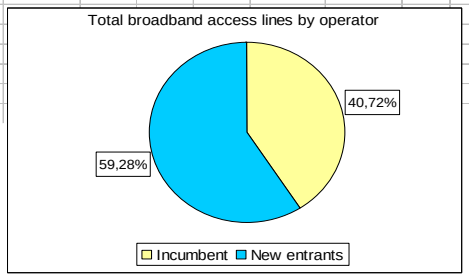


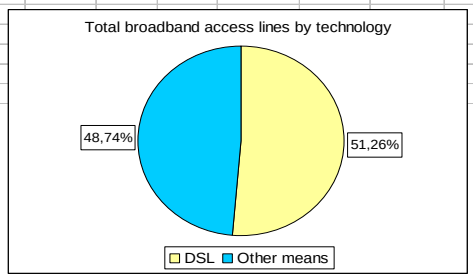
Source: Commission Services

The NETHERLANDS

RETAIL ACCESS										
Total broadband connections			1908044	Penetration rate (% of population)				11,9%		
of which	PSTN		978044							
	Other means		930000							
Incumbents broadband connections			776968	Incumbents broadband connections by other means						
of which	DSL over PSTN	40,72%	776968	WLL	0	0,00%	3G	0	0,00%	
	Other means	0,00%	0	Cable	0	0,00%	FTTH	n.a.		
				Leased Lines	n.a.		Satellite	n.a.		
				Other	n.a.		PLC	n.a.		
New entrants broadband connections			1131076	New entrants broadband connections: DSL						
of which	DSL over PSTN	10,54%	201076	Full ULL	33795	1,77%		16,81%		
	Other means	48,74%	930000	Shared access	167281	8,77%		83,19%		
				Bitstream access	n.a.			#VALUE!		
				Resale	0	0,00%		0,00%		
				New entrants broadband connections by other means						
				WLL	n.y.a.		3G	0	0,00%	
				Cable	930000	48,74%	FTTH	n.a.		
				Leased Lines	n.a.		Satellite	n.a.		
				Other	n.a.		PLC	n.a.		

MARKET SHARE		
	Incumbent	New entrants
Total broadband connections	40,72%	59,28%
DSL lines	79,44%	20,56%
Broadband lines by other means	0,00%	100,00%
	DSL	Other means
Total broadband access lines by technology	51,26%	48,74%



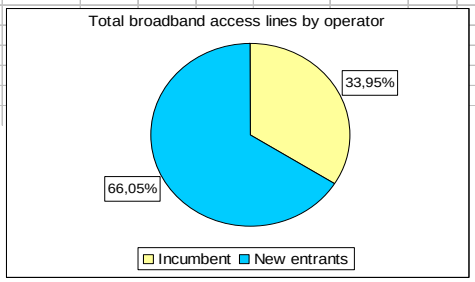


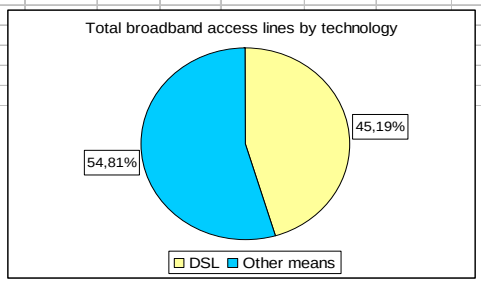
Source: Commission Services

AUSTRIA

RETAIL ACCESS											
Total broadband connections			618500	Penetration rate (% of population)				7,6%			
of which	PSTN		279500								
	Other means		339000								
Incumbents broadband connections			210000	Incumbents broadband connections by other means							
of which	DSL over PSTN	33,95%	210000	WLL	0	0,00%		3G	0		0,00%
	Other means	0,00%	0	Cable	0	0,00%		FTTH	0		0,00%
				Leased Lines	n.a.			Satellite	0		0,00%
				Other	n.a.			PLC	0		0,00%
New entrants broadband connections			408500	New entrants broadband connections: DSL							
of which	DSL over PSTN	11,24%	69500	Full ULL	18500	2,99%			26,62%		
	Other means	54,81%	339000	Shared access	0	0,00%			0,00%		
				Bitstream access	51000	8,25%			73,38%		
				Resale	0	0,00%			0,00%		
				New entrants broadband connections by other means							
				WLL	0	0,00%		3G	n.a.		
				Cable	338000	54,65%		FTTH	1000		0,16%
				Leased Lines	n.a.			Satellite	n.a.		
				Other	n.a.			PLC	n.a.		

MARKET SHARE		
	Incumbent	New entrants
Total broadband connections	33,95%	66,05%
DSL lines	75,13%	24,87%
Broadband lines by other means	0,00%	100,00%
	DSL	Other means
Total broadband access lines by technology	45,19%	54,81%



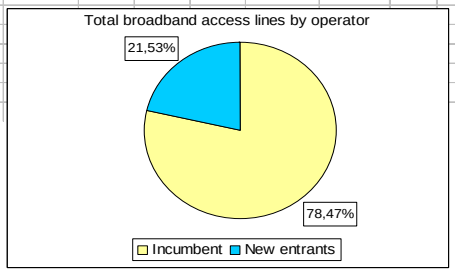


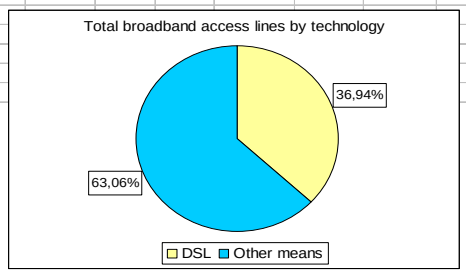
Source: Commission Services

PORTUGAL

RETAIL ACCESS												
Total broadband connections			500437		Penetration rate (% of population)				4,9%			
of which	PSTN		184860									
	Other means		315577									
Incumbents broadband connections			392712		Incumbents broadband connections by other means							
of which	DSL over PSTN	32,11%	160705		WLL	0	0,00%		3G	0		0,00%
	Other means	46,36%	232007		Cable	232007	46,36%		FTTH	0		0,00%
					Leased Lines	n.a.			Satellite	0		0,00%
					Other	n.a.			PLC	0		0,00%
New entrants broadband connections			107725		New entrants broadband connections: DSL							
of which	DSL over PSTN	4,83%	24155		Full ULL	1355	0,27%		5,61%			
	Other means	16,70%	83570		Shared access	0	0,00%		0,00%			
					Bitstream access	22800	4,56%		94,39%			
					Resale	0	0,00%		0,00%			
					New entrants broadband connections by other means							
					WLL	n.a.			3G	0		0,00%
					Cable	83570	16,70%		FTTH	0		0,00%
					Leased Lines	n.a.			Satellite	0		0,00%
					Other	n.a.			PLC	0		0,00%

MARKET SHARE			
		Incumbent	New entrants
	Total broadband connections	78,47%	21,53%
	DSL lines	86,93%	13,07%
	Broadband lines by other means	73,52%	26,48%
		DSL	Other means
	Total broadband access lines by technology	36,94%	63,06%



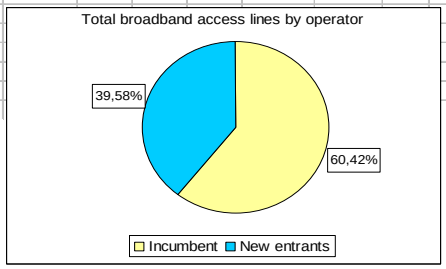


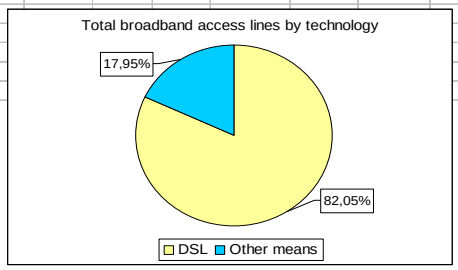
Source: Commission Services

FINLAND

RETAIL ACCESS										
Total broadband connections			494340	Penetration rate (% of population)				9,5%		
of which	PSTN		405600							
	Other means		88740							
Incumbents broadband connections			298700	Incumbents broadband connections by other means						
of which	DSL over PSTN	51,87%	256400	WLL	0	0,00%	3G	0	0,00%	
	Other means	8,56%	42300	Cable	42300	8,56%	FTTH	0	0,00%	
				Leased Lines	n.a.		Satellite	0	0,00%	
				Other	0	0,00%	PLC	0	0,00%	
New entrants broadband connections			195640	New entrants broadband connections: DSL						
of which	DSL over PSTN	30,18%	149200	Full ULL	78600	15,90%		52,68%		
	Other means	9,39%	46440	Shared access	22000	4,45%		14,75%		
				Bitstream access	48600	9,83%		32,57%		
				Resale	0	0,00%		0,00%		
				New entrants broadband connections by other means						
				WLL	2600	0,53%	3G	0	0,00%	
				Cable	43100	8,72%	FTTH	100	0,02%	
				Leased Lines	0	0,00%	Satellite	20	0,00%	
				Other	0	0,00%	PLC	620	0,13%	

MARKET SHARE			
		Incumbent	New entrants
Total broadband connections		60,42%	39,58%
DSL lines		63,21%	36,79%
Broadband lines by other means		47,67%	52,33%
		DSL	Other means
Total broadband access lines by technology		82,05%	17,95%



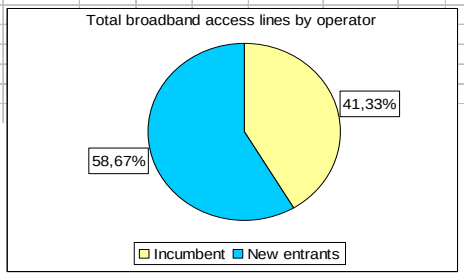


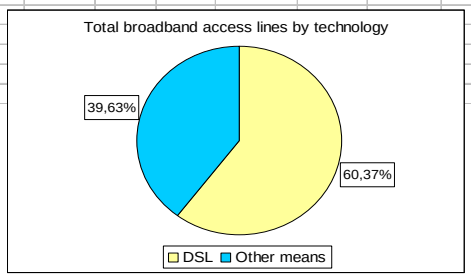
Source: Commission Services

SWEDEN

RETAIL ACCESS										
Total broadband connections			919513	Penetration rate (% of population)				10,4%		
of which	PSTN		555113							
	Other means		364400							
Incumbents broadband connections			380000	Incumbents broadband connections by other means						
of which	DSL over PSTN	40,78%	375000	WLL	n.a.		3G	n.a.		
	Other means	0,54%	5000	Cable	n.a		FTTH	n.a.		
				Leased Lines	5000	0,54%	Satellite	n.a.		
				Other	n.a.		PLC	n.a.		
New entrants broadband connections			539513	New entrants broadband connections: DSL						
of which	DSL over PSTN	19,59%	180113	Full ULL	6214	0,68%		3,45%		
	Other means	39,09%	359400	Shared access	45699	4,97%		25,37%		
				Bitstream access	3200	0,35%		1,78%		
				Resale	125000	13,59%		69,40%		
				New entrants broadband connections by other means						
				WLL	3200	0,35%	3G	20000	2,18%	
				Cable	175400	19,08%	FTTH	160400	17,44%	
				Leased Lines	n.a.		Satellite	n.a.		
				Other	n.a.		PLC	400	0,04%	

MARKET SHARE			
		Incumbent	New entrants
	Total broadband connections	41,33%	58,67%
	DSL lines	67,55%	32,45%
	Broadband lines by other means	1,37%	98,63%
		DSL	Other means
	Total broadband access lines by technology	60,37%	39,63%



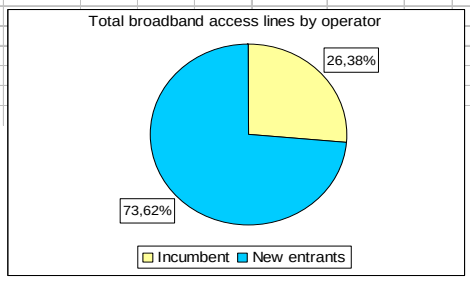


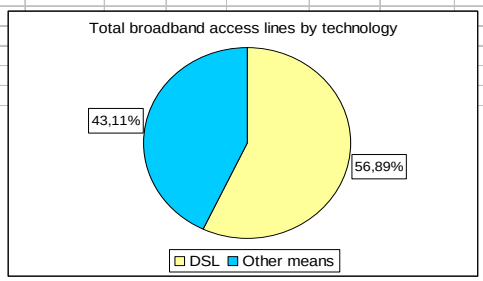
Source: Commission Services

UNITED KINGDOM

RETAIL ACCESS										
Total broadband connections			3172109	Penetration rate (% of population)				5,3%		
of which	PSTN		1804609							
	Other means		1367500							
Incumbents broadband connections			836906	Incumbents broadband connections by other means						
of which	DSL over PSTN	26,30%	834406	WLL	0	0,00%	3G	0	0,00%	
	Other means	0,08%	2500	Cable	0	0,00%	FTTH	0	0,00%	
				Leased Lines	n.a.		Satellite	2500	0,08%	
				Other	0	0,00%	PLC	0	0,00%	
New entrants broadband connections			2335203	New entrants broadband connections: DSL						
of which	DSL over PSTN	30,59%	970203	Full ULL	5418	0,17%		0,56%		
	Other means	43,03%	1365000	Shared access	2812	0,09%		0,29%		
				Bitstream access	65000	2,05%		6,70%		
				Resale	896973	28,28%		92,45%		
				New entrants broadband connections by other means						
				WLL	2500	0,08%	3G	0	0,00%	
				Cable	1359000	42,84%	FTTH	0	0,00%	
				Leased Lines	n.a.		Satellite	3500	0,11%	
				Other	0	0,00%	PLC	0	0,00%	

MARKET SHARE		
	Incumbent	New entrants
Total broadband connections	26,38%	73,62%
DSL lines	46,24%	53,76%
Broadband lines by other means	0,18%	99,82%
	DSL	Other means
Total broadband access lines by technology	56,89%	43,11%



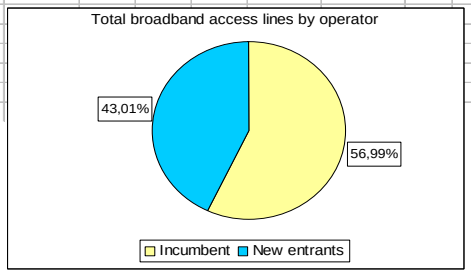


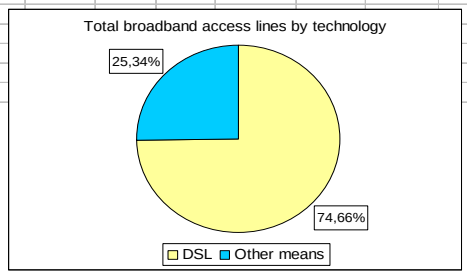
Source: Commission Services

EUROPE (15)

RETAIL ACCESS												
Total broadband connections			22885321		Penetration rate (% of population)				6,1%			
of which	PSTN		17086549									
	Other means		5798772									
Incumbents broadband connections			13043354		Incumbents broadband connections by other means							
of which	DSL over PSTN	55,04%	12597202		WLL	54	0,00%		3G	0	0,00%	
	Other means	1,95%	446152		Cable	424128	1,85%		FTTH	243	0,00%	
					Leased Lines	12516	0,05%		Satellite	9211	0,04%	
					Other	0	0,00%		PLC	0	0,00%	
New entrants broadband connections			9841967		New entrants broadband connections: DSL							
of which	DSL over PSTN	19,62%	4489347		Full ULL	822631	3,59%			18,32%		
	Other means	23,39%	5352620		Shared access	530269	2,32%			11,81%		
					Bitstream access	1151528	5,03%			25,65%		
					Resale	1984919	8,67%			44,21%		
					New entrants broadband connections by other means							
					WLL	17141	0,07%		3G	357400	1,56%	
					Cable	4451161	19,45%		FTTH	365216	1,60%	
					Leased Lines	17168	0,08%		Satellite	134339	0,59%	
					Other	975	0,00%		PLC	9220	0,04%	

MARKET SHARE			
		Incumbent	New entrants
	Total broadband connections	56,99%	43,01%
	DSL lines	73,73%	26,27%
	Broadband lines by other means	7,69%	92,31%
		DSL	Other means
	Total broadband access lines by technology	74,66%	25,34%





Source: Commission Services