Broadband Coverage in Europe

Final Report

2007 Survey

Data as of 31 December 2006

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1. Methodological issues

The goal of this report is to deliver the final results of the survey on Broadband coverage and take-up across Europe (27 countries, i.e. EU-25 Member States + Norway and Iceland) at the end of 2006. Averages have been calculated for 4 different country groups:

- EU-15, which covers the 15 Member States of the European Union as it was organised just before 1 April 2004
- EU-15 + 2, which covers the EU-15, plus Norway and Iceland
- EU-25, which covers the 25 Member States of the European Union until December 2006. In 2007 Bulgaria and Romania joined the European Union.
- EU-25 + 2, which covers EU-25, plus Norway and Iceland

The data contained in this document were collected by IDATE and its partners, from broadband networks operators, regulators and various sources in each country examined (see methodological report).

All of the principal broadband platforms were taken into consideration: primarily DSL, cable and FTTx, but also other platforms such as WLL/WLAN, Satellite and PLC. 3G coverage and take-up (measured through the number of 3G SIM cards and 3G PC cards sold) were also examined, but separately from fixed broadband access.

Data refer to the situation as at 31 December 2006

The survey distinguishes **Urban, Suburban and Rural areas**, with the following definitions:

- Urban area: a population density superior to 500 inhabitants/Km²,
- Suburban area: a population density between 100 inhabitants/Km² and 500 inhabitants/Km²,
- Rural area: a population density inferior to 100 inhabitants/Km².

In some small countries, e.g. Malta or Iceland, this breakdown does not apply due to their reduced geographical dimensions.

Segmentation by **download rate** (for ADSL lines, Cable modem or FTTx) is as follows:

- from 128 kbps (included) to 512 Kbps included,
- from 512 Kbps excluded to 1 Mbps included,
- from 1 Mbps excluded to 2 Mbps included,
- from 2 Mbps excluded to 8 Mbps included,
- from 8 Mbps excluded to 20 Mbps included,
- more than 20 Mbps.

As segmentation was different in the surveys prior to 2004 (up to 144Kbps; 144-512 Kbps, 512kpps-1 Mbps, 1-2 Mbps, more than 2 Mbps), we retained only 4 bitrate classes (up to 512 Kbps, 512kpps-1 Mbps, 1-2 Mbps, more than 2 Mbps).

Regarding the origin of DSL connections, we have split them into 3 categories:

- DSL access directly sold by incumbent carriers through retail offers,
- DSL access sold by third-party ISPs through wholesale offers marketed by the incumbent carrier (simple resale or bitstream)
- DSL access through unbundling offers (shared access or full unbundling).

Throughout the report, "**DSL Coverage**" figures refer to the percentage of the population depending on a Local Exchange equipped with a DSLAM. That is to say in its measurement, coverage includes those people (Households or Businesses Units) that reside too far from these switches to be able to purchase a DSL connection even if they wanted to do so.

The term "**Eligibility**" refers to "the percentage of the population depending on Local Exchanges equipped with a DSLAM and **excluding** those people (Households or Businesses Units) that reside too far from these switches to be able to purchase a DSL connection even if they wanted to do so**.** Furthermore, these eligibility percentages will differ according to available download rates. For instance, eligibility for a downstream rate of 2 Mbps will be lower than eligibility for 512 Kbps.

There are no data on eligibility for all countries, as operators cannot measure exactly the number of local loops which are too long to support DSL. Furthermore, new technical developments can increase eligibility (e.g. introduction of REACH DSL).

In some countries (e.g. Poland and the Czech Republic), where fixed telephone lines are not available to all households, DSL coverage was recalculated to obtain the effective percentage of the population which can be physically equipped with DSL (see detailed calculations in the country monographs).

Throughout the report, the "**Cable modem coverage**" figures refer to the percentage of the population living in households effectively passed for cable. In other words, unlike DSL coverage figures, cable modem coverage also corresponds to Eligibility figures.

Regarding **3G customers**, measurement is based on the number of subscribers using 3G-capable terminals; a large part of them do not actually use 3G services.

Country-specific data were also used to establish European benchmarks and averages. Averages have been calculated on a weighted basis. Furthermore, as previous surveys covered only Western European countries (EU-15 + Norway and Iceland), we have provided two sets of benchmarks:

- the first comparing and averaging data at year end 2006 only, covering the 27 countries examined in this survey,
- the second one with time series, covering Western European countries.

NB: In the tables and graphs, "na" means that data are not available (while "0" indicates that there is no subscriber) and "nr" is used when categories are not relevant.

2. Executive summary

80.6 million fixed broadband subscribers were registered in the 27 European countries surveyed[1] at the end of 2006, a 33%-increase over one year. This represents a 17.2% penetration rate (17.2 subscribers per 100 inhabitants) in average and 18.9% for western countries only (UE-15 + Norway and Iceland). Country by country, take up figures range from 4.4% in Greece to 31.4% in Denmark.

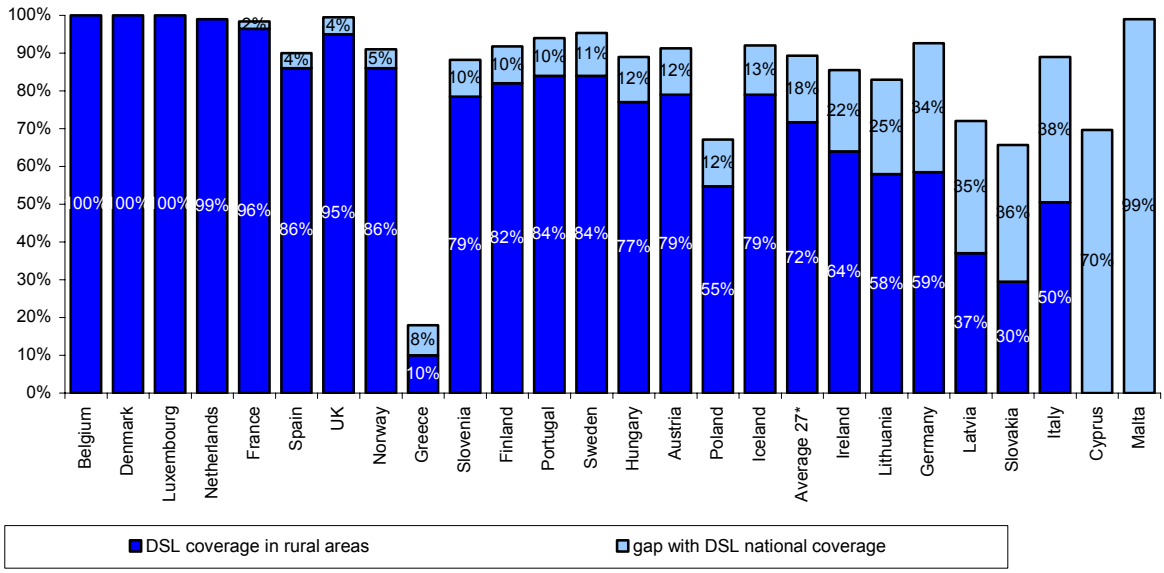
DSL and cable modem are by far the most prominent technologies. With 65.7 million subscribers, DSL accounts for 81.5% of total fixed broadband connections at the end of 2006 while cable modem totals 15.7% of the subscriber base. The remaining 2.8% are mainly connected through fixed wireless access or FTTx technologies.

DSL coverage close to 90%

One of the reason why DSL is dominating is that the POTS network on which DSL technologies operate is widely available. Average DSL coverage reached 89.3% at the end of 2006, 2 points higher than at the end of 2005. At national levels, DSL coverage is now over 80% in 22 countries. Only 5 countries are still lagging behind this mark: Greece is by far the less advanced with DSL available to 18% of the population only while the other 4 countries (Slovakia, Poland, Cyprus and Latvia) are in the 66%-72% range.

However, those national figures reveal big discrepancies between urban/suburban and rural areas. On average, DSL coverage in rural areas was only 71.7% at the end of 2006, which is 18 points below total coverage and 23 points lower than in urban areas. Here again, we can observe diverse situations according to countries: the gap between coverage in rural areas and national average is particularly significant in Slovakia, Italy, Latvia and Germany while it is minimal in Benelux countries.

Figure 1: Gaps between DSL coverage in rural areas and DSL national coverage from 0% to 99%



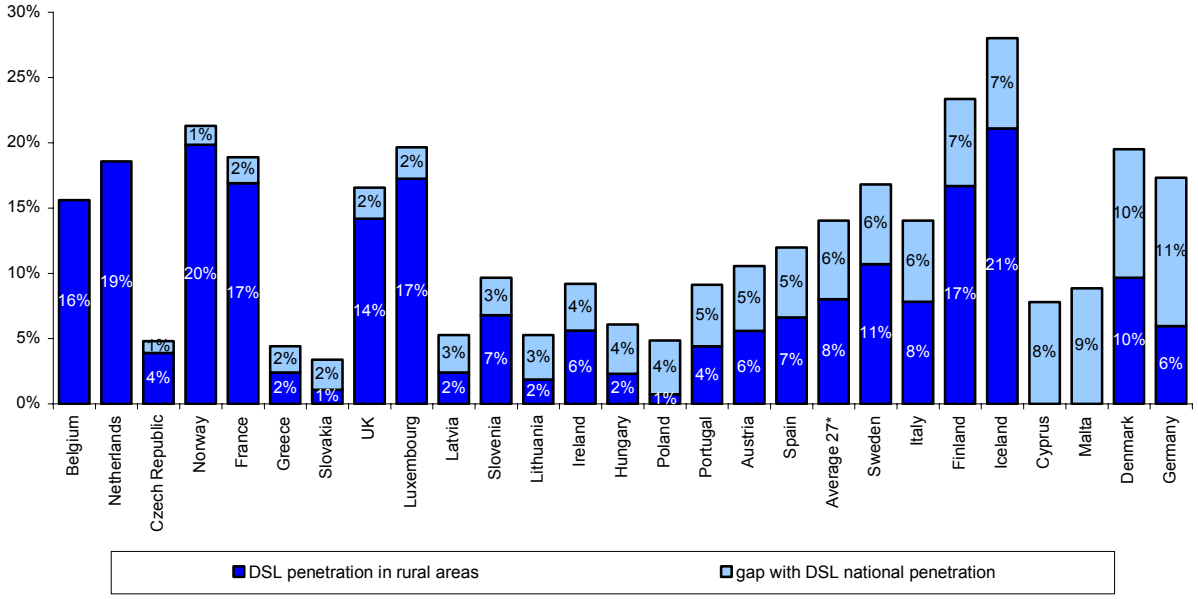
* excluding the Czech Republic and Estonia (figures not available). Definition of rural areas not applicable in Malta

Source : IDATE survey

[1] EU-25 plus Norway and Iceland

Regarding DSL penetration, national figures range from 3.4% in Slovakia to 28% in Iceland and a weighted average of 14% for the 27 countries (15.7% for western countries). Only 3 countries (Iceland, Finland and Norway) have got over the 20%-mark. As for coverage, we can observe gaps between penetration levels in rural areas and national levels. These gaps are generally bigger, in relative terms, which means that in rural areas, not only deficient coverage limits penetration but also late availability creates some more delay in take up. The German market is remarkable with a national DSL penetration rate of 17.3% but only 5.9% in rural areas.

Figure 2: Gaps between DSL penetration in rural areas and DSL national penetration from 0% to 11%



* excluding Estonia (figures not available)

Source : IDATE survey

20% of DSL connections with download speeds over 2 Mbps

On the download speed front, close to 80% of DSL users subscribe to offers with rates up to 2 Mbps. Connections with speeds over 2 Mbps account for 40% or more in 6 countries (Belgium, France, Iceland, Malta, Netherlands and Portugal). On average, disparities between the connection rates subscribed nationally and in rural areas are shrinking.

Regarding DSL access origin, 56.4% of DSL connections were supplied directly by incumbent operators to final users at the end of 2006; the remaining, based on wholesale offers, are broken down equally between resale/bitstream offers (21.7%) and unbundled lines (21.9%). Unbundling and particularly full unbundling has been growing very rapidly but it is still less developed in rural areas (12.3%).

Cable modem availability is low compared to DSL; average coverage was only 35.5% at the end of 2006 and cable is still not available at all in 2 countries (Italy and Greece). In some large countries (France, UK), cable is available primarily in big cities; coverage in rural areas was only 7.2% in average.

Cable modem penetration was 2.7% at the end of 2006 (12.7 million subscribers in the 27 countries), but only 0.4% in rural areas.

Download speeds are generally higher than for DSL with 46% of users subscribing to offers with rates over 2 Mbps (38% in rural areas).

In the mobile segment, 3G coverage reached 71.3% at the end of 2006, with 3 countries (Luxembourg, Sweden, Austria) at or close to 100%. The number of subscribers was 46.6 millions, or just over 10% of the total cellular subscriber base, with 2 countries (Italy and UK) accounting for more than half. However, some smaller countries could record high penetration rates: Luxembourg is over 30% and Portugal and Ireland over 20%.

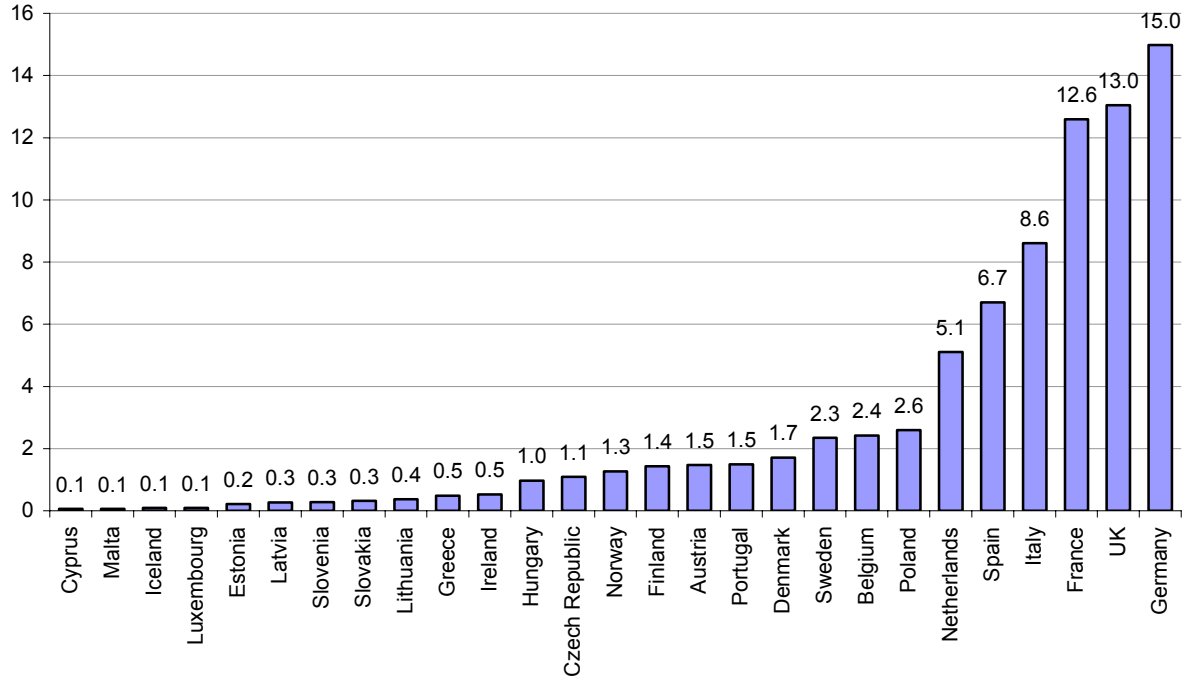
3. European benchmark

3.1. EU-25 + Norway & Iceland at the end of 2006

3.1.1. Broadband subscriber bases and penetration

Subscriber base

Figure 3: Broadband subscriber base at the end of 2006 (in million subscribers)



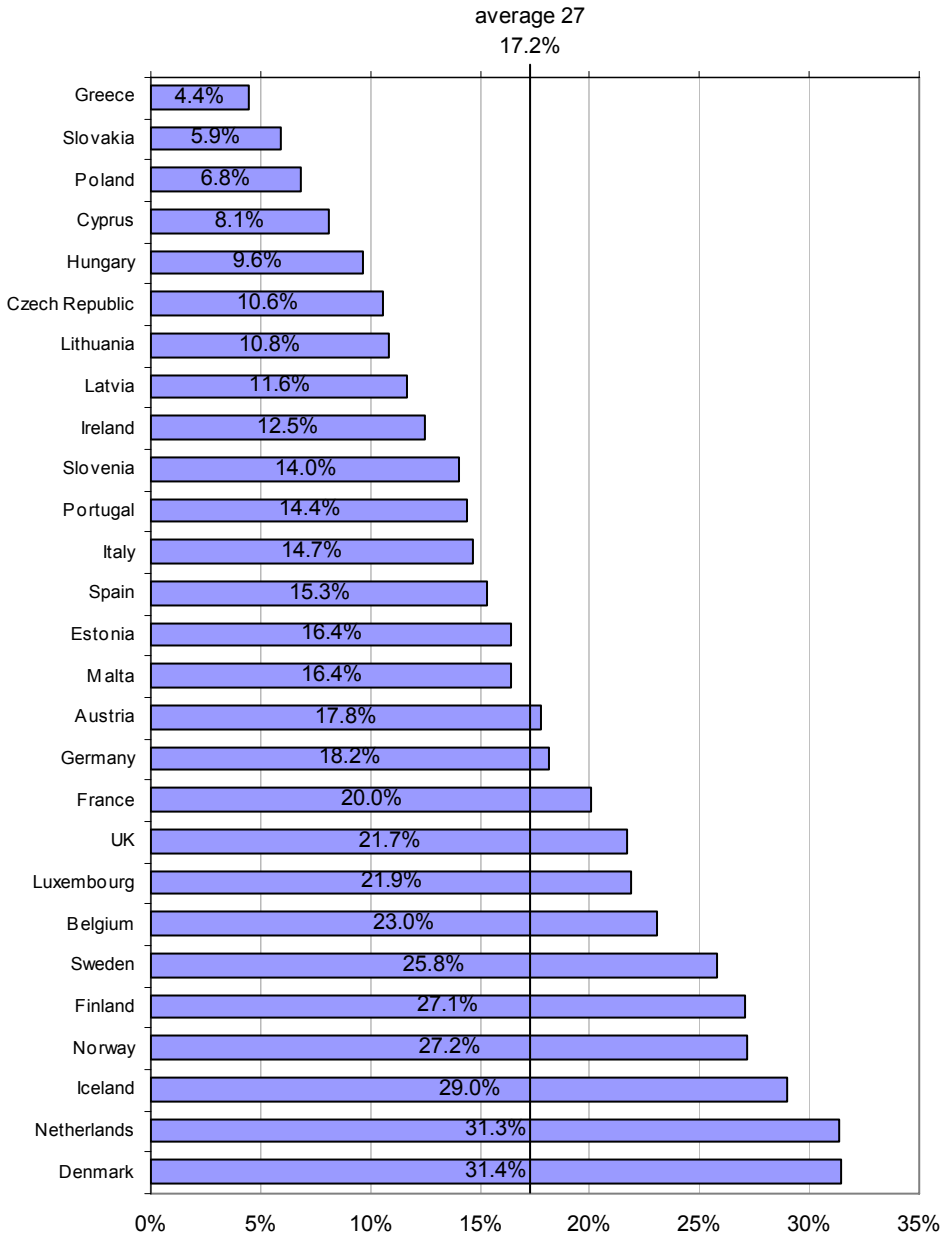
There were 80.6 million broadband subscribers at the end of 2006 in the 27 European countries covered by this report, representing a 33% increase over the past year (60.5 million subscribers at the end of 2005). Germany (15.0 million), the UK (13.0 million) and France (12.6 million) are the largest contributors to this base and together account for just over 50% of the broadband subscriber base in the region.

Table 1: Broadband subscriber bases at the end of 2006 (in million subscribers)

EU-15	EU-15 + 2	EU-25	EU-25 + 2
73.028	74.389	79.270	80.629

Broadband penetration

Figure 4: Broadband penetration at the end of 2006



In terms of penetration, figures range from 4.4% in Greece to 31.4% in Denmark, with a weighted average for the 27 countries of 17.2%. Scandinavian countries and the Netherlands all report penetration rates over 25%, which are the highest in the world (only South Korea also appears in this range). The five largest Western European countries have penetration rates just below (Italy, Spain) or above (Germany, France and the UK) the regional average: between 14.7% (Italy) and 21.7% (UK). Most new Member States have penetration rates below Western European countries, ranging from 5.9% (Slovakia) to 16.4% (Estonia and Malta).

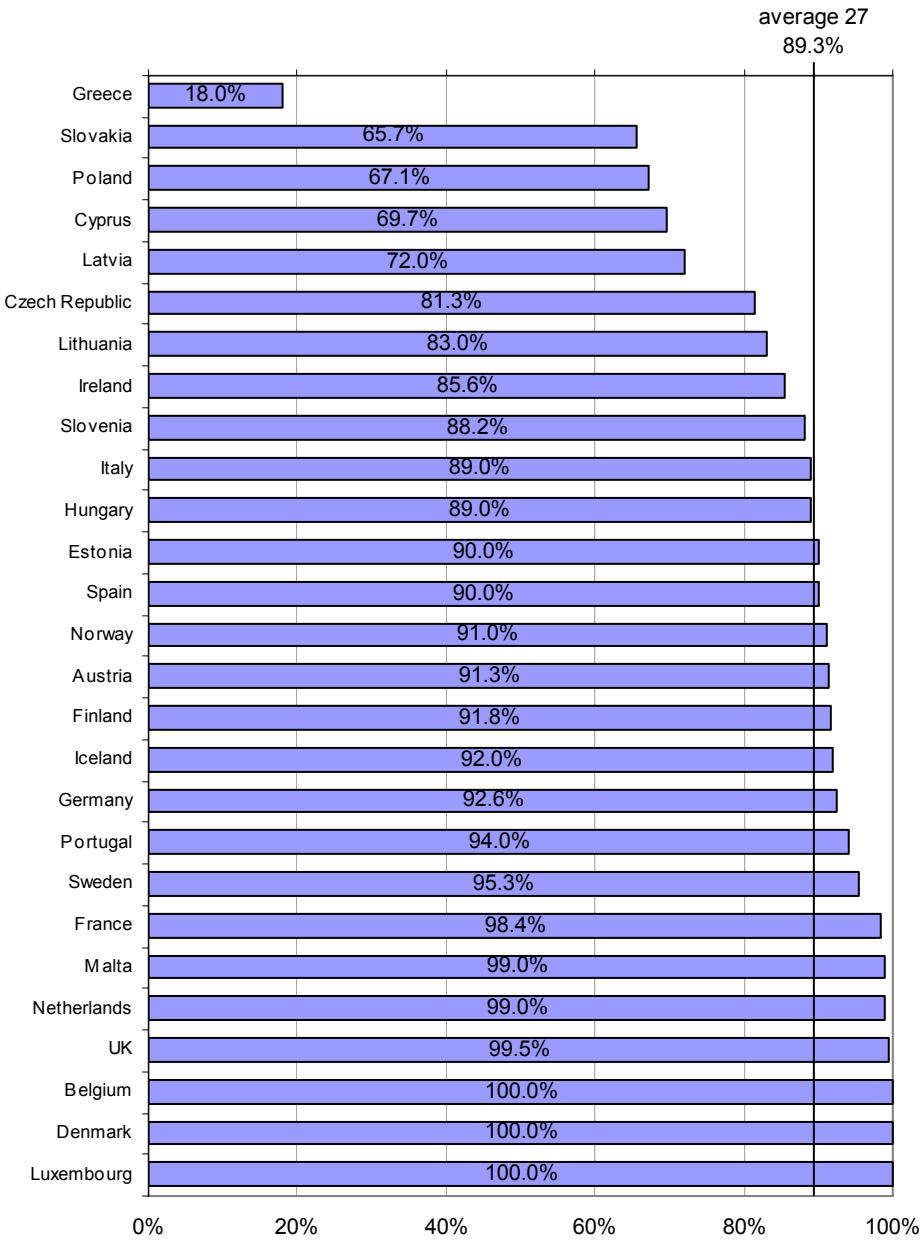
Table 2: Broadband penetration at the end of 2006 (broadband connections as a % of the population)

EU-15	EU-15 + 2	EU-25	EU-25 + 2
18.8%	18.9%	17.2%	17.2%

3.1.2. DSL coverage and penetration

DSL coverage

Figure 5: National DSL coverage at the end of 2006

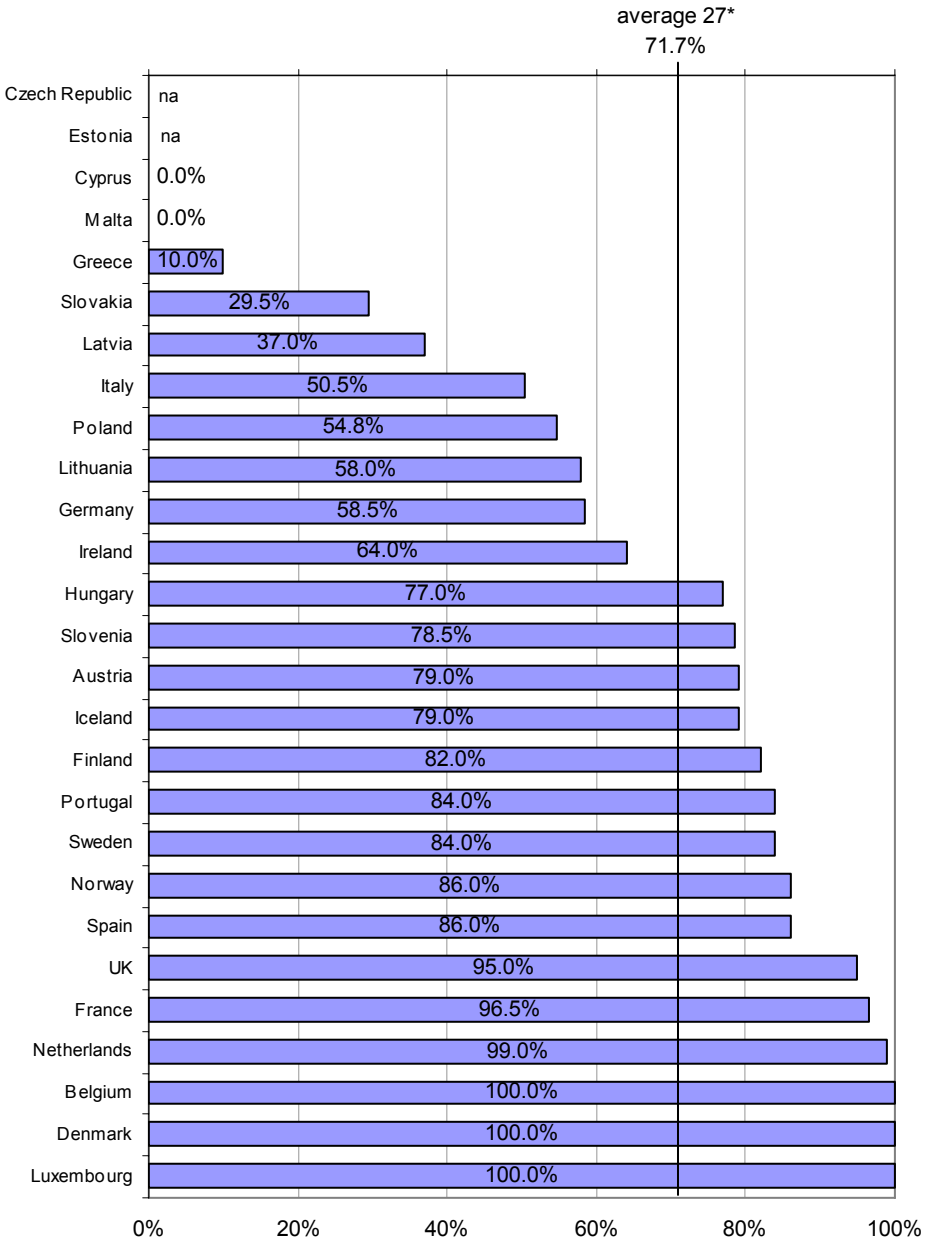


DSL coverage at the national level ranged from 18% (Greece) to 100% (Belgium, Denmark, Luxembourg) at the end of 2006, with a regional weighted average of 89.3%, which is 2 points higher than at the end of 2005. Coverage in most Western European countries (except Greece, Italy and Ireland) is above this average, and below it in most new Member States (except Malta and Estonia).

Table 3: DSL coverage at the end of 2006 (as a % of the population)

EU-15	EU-15 + 2	EU-25	EU-25 + 2
92.2%	92.2%	89.3%	89.3%

Figure 6: DSL coverage in rural areas at the end of 2006



Coverage in rural areas is 71.7% on average, representing a 6-point increase compared to the situation at the end of 2005; however, this is still 18 points below the national average, even if the gap is decreasing (20 points at the end of 2005). The gap between rural and national coverage is particularly significant in Italy (51% vs. 89%), Latvia (37% vs. 72%), Slovakia (36% vs. 66%) and Germany (59% vs. 93%).

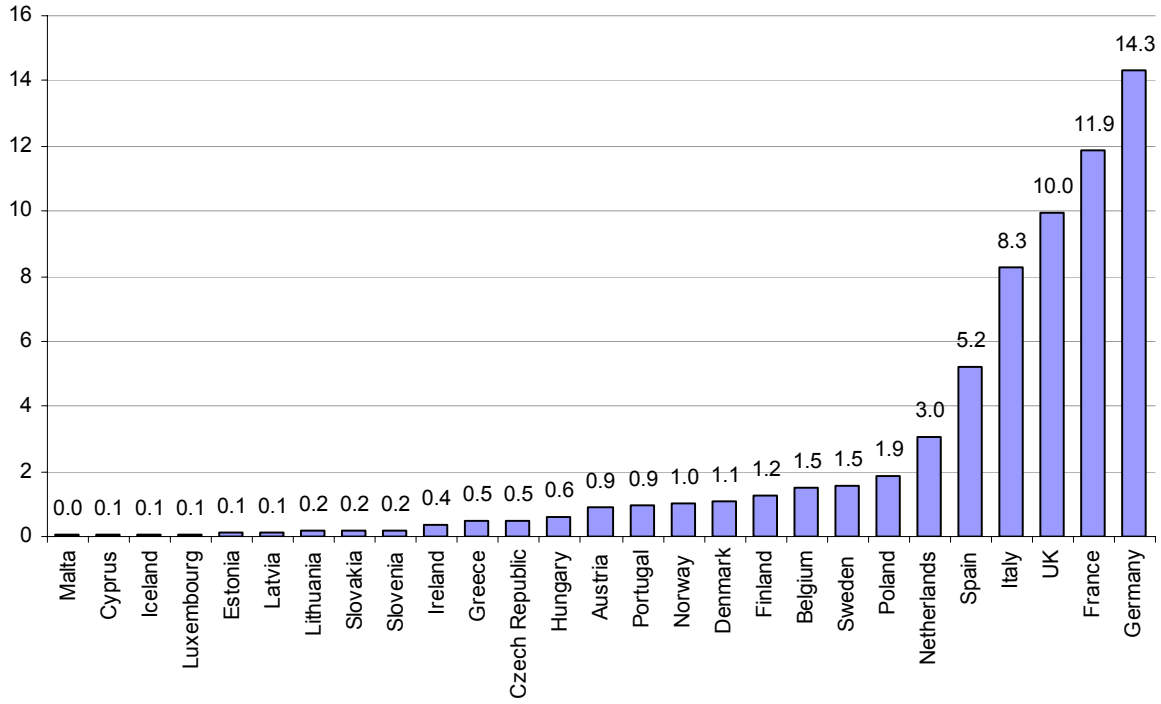
Table 4: DSL coverage in rural areas at the end of 2006 (as a % of the population)

EU-15	EU-15 + 2	EU-25	EU-25 + 2
75.7%	**76.0%**	**71.3%**	**71.7%**

* Average calculation excludes countries where figures are not available.

DSL penetration

Figure 7: National DSL subscriber base at the end of 2006 (in million subscribers)

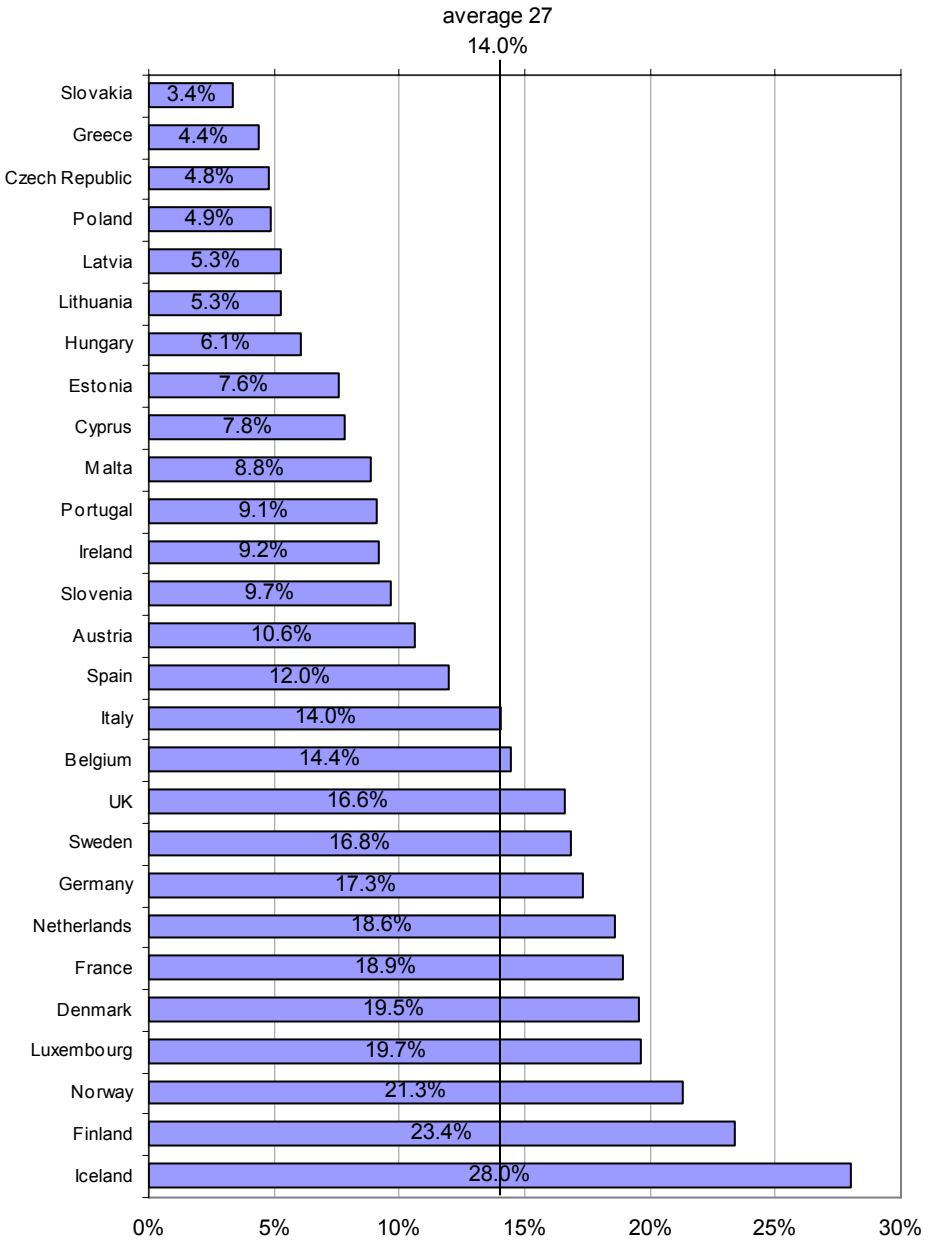


There were 65.7 million DSL subscribers at the end of 2006 in the 27 countries covered, representing a 33% increase in a year. Germany (14.3 million), France (11.9 million), the UK (10.0 million) and Italy (8.3 million) are the largest contributors, and together account for 68% of the regional DSL subscriber base.

Table 5: National DSL subscriber bases at the end of 2006 (in million subscribers)

EU-15	EU-15 + 2	EU-25	EU-25 + 2
60.798	61.881	64.634	65.717

Figure 8: National DSL penetration at the end of 2006

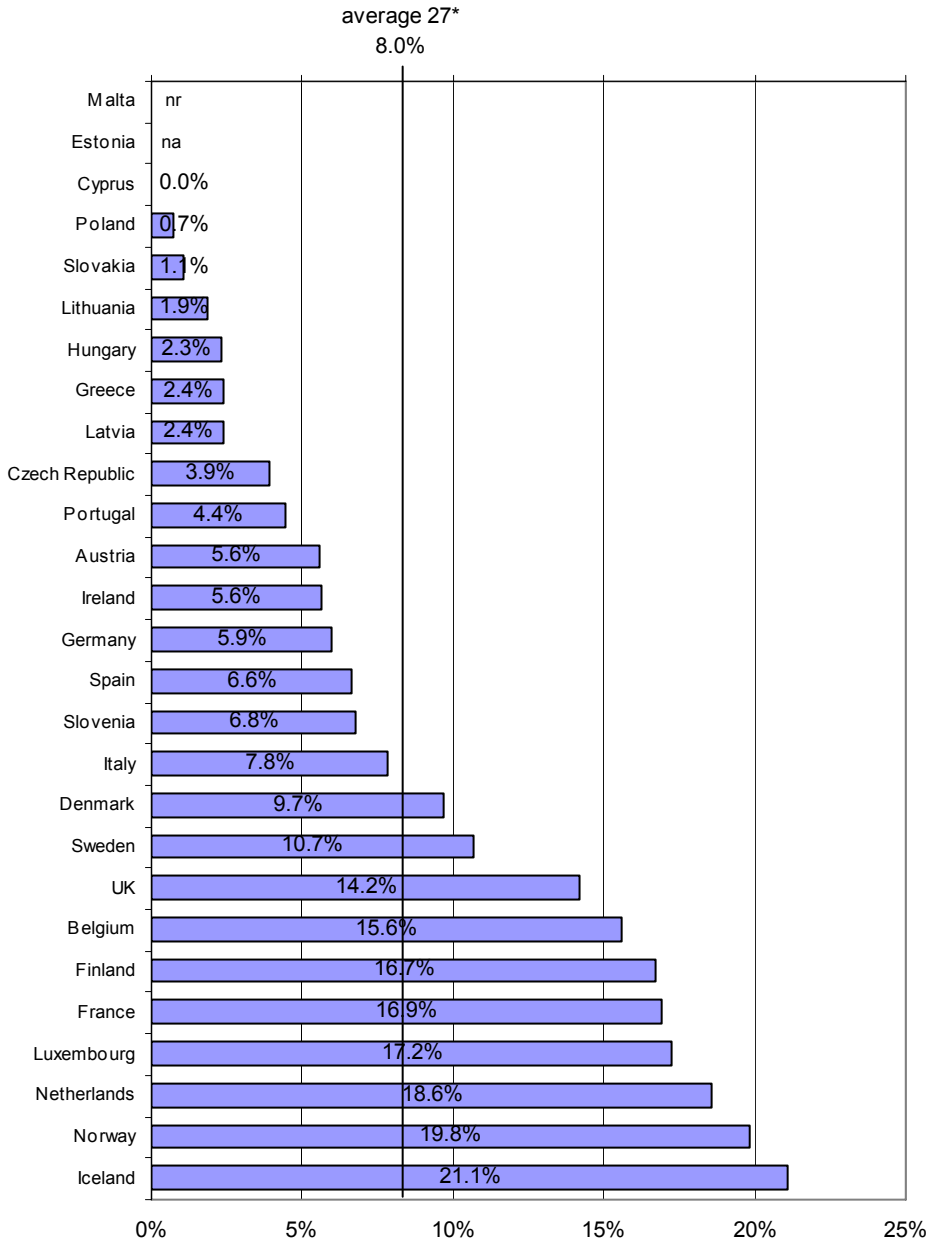


In terms of penetration, figures range from 3.4% in Slovakia to 28% in Iceland, with a weighted average for the 27 countries of 14%. Besides Nordic countries, Germany and France are now amongst the leaders here, with penetration rates of 17% and over.

Table 6: National DSL penetration at the end of 2006 (as a% of the population)

EU-15	EU-15 + 2	EU-25	EU-25 + 2
15.6%	15.7%	14.0%	14.0%

Figure 9: DSL penetration in rural areas at the end of 2006



DSL penetration in rural areas is well below national levels (8.0% on average vs. 14.0%).

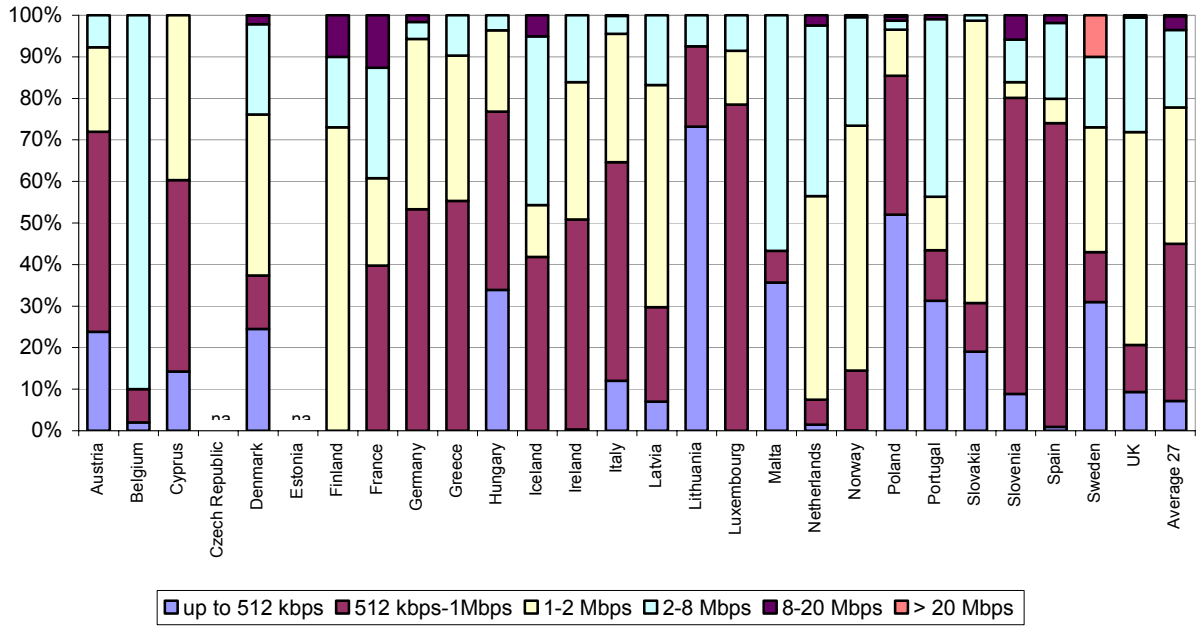
Table 7: DSL penetration in rural areas at the end of 2006 (as a % of the population)

EU-15	EU-15 + 2	EU-25	EU-25 + 2
9.7%	**10.1%**	**7.7%**	**8.0%**

* Average calculation excludes countries where figures are not available.

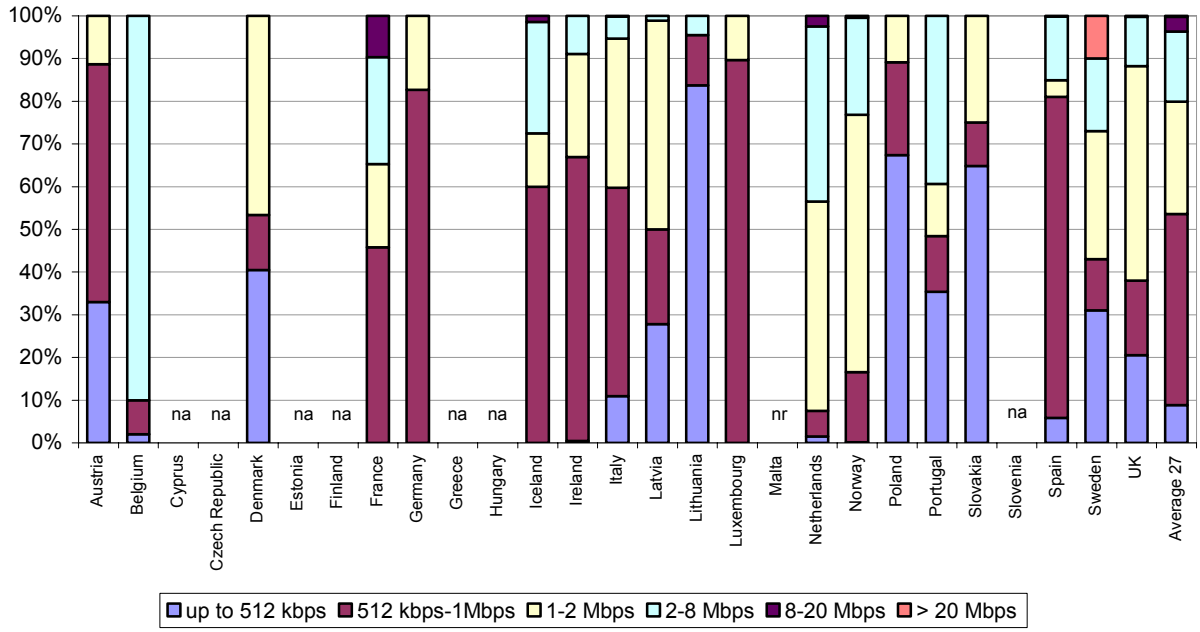
DSL download rate segmentation

Figure 10: DSL subscriber bases broken down by download rates, at the end of 2006



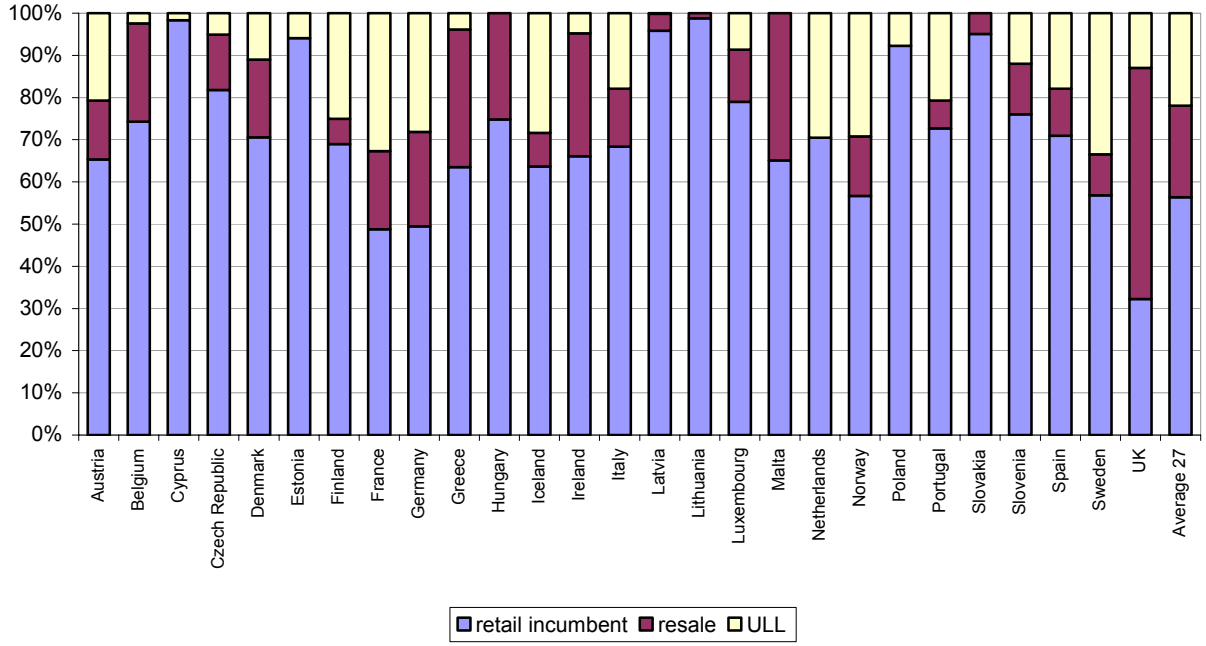
On average, 70% of DSL customers subscribe to offers with download rates of between 512 kbps and 2 Mbps, while only 7% subscribe to download rates of up to 512 kbps. Only 3.5% of connections offer download rates of over 8 Mbps (ADSL2+), and are largely concentrated in France (more than 60% of total connections in those categories). In 6 countries (Belgium, France, Iceland, Malta, the Netherlands and Portugal), connections with download speeds over 2 Mbps account for 40% or more of total DSL connections. Disparities between the connection rates subscribed nationally and in rural areas are shrinking.

Figure 11: Breakdown of rural DSL subscriber bases by download rate, at the end of 2006



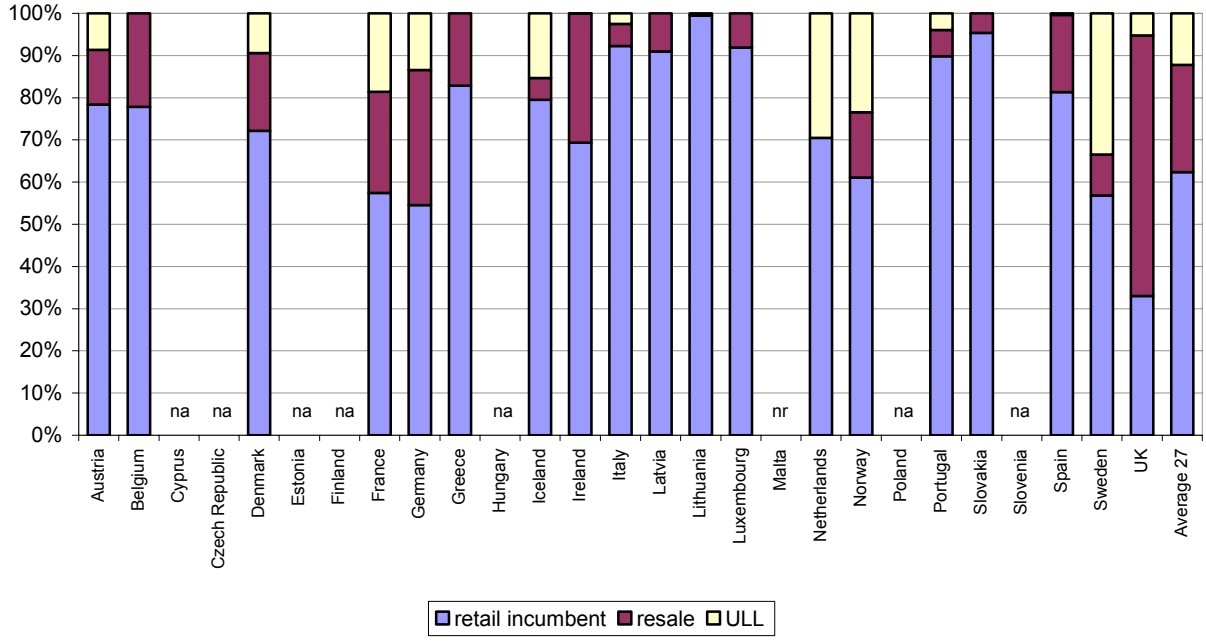
DSL access origin

Figure 12: DSL subscriber bases broken down by access origin, at the end of 2006



On average, 56.4% of DSL connections are supplied directly by incumbent operators, while 21.7% are sold through resale and bitstream offers and 21.9% through unbundling. LLU is particularly well-entrenched in Sweden (33.4% of DSL connections at the end of 2006), in France (32.7%), in the Netherlands (29.5%) and in Germany (28.1%); it is also close to or above 30% in Norway and Iceland. Not surprisingly, unbundling is less developed in rural areas (only 12.3% on average) due to the smaller size of local exchanges which makes it less economical for a competitive supplier to install its own DSLAMs; resale offers are more successful (25.4%)

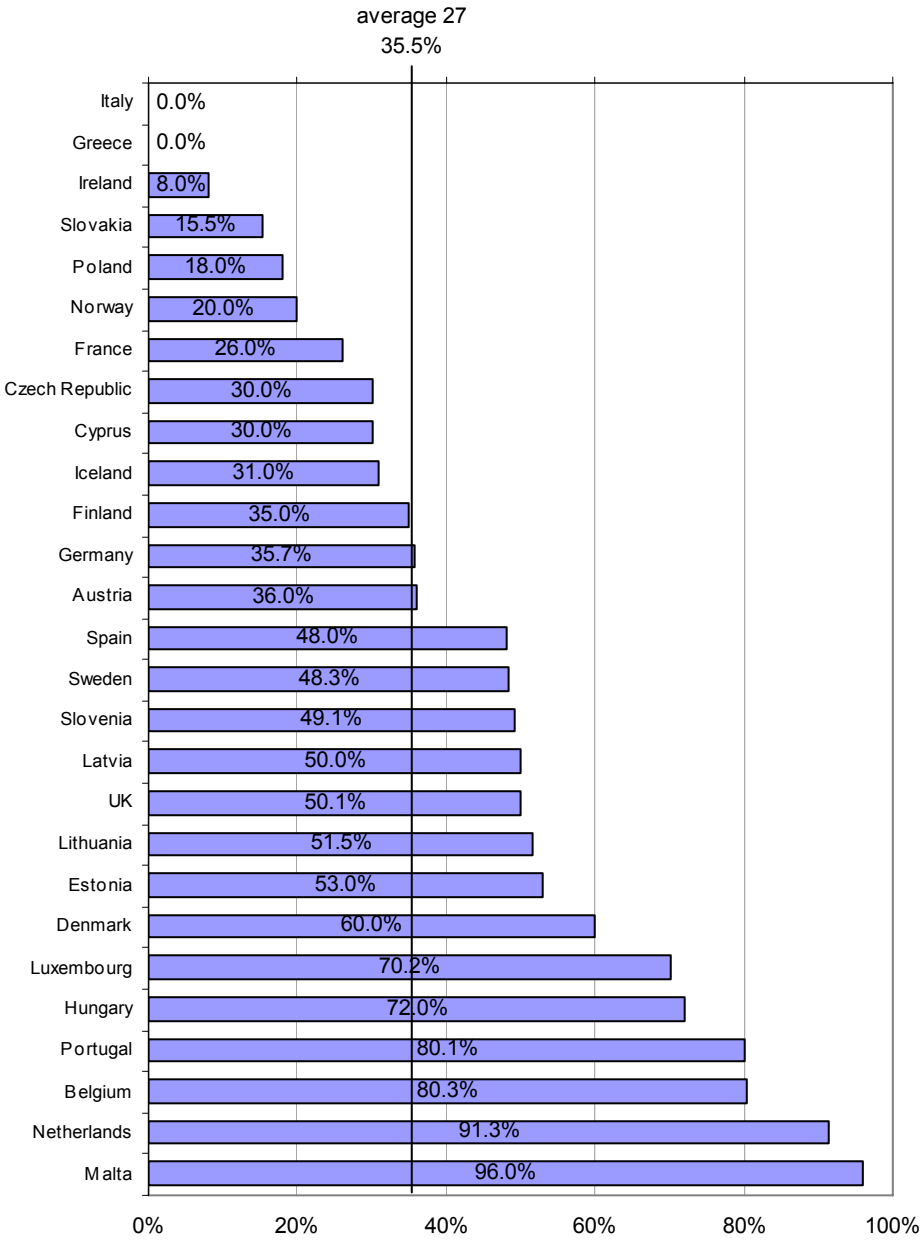
Figure 13: Breakdown of rural DSL subscriber bases by access origin, at the end of 2006



3.1.3. Cable modem coverage and penetration

Cable modem coverage

Figure 14: National cable modem coverage at the end of 2006

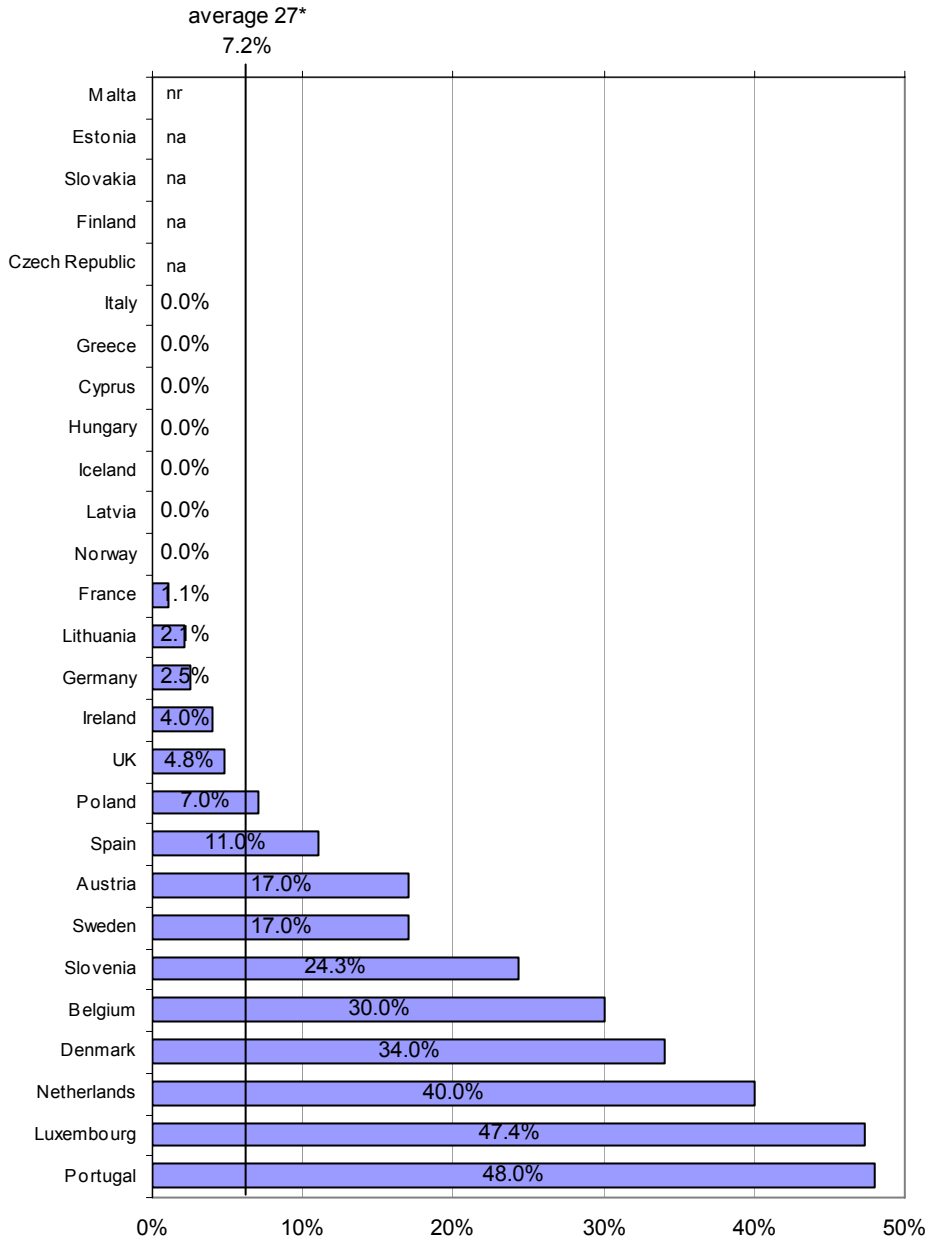


Cable modem coverage at national levels ranged between 0% (Greece and Italy, where it is not at all available) and 96% (Malta) at the end of 2006, with a regional weighted average of 35.5%. And certain new Member States are reporting substantial cable modem coverage, notably Hungary (72%), and Lithuania, Latvia, Slovenia and Estonia with close or above 50%.

Table 8: Cable modem coverage at the end of 2006 (as a % of the population)

EU-15	EU-15 + 2	EU-25	EU-25 + 2
36.4%	36.2%	35.6%	35.5%

Figure 15: Cable modem coverage in rural areas at the end of 2006



In rural areas, cable modem coverage has reached 7.2% on average, which is far below coverage at national levels as, in many countries (France, the UK), cable is available primarily in big cities.

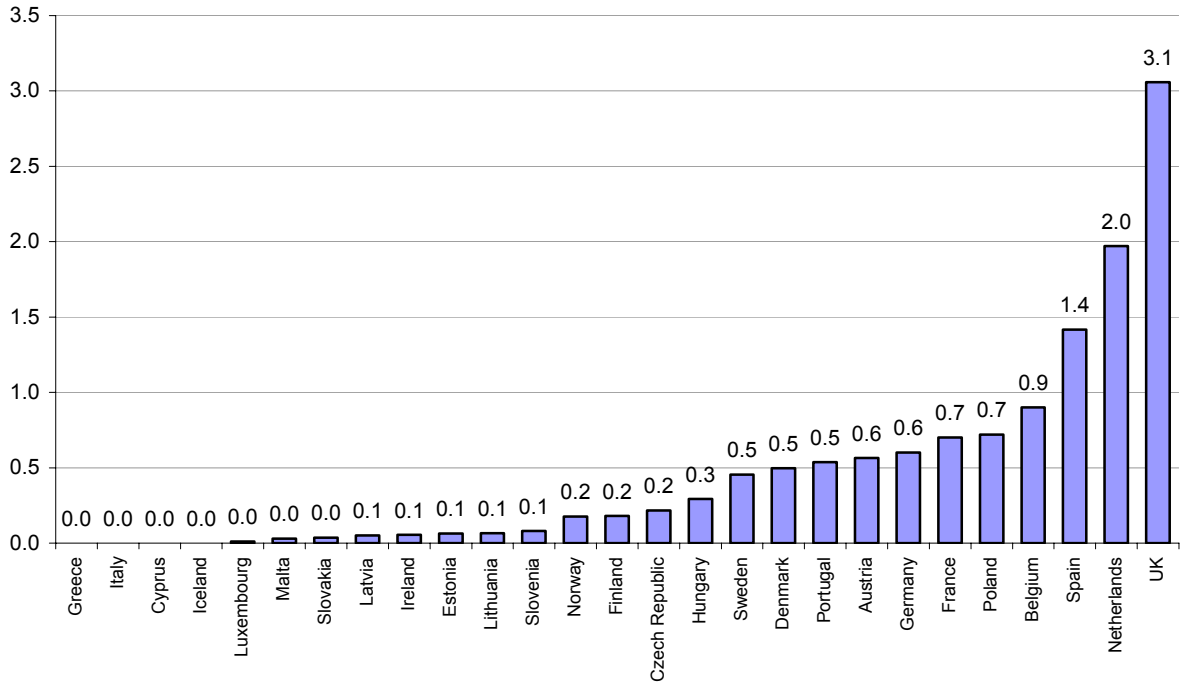
Table 9: Cable modem coverage in rural areas at the end of 2006 (as a % of the population)

EU-15	EU-15 + 2	EU-25	EU-25 + 2
7.4%	7.2%	7.4%	7.2%

* Average calculation excludes countries where figures are not available.

Cable modem penetration

Figure 16: National cable modem subscriber bases at the end of 2006 (in million subscribers)

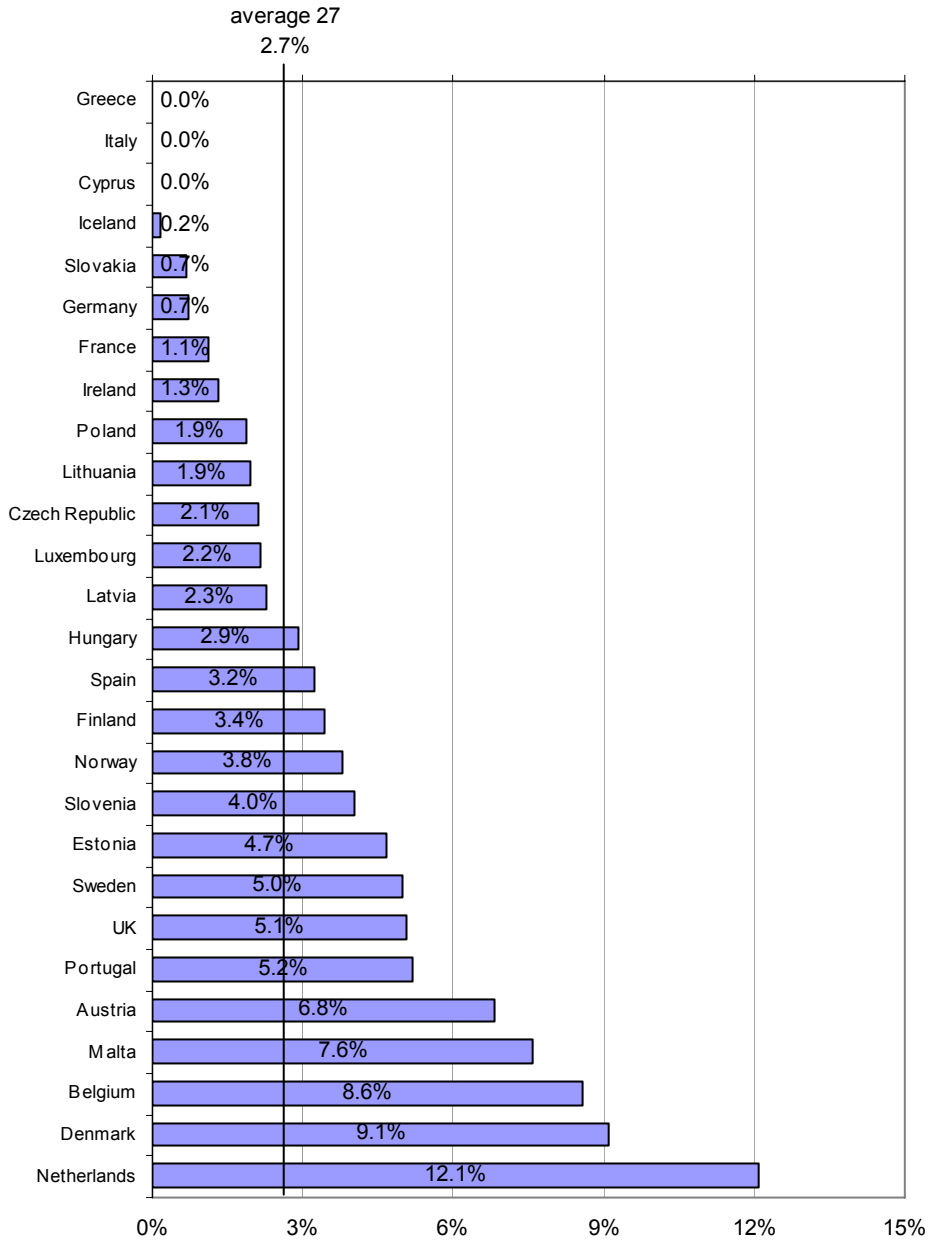


There were 12.7 million cable subscribers at the end of 2006 in the 27 countries covered. The UK leads the way with more than 3 million subscribers, or 24% of the regional total.

Table 10: National cable modem subscriber bases at the end of 2006 (in million subscribers)

EU-15	EU-15 + 2	EU-25	EU-25 + 2
10.945	**11.123**	**12.505**	**12.682**

Figure 17: National cable modem penetration at the end of 2006

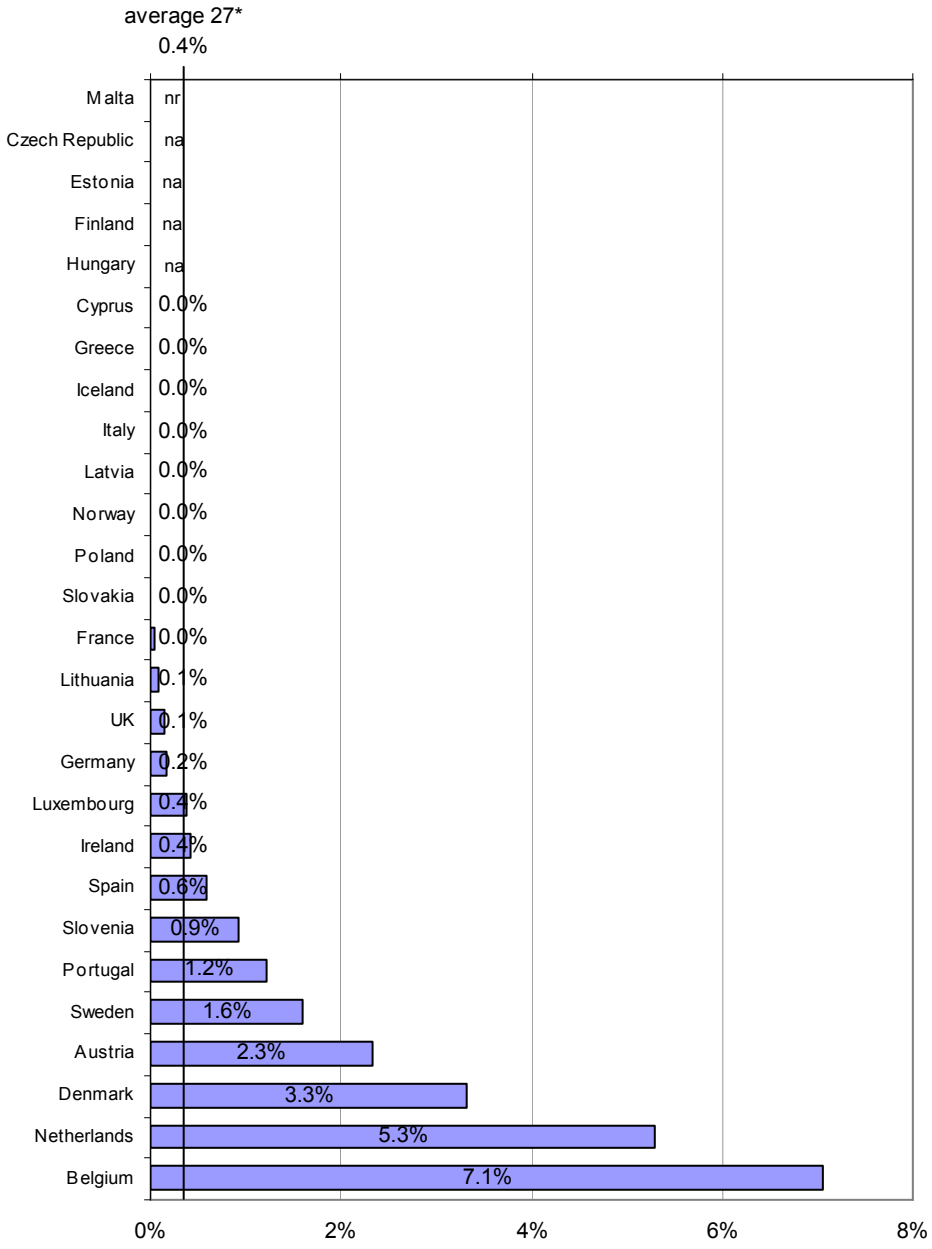


In terms of penetration, figures ranged from 0% in Greece and Italy, where cable is not available, to 12.1% in the Netherlands at the end of 2006, with a weighted average for the 27 countries of 2.7%, i.e. well below DSL penetration rates.

Table 11: National cable modem penetration at the end of 2006 (as a % of the population)

EU-15	EU-15 + 2	EU-25	EU-25 + 2
2.8%	2.8%	2.7%	2.7%

Figure 18: Cable modem penetration in rural areas at the end of 2006



Cable modem penetration in rural areas is very low, with a European average of 0.4%, with only Belgium and the Netherlands reporting significant penetration in rural areas.

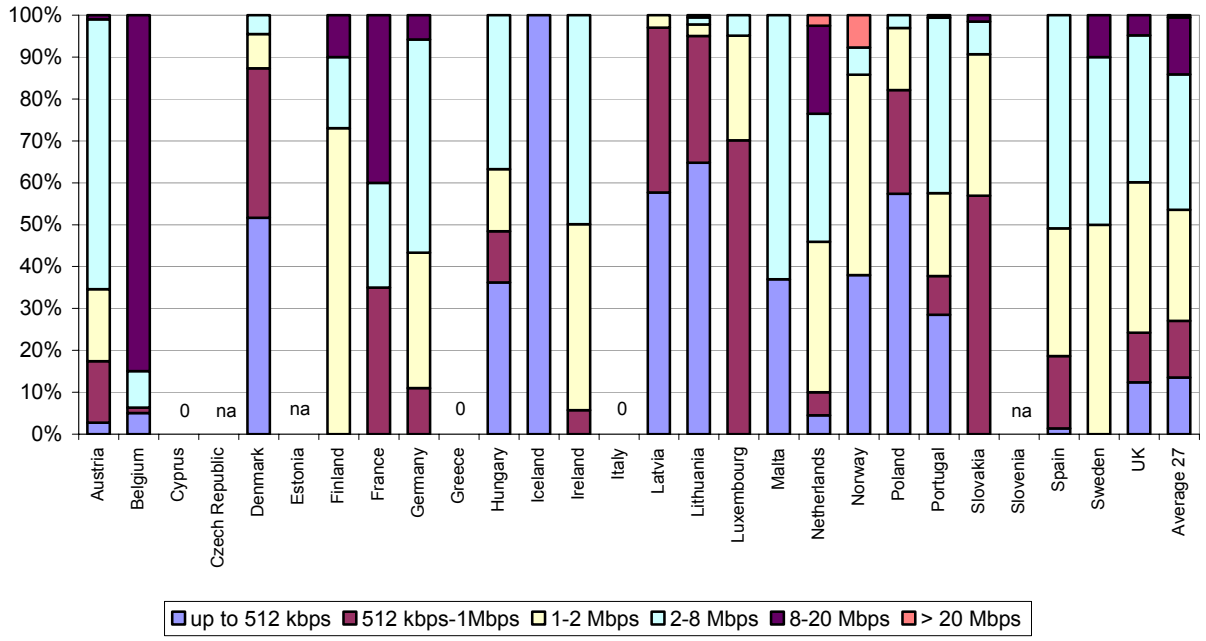
Table 12: Cable modem penetration in rural areas at the end of 2006 (as a % of the population)

EU-15	EU-15 + 2	EU-25	EU-25 + 2
0.5%	0.5%	0.4%	0.4%

* Average calculation excludes countries where figures are not available.

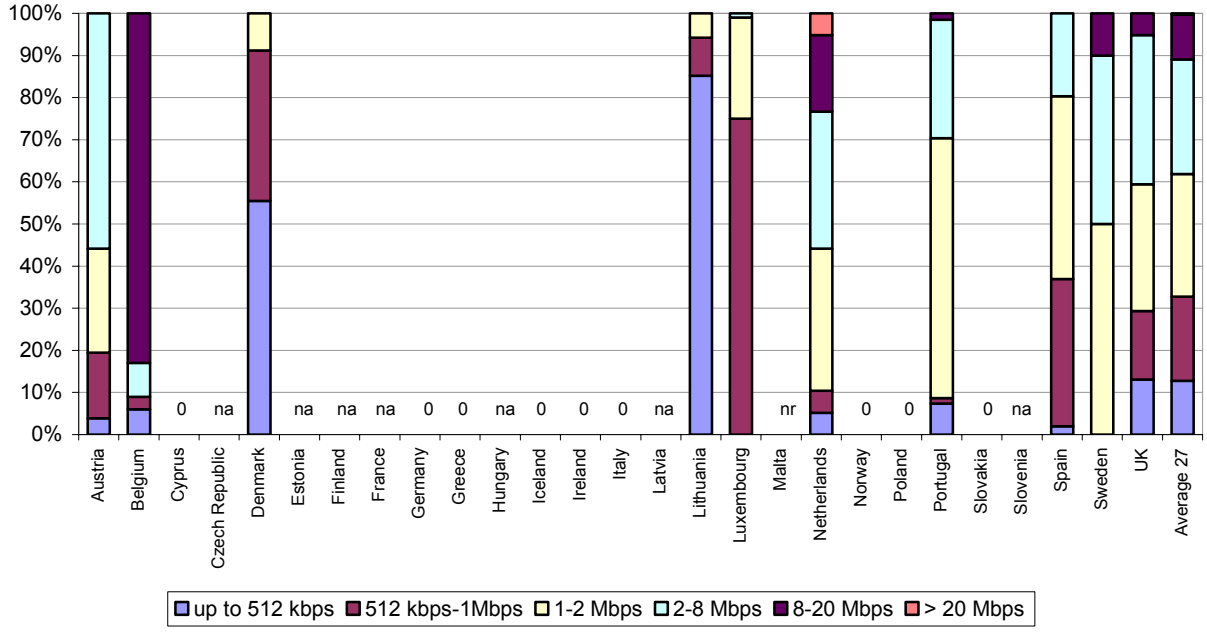
Cable modem download rate segmentation

Figure 19: Breakdown of cable modem subscriber bases by download rates, at the end of 2006



On average, 46.5% of cable modem customers subscribed to offers with download rates of over 2 Mbps, and 14.1% to download rates of over 8 Mbps at the end of 2006, compared to 23.7% and 1.2% for both categories at the end of 2005. In 11 countries (Austria, Belgium, France, Germany, Ireland, Malta, the Netherlands, Portugal, Spain, Sweden and the UK), connections with download speeds over 2 Mbps account for 40% or more of total cable modem connections. On average, in those countries where this information is available, cable modem connections offer slightly higher download rates than DSL, and the disparities between national and rural levels are also shrinking.

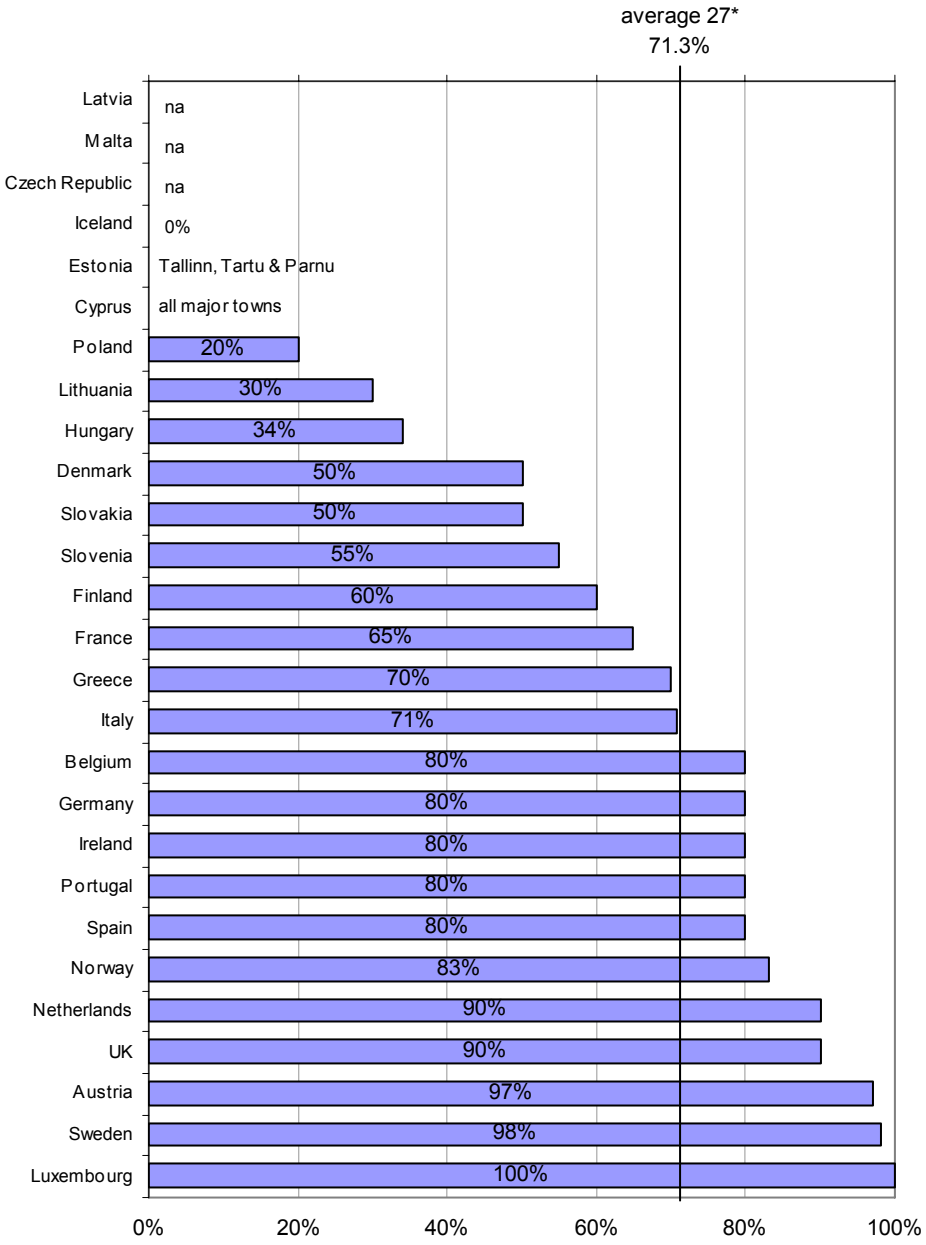
Figure 20: Breakdown of rural cable modem subscriber bases by download rates, at end 2006



3.1.4. 3G coverage and take-up

3G coverage

Figure 21: National 3G coverage at the end of 2006



At the end of 2006, 3G deployment was engaged in all countries except in Iceland, with coverage ranging from 20%-30% (major towns in countries such as Lithuania) to close to 100% (Luxembourg) and a regional weighted average of 71.3% (not taking into account Cyprus, the Czech Republic, Estonia, Latvia and Malta).

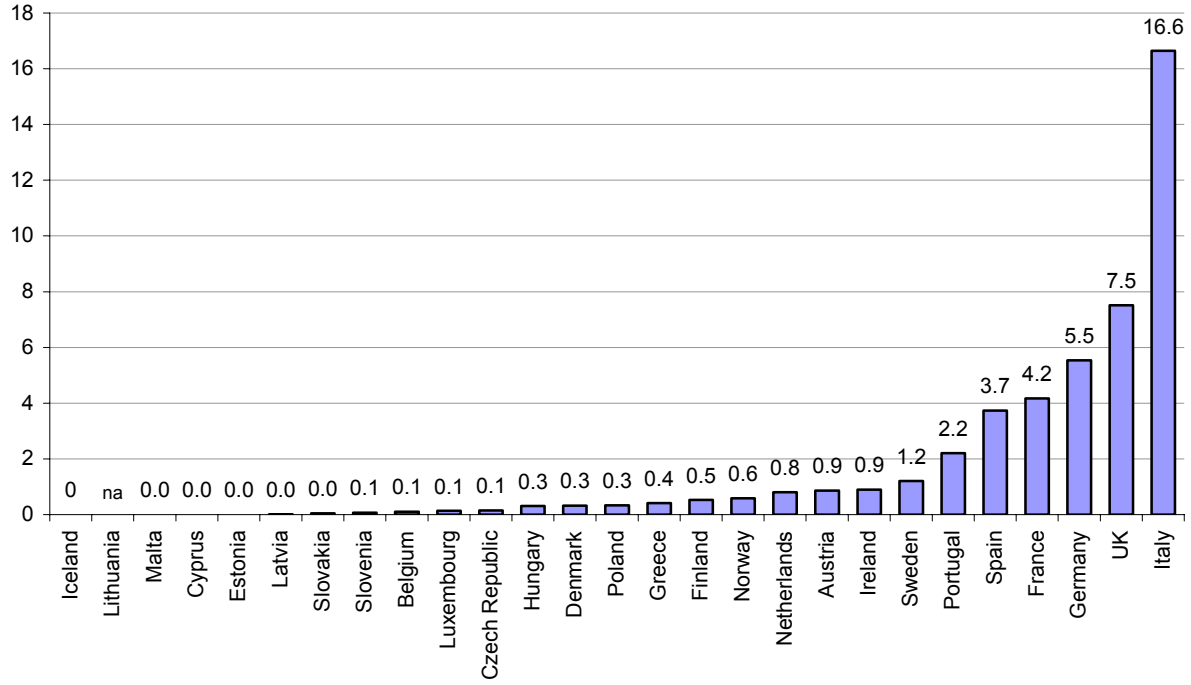
Table 13: 3G coverage at the end of 2006 (as a % of the population)

EU-15	EU-15 + 2	EU-25	EU-25 + 2
78.0%	78.0%	71.3%	71.3%

* Average calculation excludes countries where figures are not available.

3G penetration

Figure 22: National 3G subscriber bases at the end of 2006 (in million subscribers)



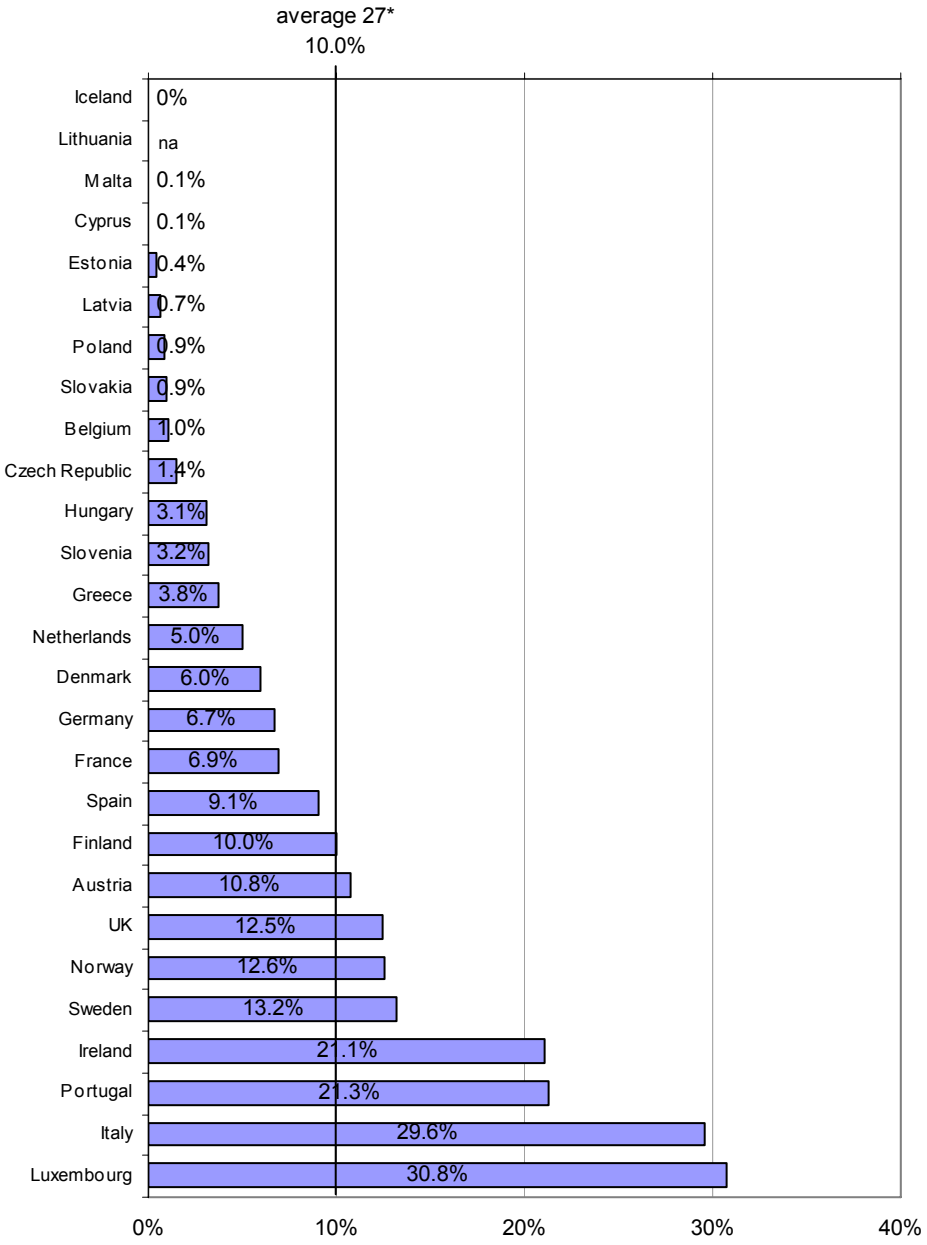
There were 46.6 million 3G subscribers[2] at the end of 2006 in the 27 countries covered, which is an over 100% increase compared to the end of 2005 (22.7 million subscribers). This represents 10% of the total cellular subscriber base in the region. 3G customers are mainly concentrated in the EU-15, with Italy leading the way with 16.6 million subscribers (36% of the regional total), ahead of the United Kingdom with 7.5 million subscribers and Germany with 5.5 million subscribers.

Table 14: National cable modem subscriber bases at the end of 2006 (in million subscribers)

EU-15	EU-15 + 2	EU-25	EU-25 + 2
45.074	**45.664**	**46.000**	**46.590**

[2] See the methodology document on the measurement of 3G susbscribers

Figure 23: National 3G penetration at the end of 2006



In terms of penetration, figures range from 0% (Iceland) or close to 0% in most New Member States to 30.8% in Luxembourg, with a weighted average of 10.2% for the 27 countries.

Table 15: National 3G penetration at the end of 2006 (as a % of the population)

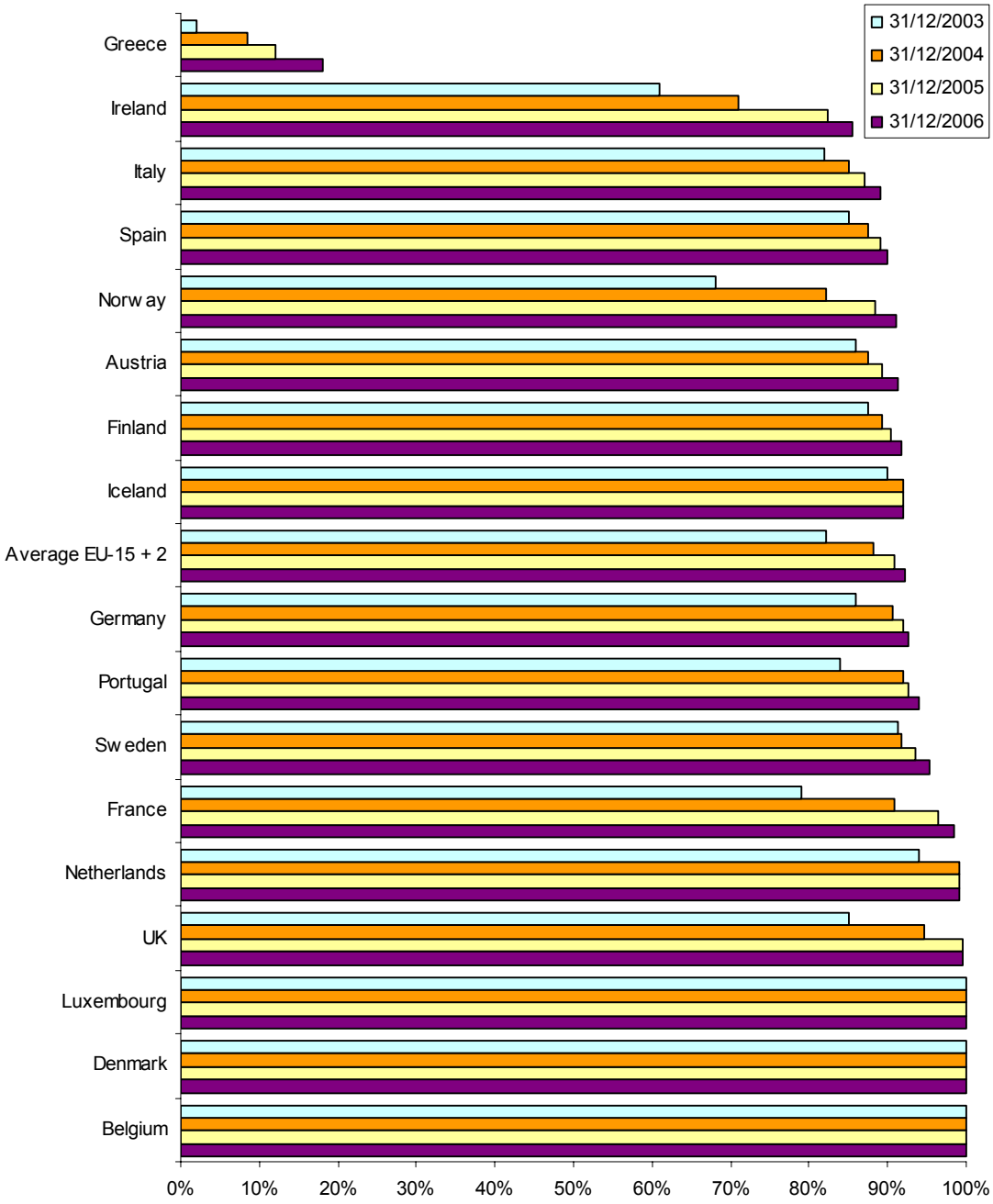
EU-15	EU-15 + 2	EU-25	EU-25 + 2
11.8%	**11.8%**	**10.2%**	**10.2%**

* Average calculation excludes countries where figures are not available.

3.2. EU-15 + Norway & Iceland, from year-end 2003 to year-end 2006

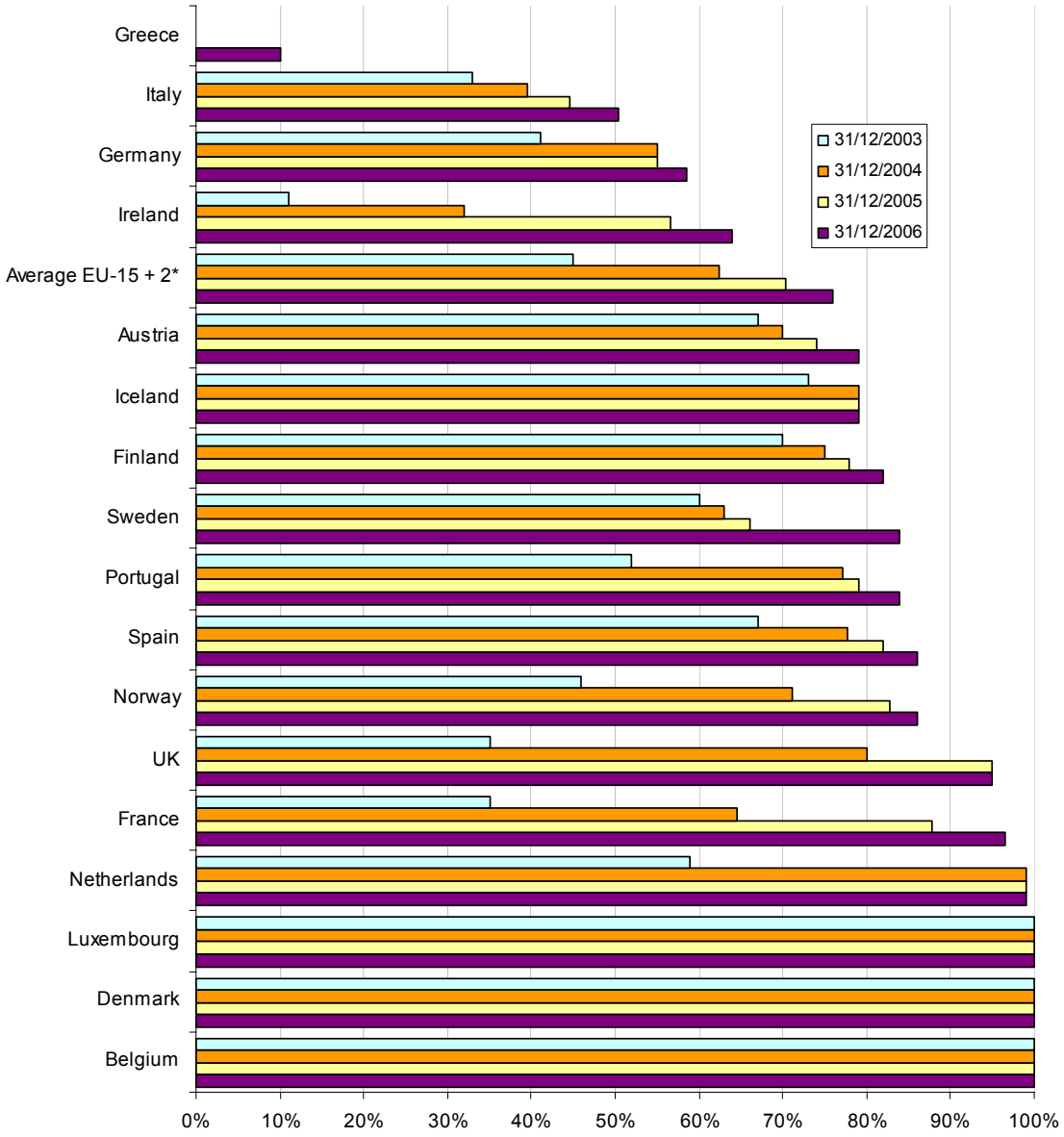
3.2.1. Coverage

Figure 24: National DSL coverage



Average DSL coverage in EU-15 + 2 was over 92% at the end of 2006. Except in Greece, which still has a very low coverage (18%), national values now range from 86% (in Ireland) to 100% in Luxembourg, Denmark and Belgium.

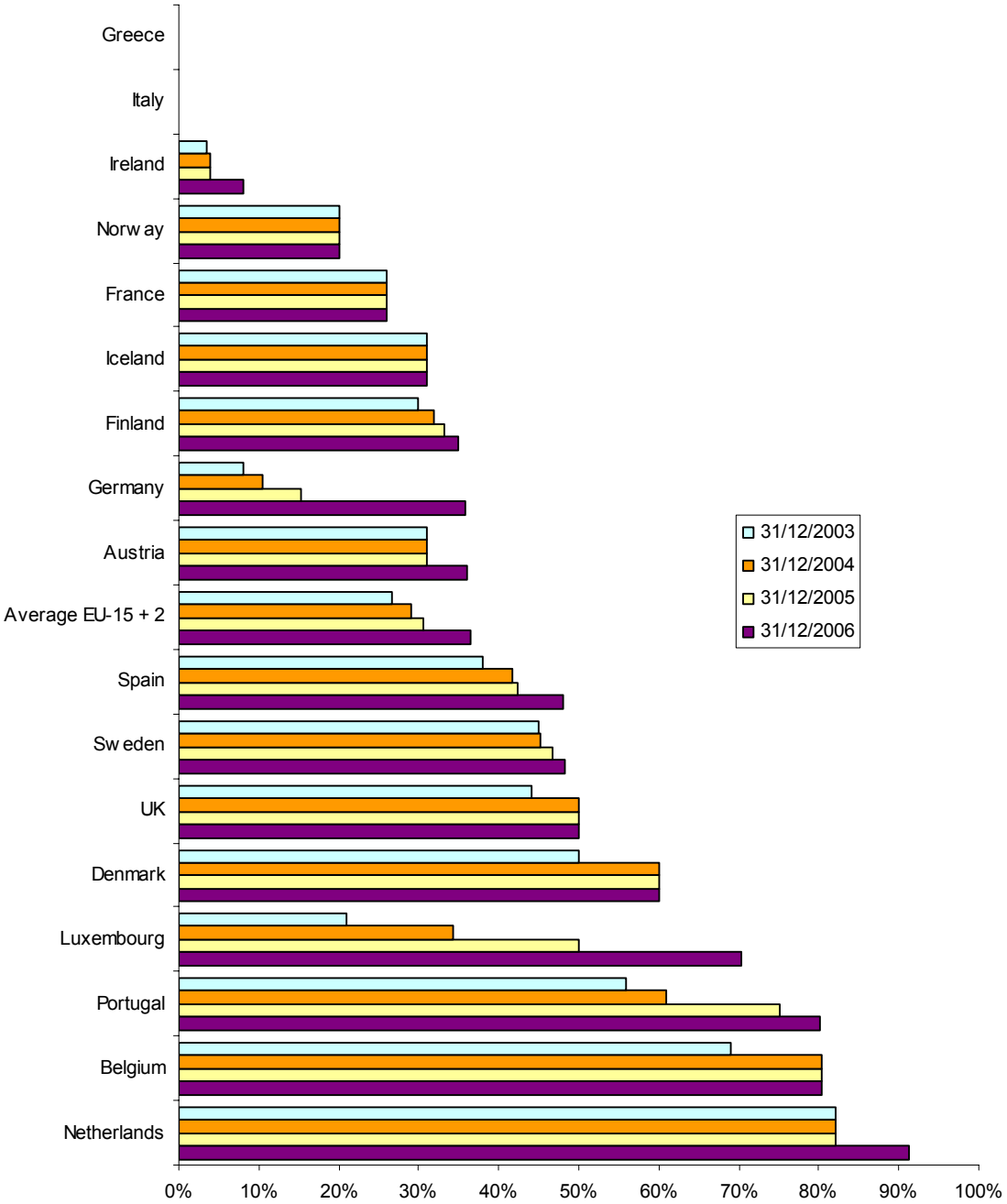
Figure 25: Rural DSL coverage



Regarding DSL coverage in rural areas, significant progress has been made in all countries and particularly in France, in the UK and in Ireland. The average for Western Europe stood at 76% at the end of 2006 (+6 points compared to the situation at the end of 2005) which is nevertheless more than 16% below national coverage levels.

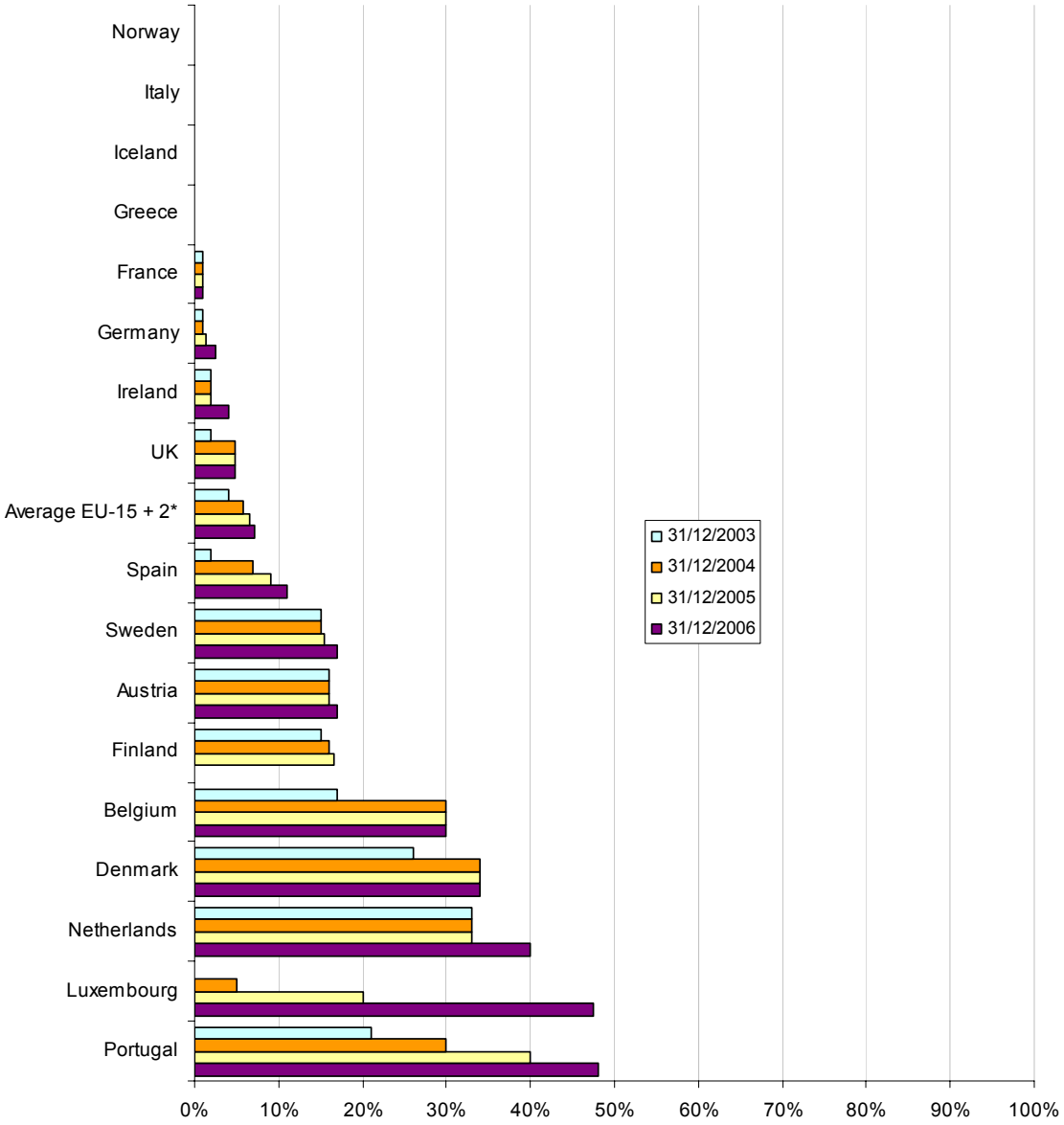
* Average calculation is weighted based on populations living in rural areas in the different countries.

Figure 26: National cable modem coverage



Average cable modem coverage in EU-15 + 2 was close to 37% at the end of 2006 (to be compared to the 92% coverage figure for DSL at that time). The situation still differs widely from country to country: from Greece and Italy where cable is not available at all, to Belgium and the Netherlands where cable modem is now available to over 80% of the population.

Figure 27: Rural cable modem coverage

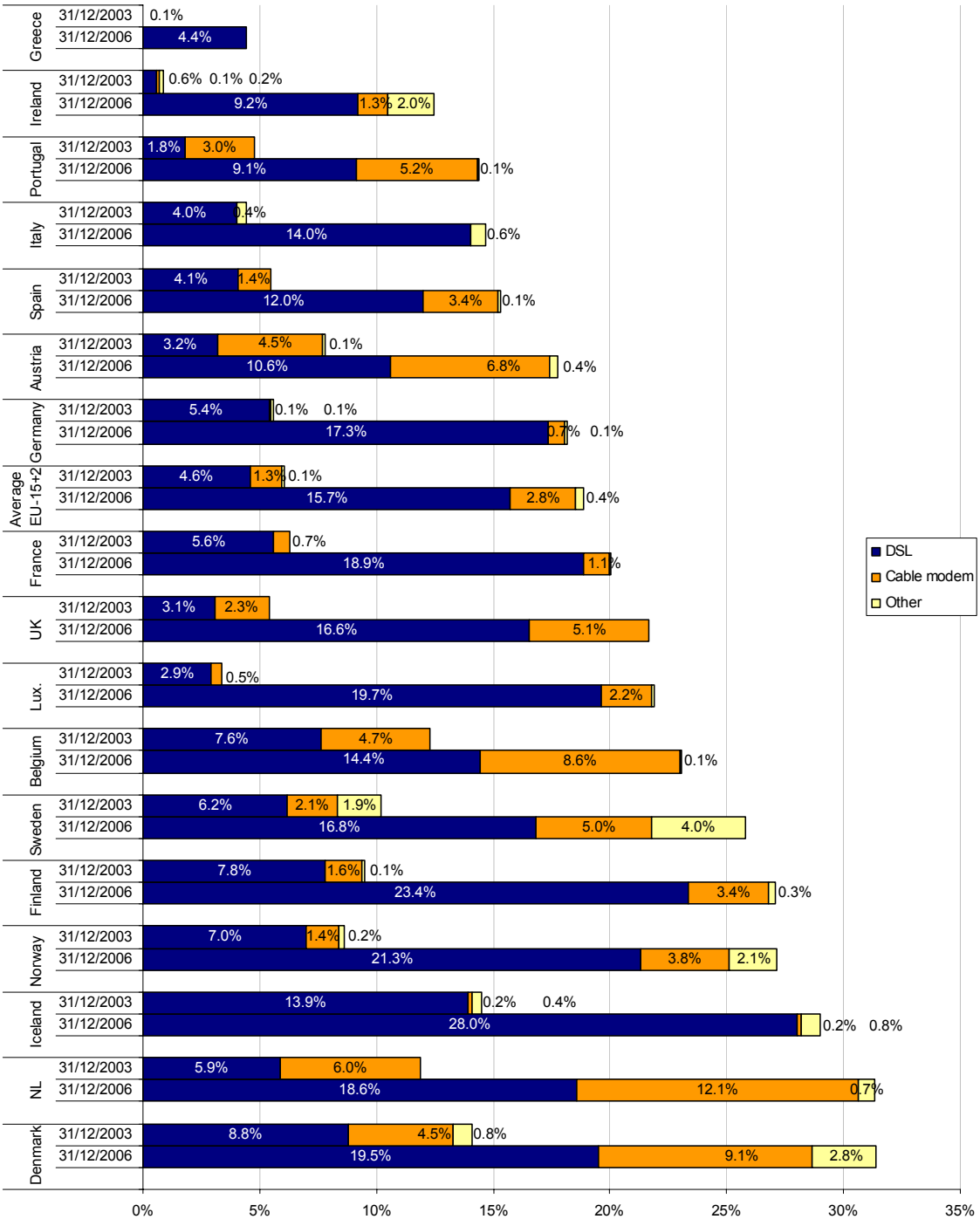


Average cable modem coverage in rural areas is still low compared to national coverage levels (only 7% compared to 37% for national coverage). Even in countries where cable is well developed, such as the Netherlands, Belgium and Portugal, cable modem is only available to between 40% and 50% of the population in rural areas.

* Average calculation is weighted based on population living in rural areas in the different countries.

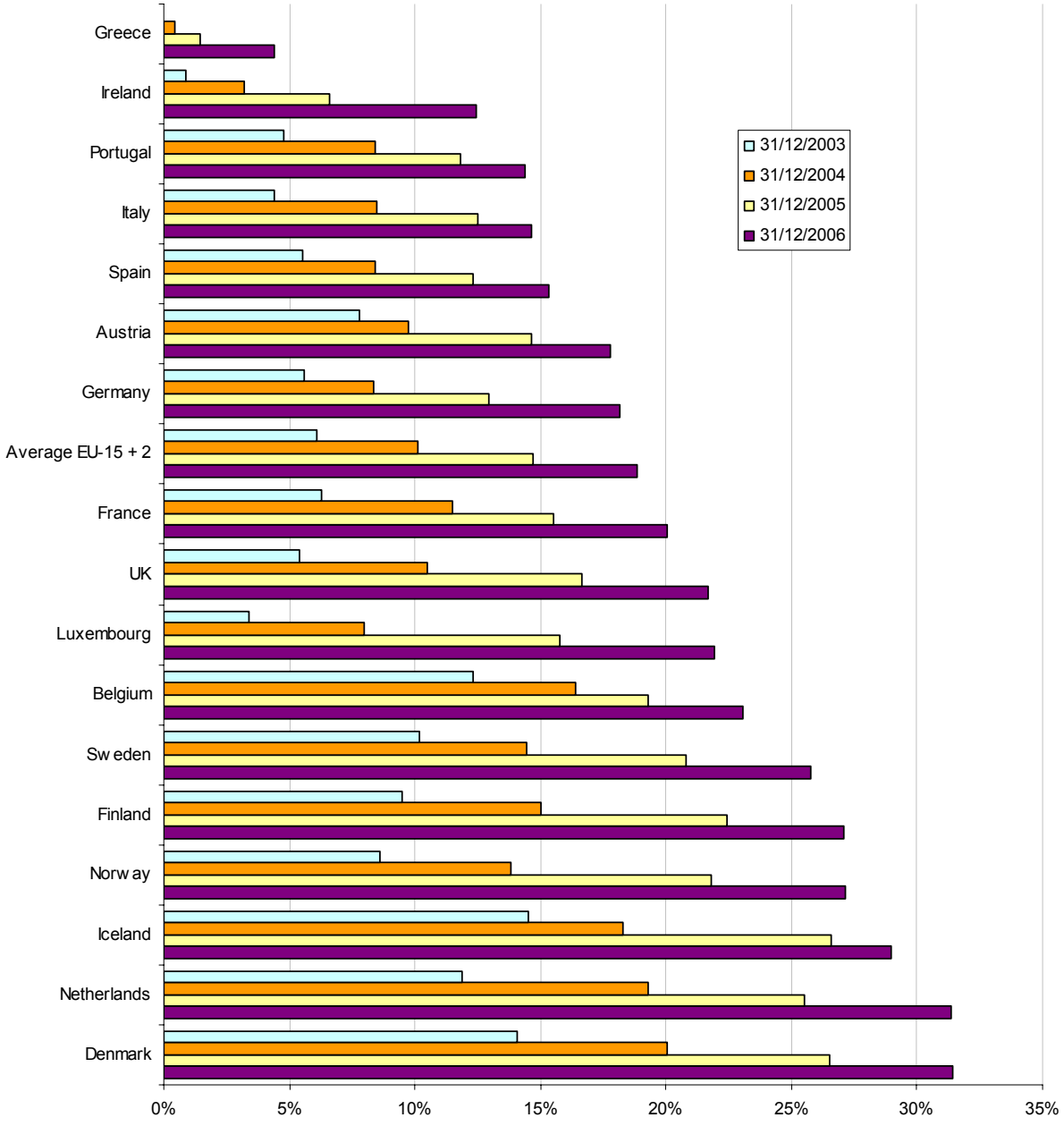
3.2.2. Penetration

Figure 28: Broadband penetration by technology



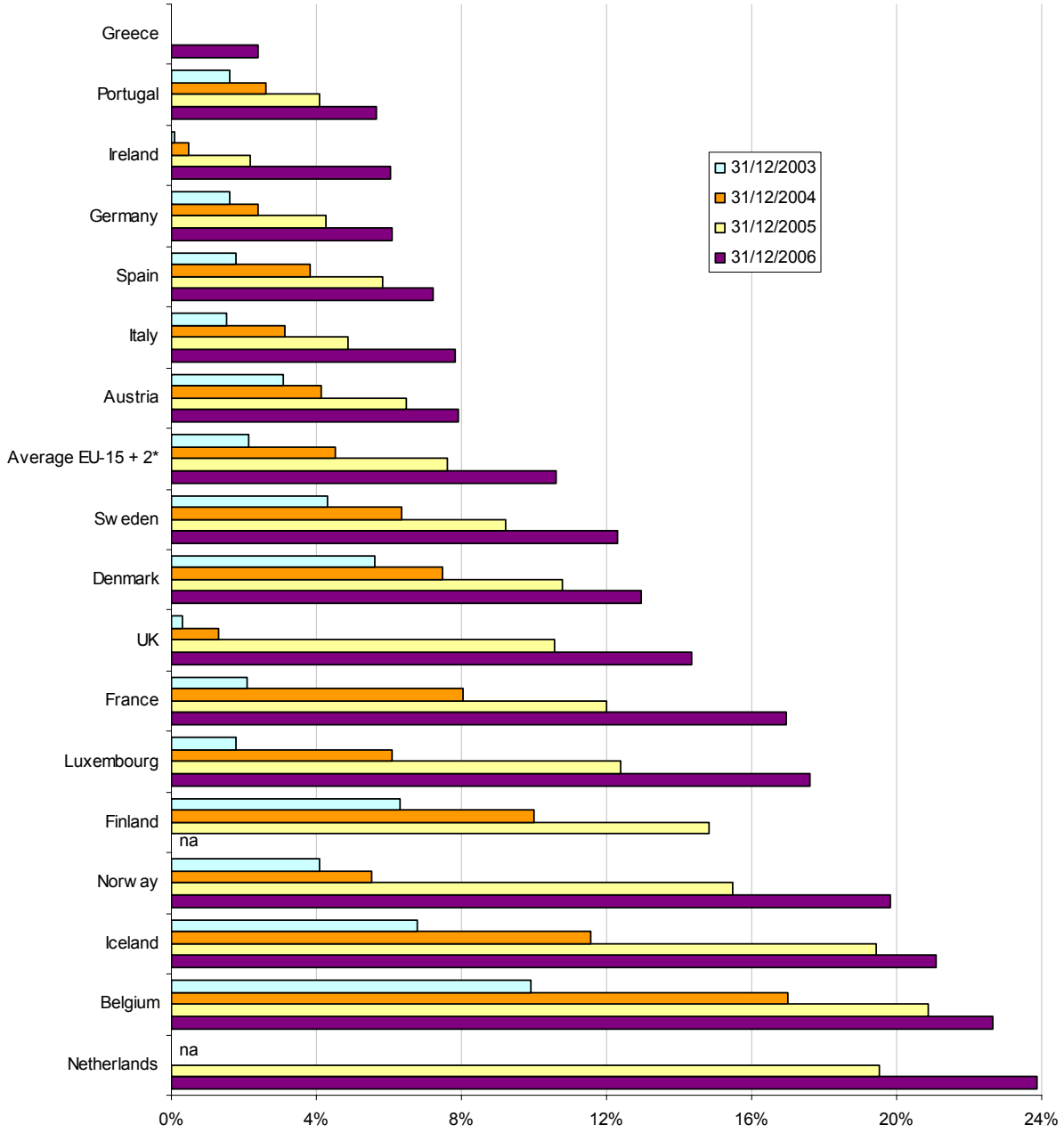
DSL is the dominant technology, accounting for more than 80% of broadband connections, on average, in the EU-15 + 2. It now leads in all countries.

Figure 29: National broadband penetration



Denmark and the Netherlands rank number one overall in terms of broadband penetration in the EU-15 + 2, with a penetration rate over 31% for both at the end of 2006. Greece remains by far the least advanced country in the region with only 4.4%, though reporting a strong increase in 2006.

Figure 30: Rural broadband penetration (DSL + cable modem)

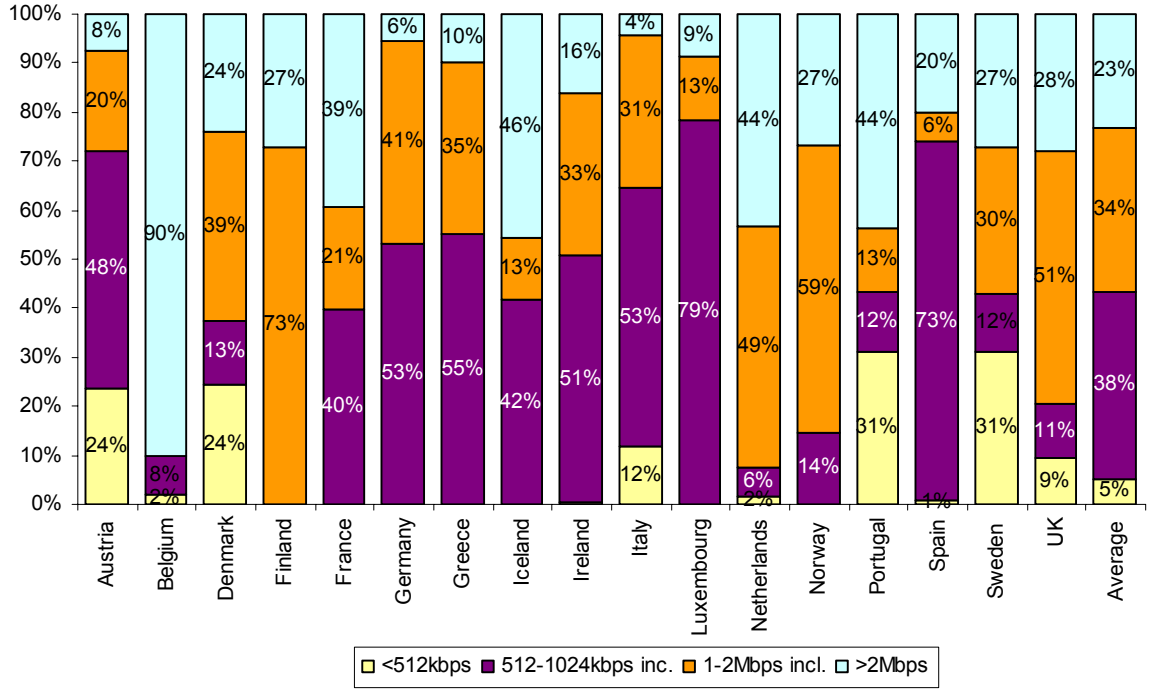


Broadband penetration in rural areas is generally lower than national levels (10.6% on average in rural areas, compared to more than 18.9% at the national level), due primarily to lower coverage rates in those areas.

* Average calculation is weighted based on populations living in rural areas in the different countries.

3.2.3. Download rates

Figure 31: National DSL download rate segmentation (Dec. 2006)



On average, DSL subscribers' download bitrates increased significantly in 2006. At year end, connections with download rates of over 1 Mbps accounted for 57% (vs. 26% at the end of 2004) while connections with download rates of up to 512 Kbps decreased to 5% from 36% two years before.

Figure 32: National DSL download rate segmentation (Dec. 2004)

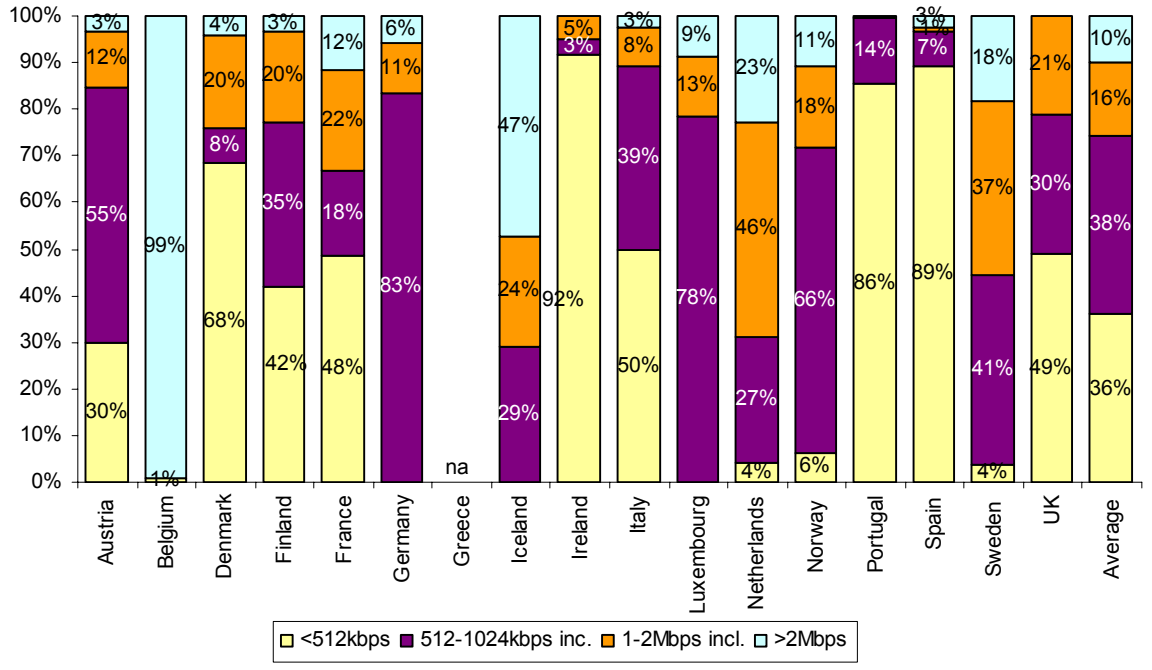
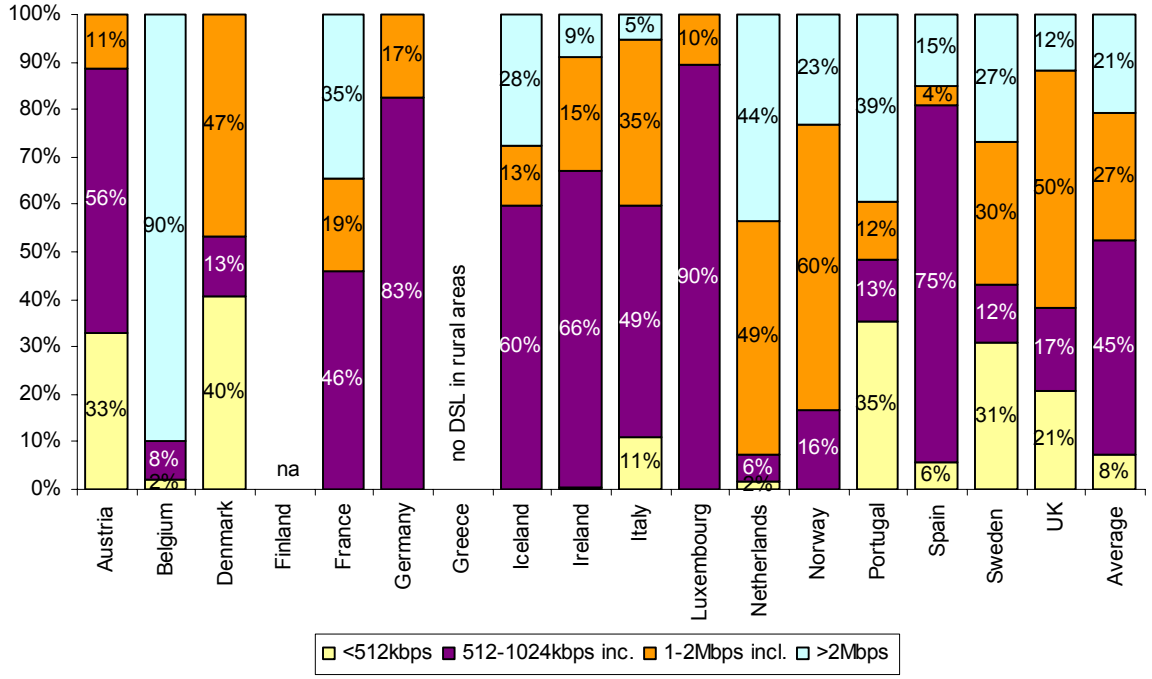


Figure 33: Rural DSL download rate segmentation (Dec. 2006)



Download rates available to subscribers in rural areas are still lower on average than those subscribed to at national levels, but the gap is tending to shrink. In particular, download rates of over 2 Mbps account for 21% of DSL connections in rural areas, which is only 2% less than the bitrate category's share of national subscriptions (23%). The situation is the opposite in Italy, where FTTH can compete with DSL for high download rates in urban areas and not in rural areas.

Figure 34: Rural DSL download rate segmentation (Dec. 2004)

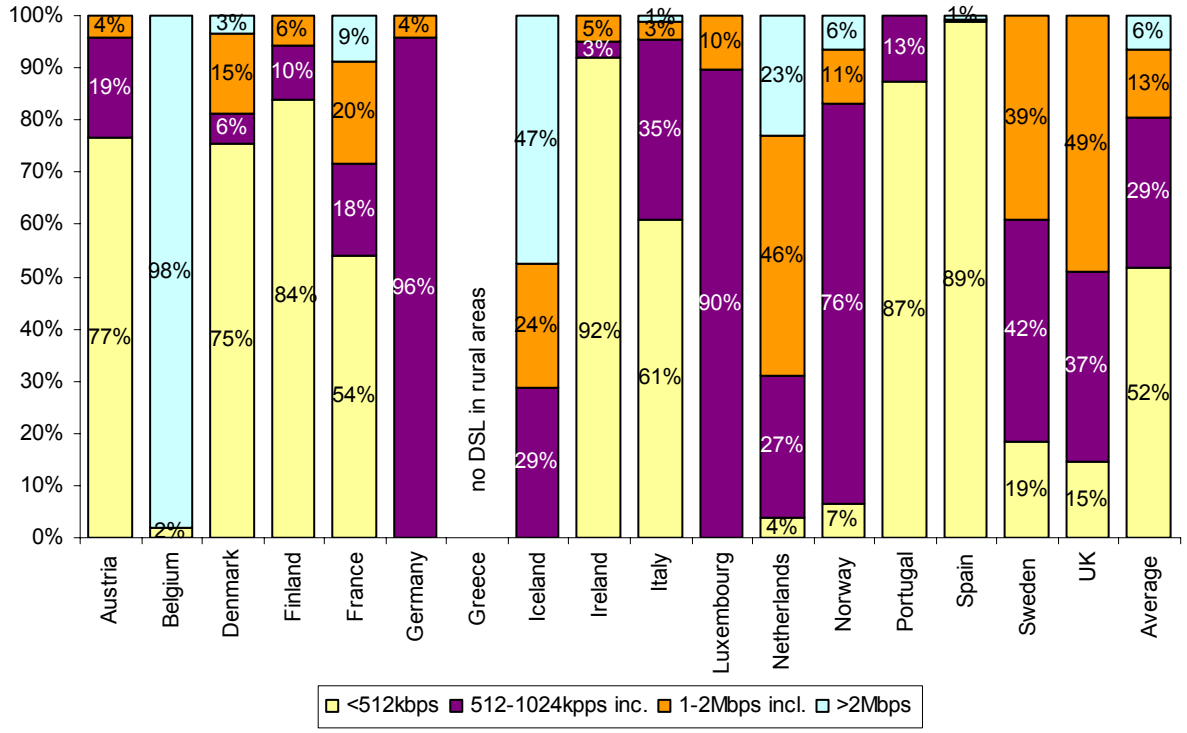
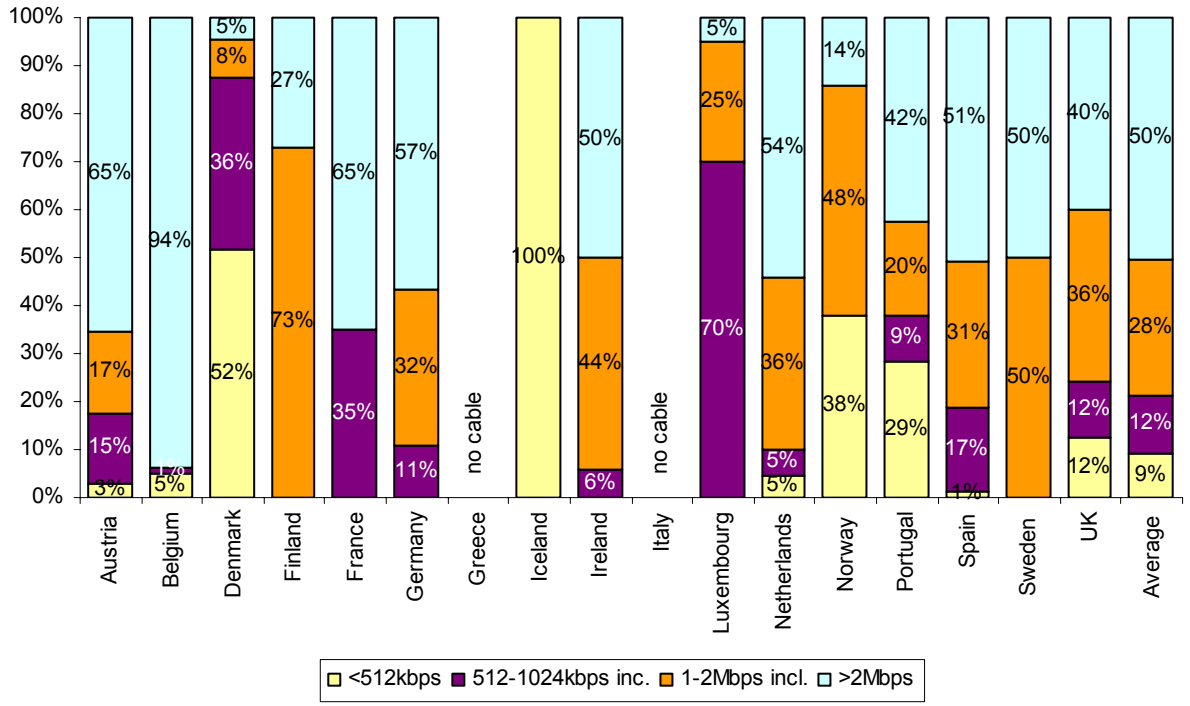


Figure 35: National cable modem download rate segmentation (Dec. 2006)



Download rates subscribed to via cable modem are generally higher than those subscribed to via DSL: 50% were over 2 Mbps at the end of 2006 (vs. 23% for DSL). Also worth noting is the significant upswing, on average, of subscriptions to download rates of over 1 Mbps, which went from 24% at the end of 2004 to 78% at the end of 2006.

Figure 36: National cable modem download rate segmentation (Dec. 2004)

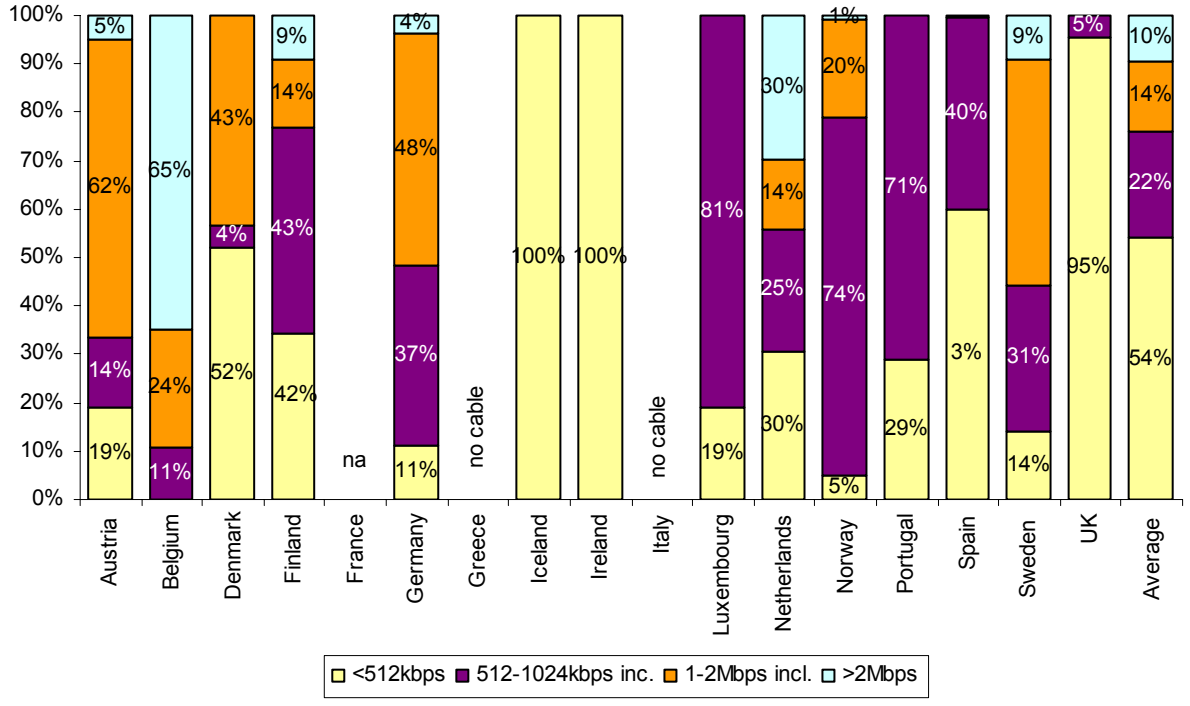
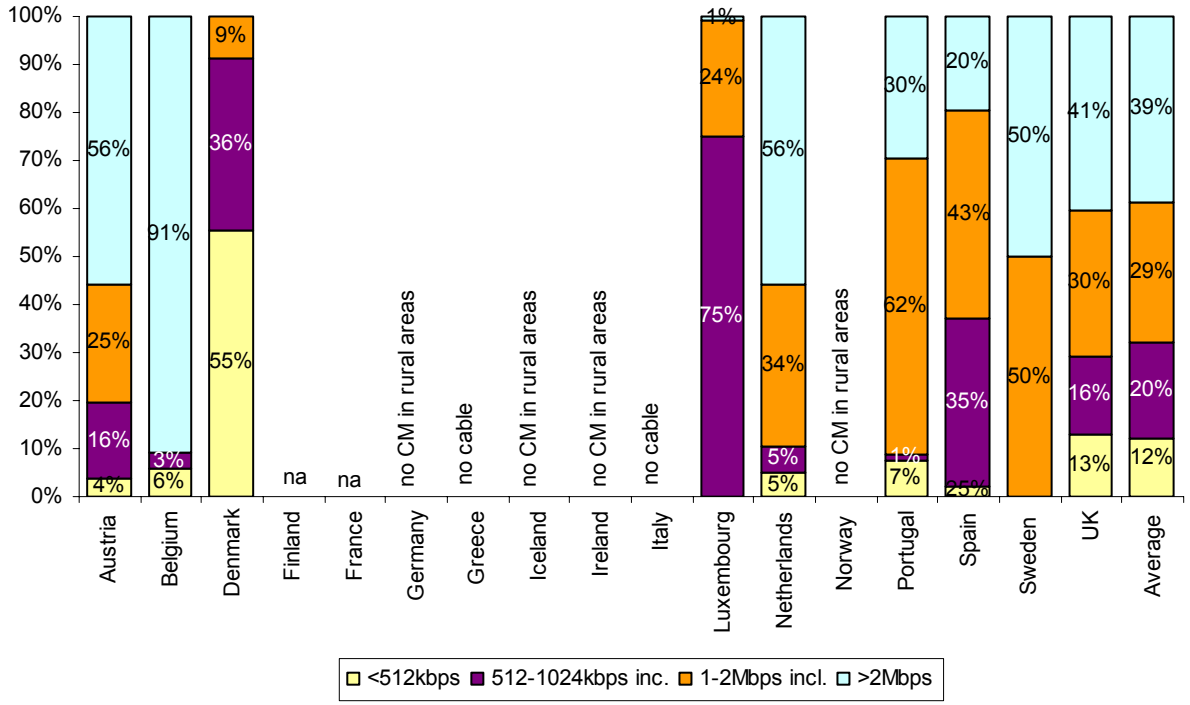
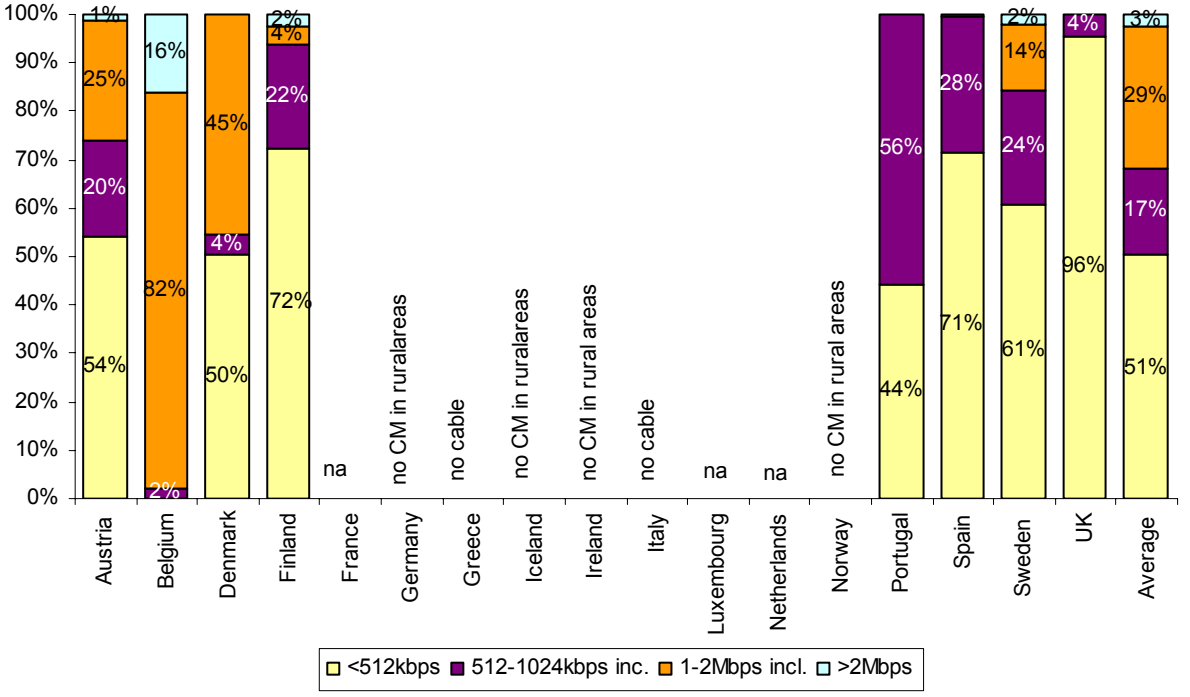


Figure 37: Rural cable modem download rate segmentation (Dec. 2006)



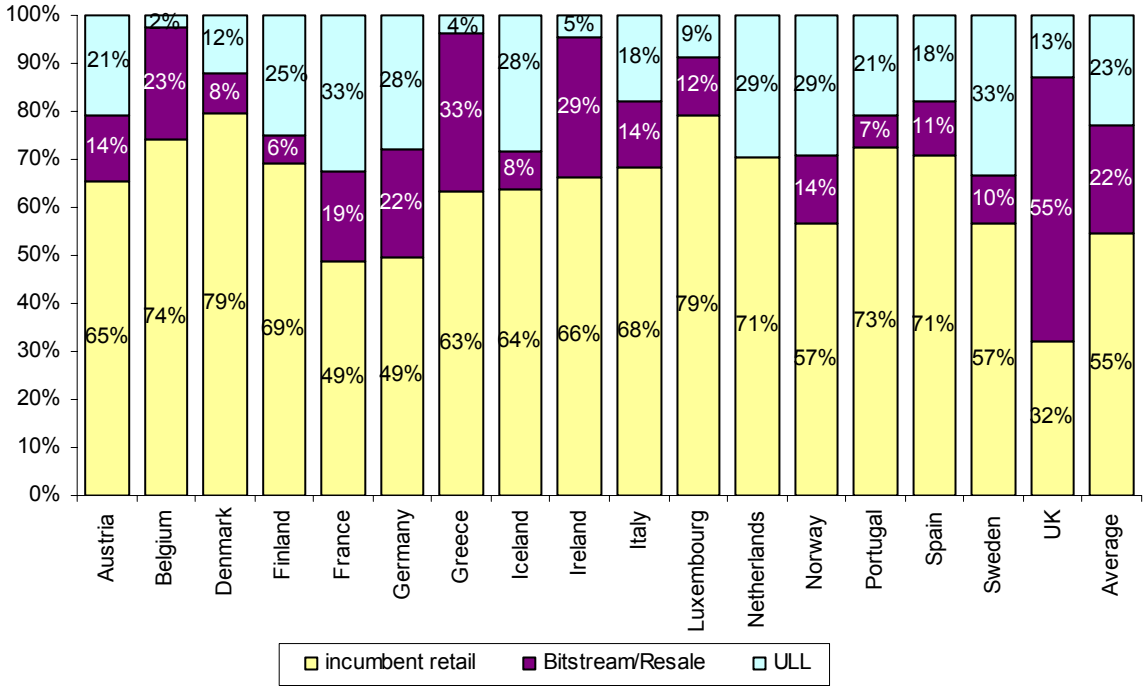
Regarding cable modem, download rates subscribed to in rural areas are still lower than those subscribed to at national levels (in particular, 39% of connections are over 2 Mbps while they account for 50% at national levels). The situation is the opposite in the UK, where cable modem can afford higher bitrates than DSL in rural areas, and in the Netherlands.

Figure 38: Rural cable modem download rate segmentation (Dec. 2004)



3.2.4. Origin of DSL connections

Figure 39: National DSL market share as of Dec. 31 2006



LLU (local loop unbundling) accounted for 23% of DSL connections in Western Europe at the end of 2006 (up from 13% at the end of 2004), albeit with large discrepancies between countries. It is still below or at just 5% in Belgium, Greece and Ireland, while close to or over 30% in Iceland (28%), in the Netherlands and in Norway (29%), in Sweden and in France (33%). In a number of countries, LLU share has decreased (Denmark, Greece. Iceland).

Figure 40: National DSL market share as of Dec. 31 2004

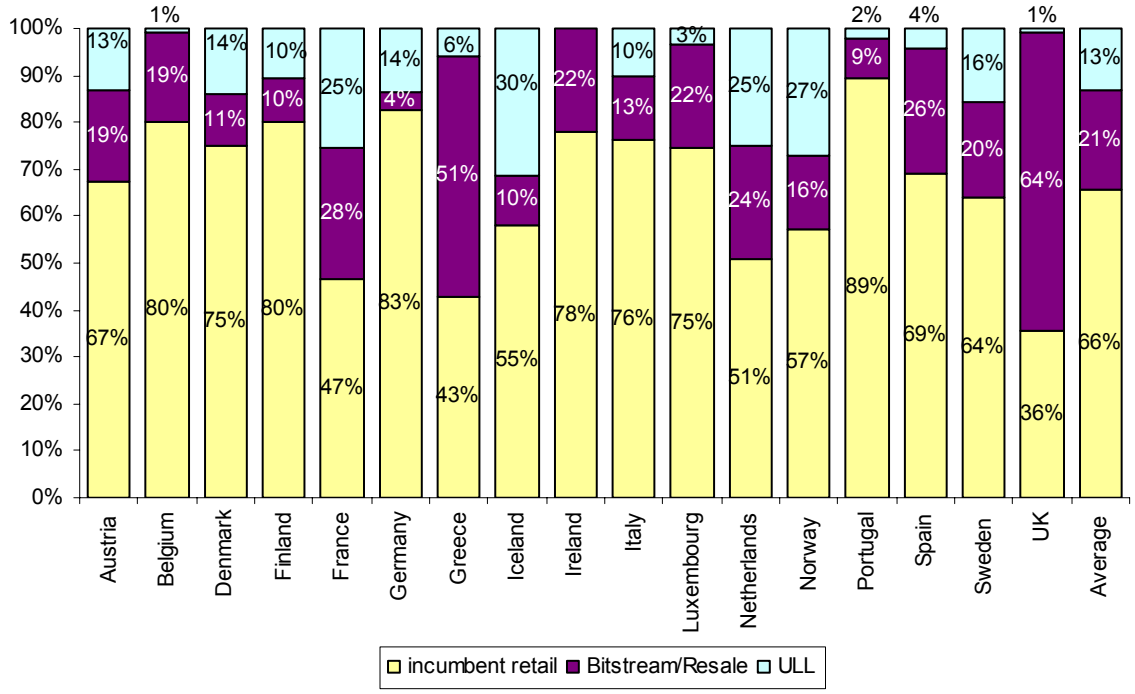
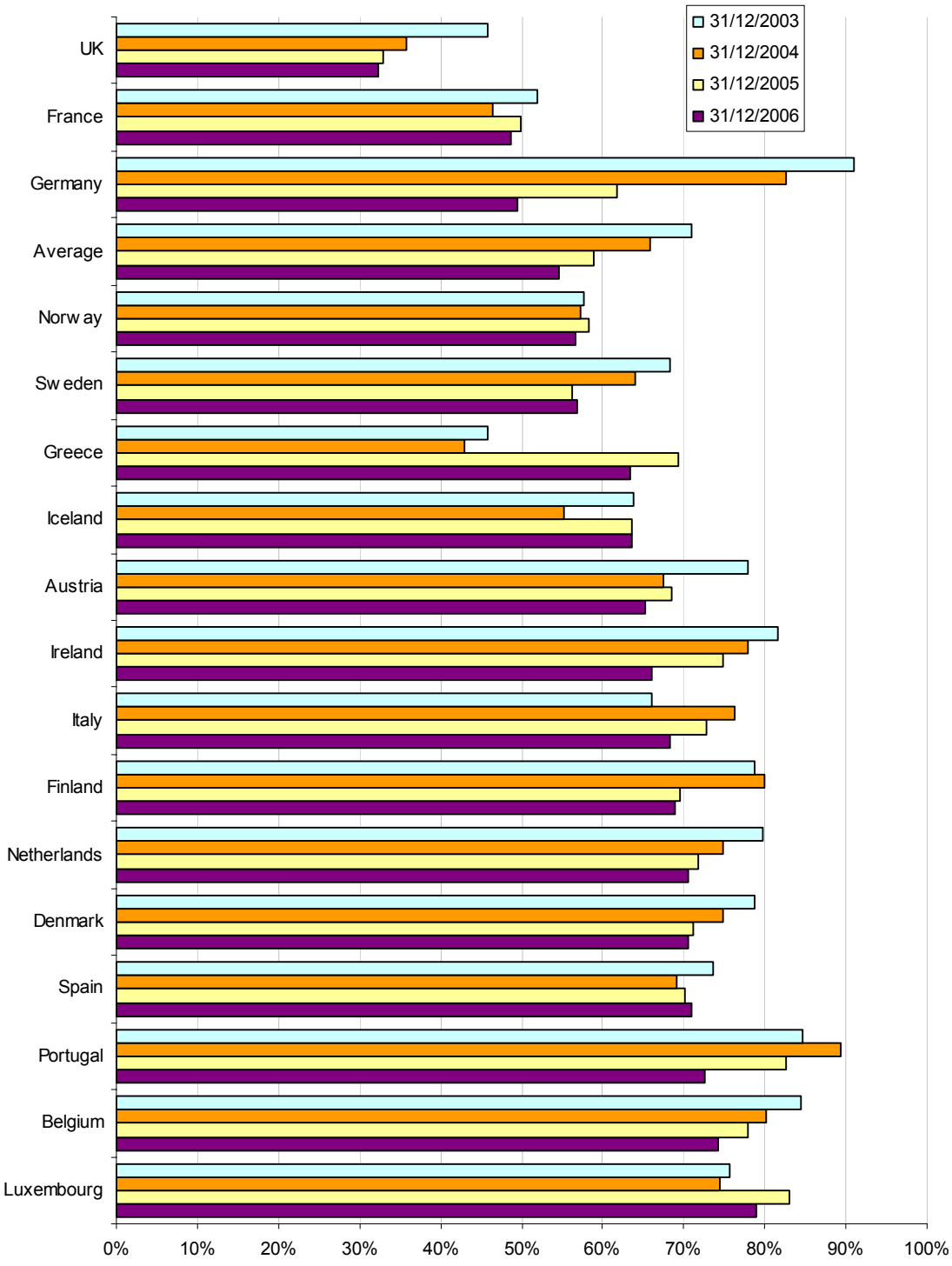


Figure 41: Incumbent carrier national DSL market share



On the whole, incumbent telcos' market share has been declining gradually. In recent times, the trend was particularly pronounced in Germany (dropping from 83% at the end of 2004 to 49% at the end of 2006) and in the UK where BT's DSL retail market share was only 32% at the end of 2006.

In some cases, incumbent telcos could gain market share from one year to the next one (e.g. Telefónica in Spain in 2005 and 2006, France Telecom/Orange in France in 2005) following marketing repositioning (new offers, new tariffs, etc.).

4. Country profiles

4.1. Austria

4.1.1. Population

	Urban area	Suburban area	Rural area	National
Inhabitants	2 ,868 ,225	2 ,089 ,675	3 ,308 ,000	8 ,265 ,900
Share of total population	34.7%	25.3%	40.0%	100.0%

4.1.2. General broadband data

	12/02	12/03	12/04	12/05	12/06
DSL coverage (% of population)	83%	86%	86%	86%	91%
DSL subscribers	179 ,600	319 ,000	442 ,200	684 ,600	874 ,000
DSL penetration (% of population)	2.2%	3.9%	5.4%	8.3%	10.6%
Cable modem coverage (% population)	25%	31%	31%	31%	36%
Cable modem subscribers	277 ,000	327 ,000	340 ,000	471 ,681	565 ,000
Cable modem penetration (% population)	3.4%	4.0%	4.1%	5.7%	6.8%
FTTx subscribers	0	800	1 ,100	2 ,200	3 ,000
PLC subscribers	200	1 ,500	4 ,200	5 ,000	5 ,300
WLL subscribers	0	0	7,100	14,900	20,100
Satellite subscribers	1 ,000	2 ,000	2 ,400	3 ,000	3 ,000
Total	457 ,800	650 ,300	797,000	1 ,181,381	1 ,470 ,400
Total penetration (% population)	5.6%	8.0%	9.8%	14.7%	17.8%

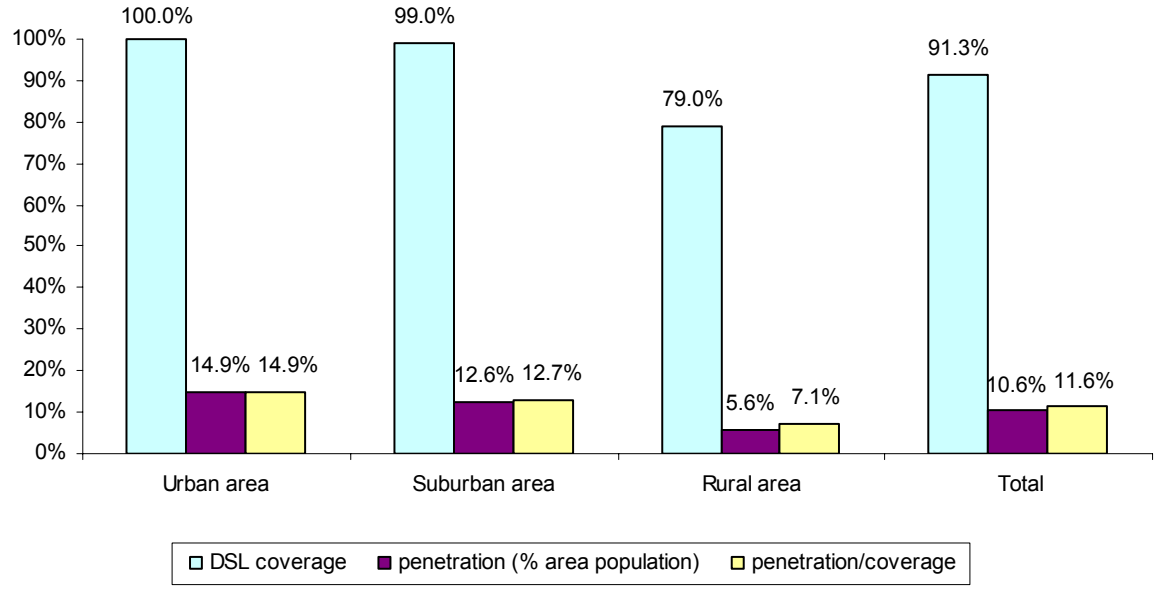
The broadband subscriber base increased by 25% in 2006 and penetration peaked at 17.8%, which is just above the EU-27 average.

With 190,000 new DSL subscribers, compared to roughly 95,000 new cable modem subscribers, DSL again (after 2005) increased its lead in Austria where cable had been the leading technology until 2003 – DSL accounting for close to 60% of broadband connections at the end of 2006. Other technologies remain relatively marginal, except for WLL with a subscriber base just over 20,000, either through Wi-Fi and WiMAX. The market for triple play and IPTV services in Austria is also picking up.

Telekom Austria, the incumbent telco, still retains two thirds of the DSL retail customer base or 40% of the total broadband subscriber base. UPC Telekabel, the leading cable operator, ranks second with a 26% market share.

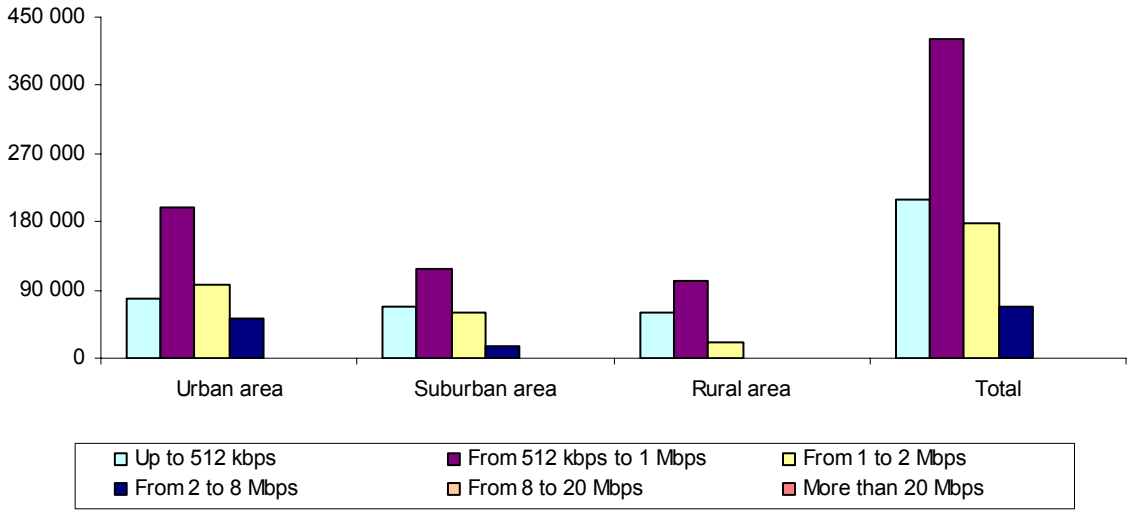
4.1.3. DSL coverage and take-up

Coverage and penetration



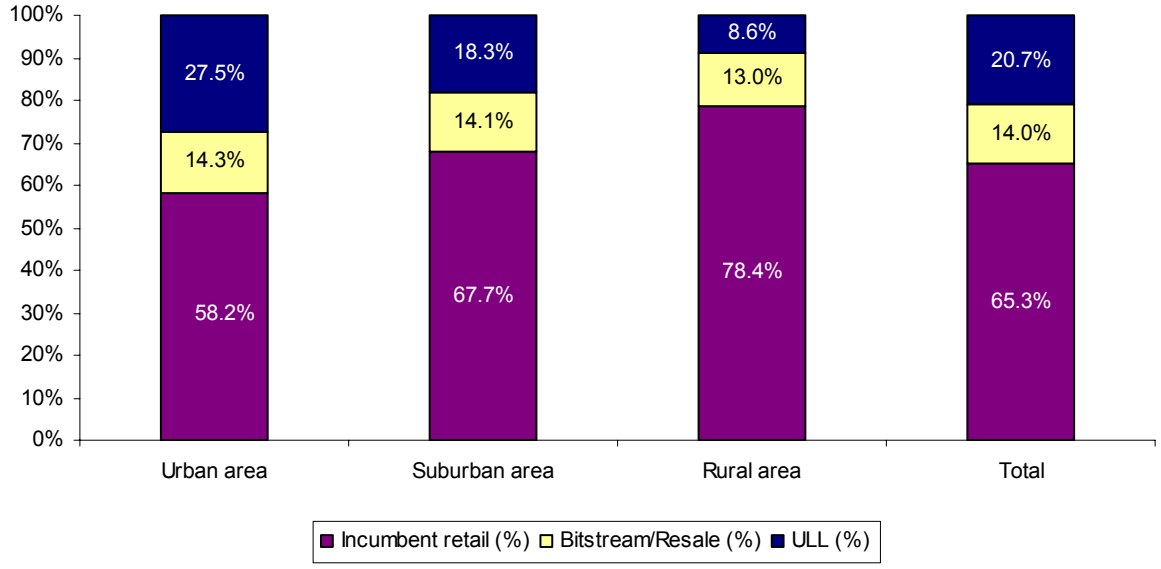
DSL coverage is relatively complete in urban and suburban areas, which is not the case in rural areas which account for 40% of the population. DSL penetration increased from 8.3% to 10.6% in 2006.

Number of DSL connections by download rate



Download rates for DSL services ranging between 512 Kbps and 1 Mbps are still predominant and represent nearly half of the DSL connections, while connections up to 512 kbps still account for nearly 25%. Nevertheless, as more providers offer faster connections at reasonable prices, more and more people are upgrading.

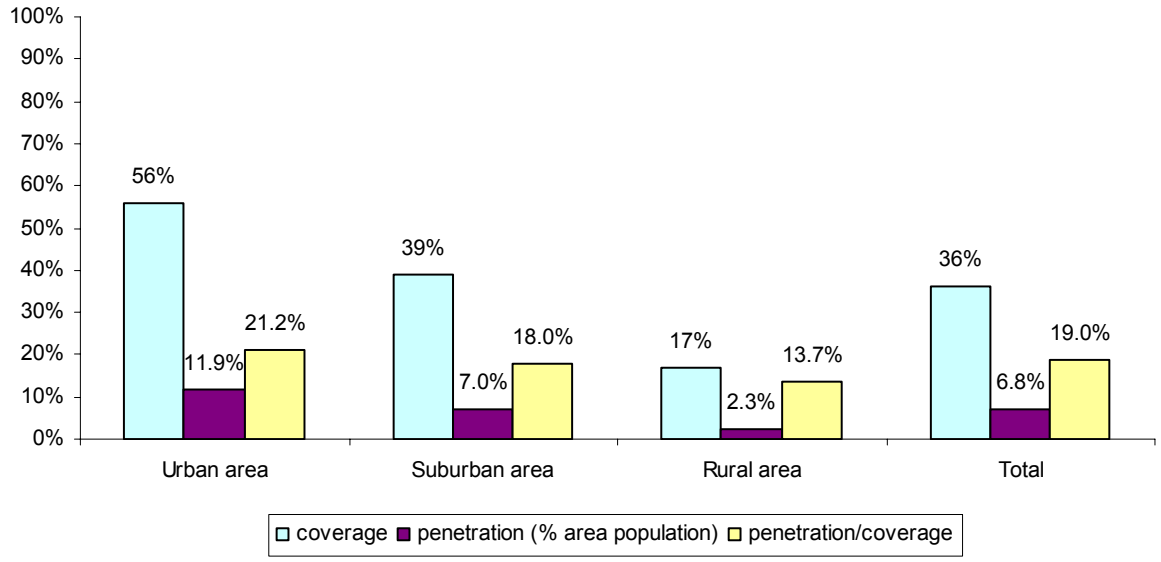
Percentage of DSL connections by type of provider



Unbundled local loop (ULL) connections increased significantly once again, and now account for more than a fifth (20.7%) of total DSL connections (2005: 16.1%; 2004: 13.3%). The share of connections based on wholesale offers has decreased slightly (from 15.5% to 14.0%). Telekom Austria, Austria's incumbent, also lost a portion of its retail market share but still accounts for roughly two thirds of the DSL connections.

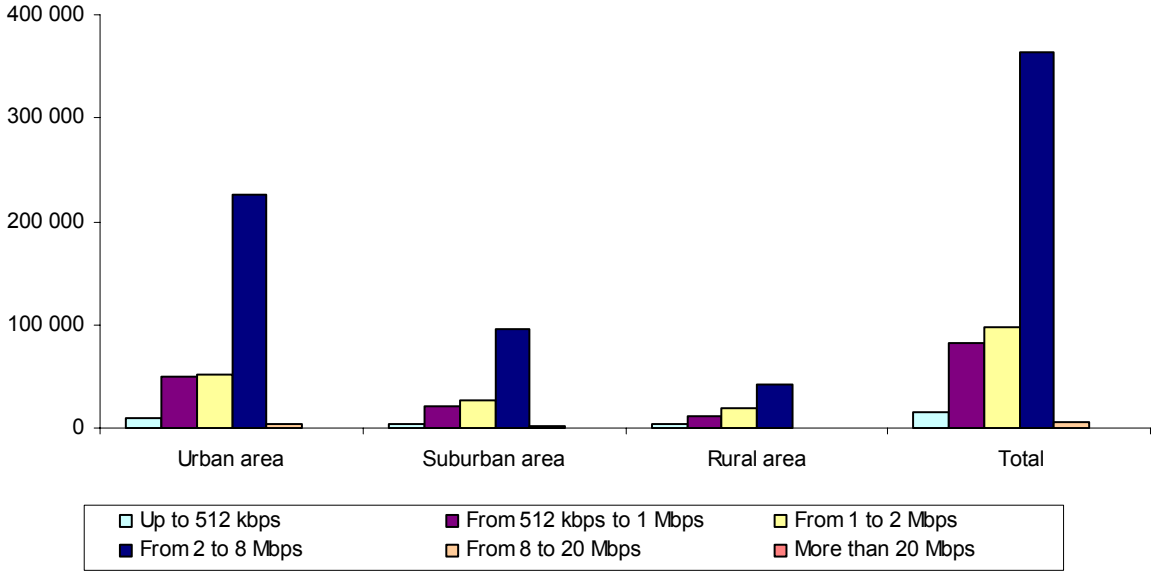
4.1.4. Cable modem coverage and take-up

Coverage and penetration



Cable modem growth slowed down in 2006, compared to 2005. Though DSL growth also slowed down, broadband cable was unable to keep pace with the rise of DSL. Most of Austria's more than 200 local cable operators provide broadband Internet access, the predominant one being UPC with control over close to two-thirds of the market.

Number of cable modem connections by download rate



Cable modem services in Austria offer significantly higher download rates compared to DSL services. Nearly two thirds of the cable modem customers subscribe to offers with download rates faster than 2 Mbps.

4.1.5. Other broadband access technologies

FTTx

In 2006, the city of Vienna announced a very ambitious municipal FTTH rollout. After the first rollout phase, which started in mid-2006, 50,000 homes will be passed. After phase two, which is scheduled to start in 2008, 250,000 households will have access to FTTH. Vienna plans ultimately to cover all 960,000 households and 70,000 business premises with FTTH ultra-broadband connections. Initially the service will offer download rates of 100 Mbps, and later 1 Gbps.

Though this project is a cooperation between the city of Vienna and its subsidiary Wienstrom (Austria's largest utility company), this is not a reactivation of Wienstrom's FTTH rollout under the "blizznet" brand. On the contrary, the partners stress the point that the network will be available to all service providers on equal terms and refer to their network as an "Open Access Platform".

At the end of 2006, around 3,000 households in Austria were using FTTH. Aside from Wienstrom's "blizznet", which is referred to as a field trial, incumbent carrier, Telekom Austria, is also conducting trials in Arnoldstein, a small town in a rural area in the south of Austria.

PLC

The only remaining provider of commercial powerline services in Austria is Linz AG, a regional company serving the Linz region. Other operators stopped marketing their PLC services. Linz AG had a customer base of roughly 5,300 (2005: 5,000; 2004: 4,200) and covered 50,000 households (vs. the 80,000 originally planned).

Since 2004, Linz AG has been facing ongoing law suits, after the Austrian Federal Ministry of Transport, Innovation and Technology (BMVIT) had detected interferences with shortwave broadcasting transmissions, amateur radio and public safety radio services.

Wi-Fi

Official statistics on PWLAN hotspots are not available, nor is any information on the number of users. However, Austria used to be one of the European countries with a relatively well-developed public Wi-Fi market.

This could change as One, the Austrian mobile operator that used to run more than 600 of the estimated 1,000+ hotspots, announced in 2006 that it would be closing down its hotspots due to low usage and thus low revenue, after it had already announced an end to future deployments in 2005.

WLL/WiMAX

By the end of 2006, 20,100 fixed wireless connections had been set up, compared to 14,900 at the end of 2005 and 7,100 at the end of 2004.

Satellite

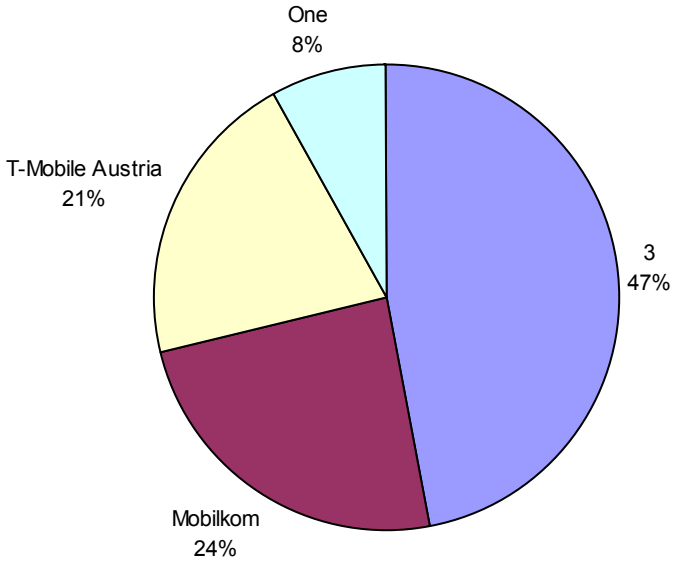
Internet via satellite is offered by several players, whose footprint extends into neighbouring countries, of which SES Astra is the largest provider in Austria. The total number of satellite subscribers at the end of 2006 was estimated at around 3,000 and stagnating.

Cellular

By the end of 2006 there were 950,000 UMTS subscribers in Austria, compared to 560,000 at the end of 2005. 97% of the population is covered with either UMTS or EDGE (2005: 65%). In March 2006, T-Mobile Austria also began offering HSDPA services and announced that 70% of Austria's population were covered by HSDPA services. 3, Austria's biggest 3G provider, also offers HSDPA services but

covers mainly urban areas. 3's target for the end of 2007 is to cover 95% of Austria's population with HSDPA.

Breakdown of the 3G subscriber base* by operator (December 2006)



* Users with 3G handsets

4.2. Belgium

4.2.1. Population

	Urban area	Suburban area	Rural area	National
Inhabitants	5 ,983 ,245	4 ,018 ,020	510 ,335	10 ,511 ,400
Share of total population	56.9%	38.2%	4.9%	100.0%

4.2.2. General broadband data

	12/02	12/03	12/04	12/05	12/06
DSL coverage (% of population)	10%	100%	100%	100%	100%
DSL subscribers	520 ,600	782 ,473	1 ,011 ,007	1 ,294 ,362	1 ,516 ,885
DSL penetration (% of population)	5.0%	7.5%	9.7%	12.4%	14.4%
Cable modem coverage (% population)	-	64%	80%	80%	80%
Cable modem subscribers	348 ,500	481 ,800	690 ,000	699 ,300	900 ,000
Cable modem penetration (% population)	3.4%	4.6%	6.6%	6.7%	8.6%
FTTx subscribers	0	0	0	0	0
PLC subscribers	0	0	0	0	0
WLL subscribers	-	-	-	3 ,597	5,500
Satellite subscribers	0	0	0	0	0
Total	869 ,100	1 ,264 ,273	1 ,701 ,007	1 ,997 ,259	2 ,422 ,385
Total penetration (% population)	8.4%	12.2%	16.3%	19.1%	23.0%

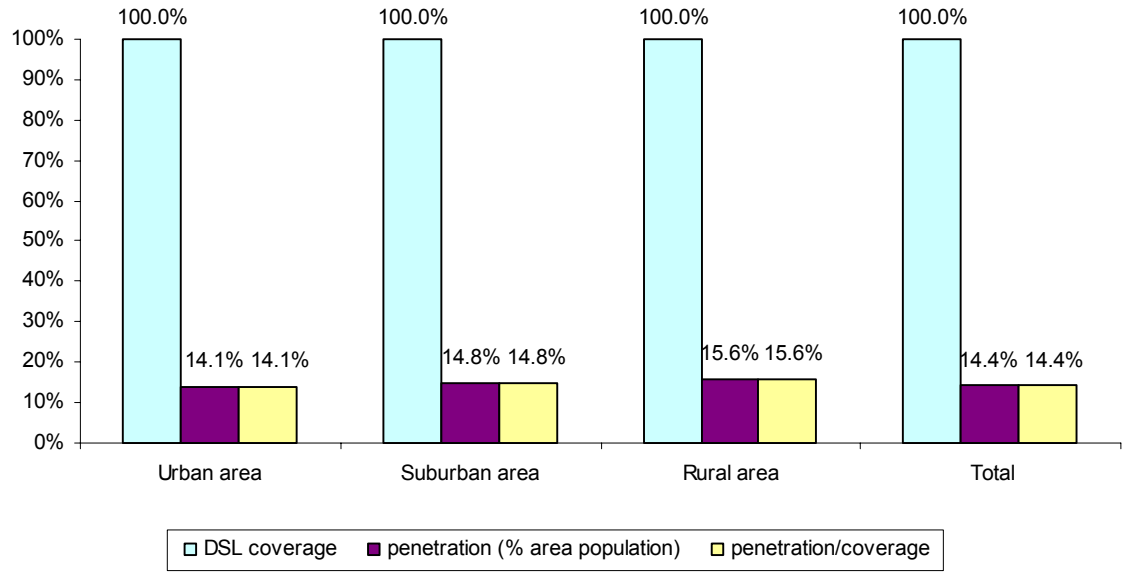
The Belgian broadband market was still dynamic in 2006 (subscriber base: +21%) though penetration is very high, with only Scandinavian countries and the Netherlands reporting higher rates.

Competition between DSL and cable modem is intense but DSL has been leading the way for some time. At the end of 2006, DSL accounted for 62.6% of all broadband connections. Belgacom, the incumbent telco, still enjoys a strong market share (close to three quarters of ADSL and 50% of total broadband) with all local exchanges DSL-equipped (eligibility is very close to 100% due to the implementation of RE- ADSL[3]); while unbundling remains low. Cable modem is available chiefly in Flanders (Telenet) and in metropolitan Brussels (UPC Belgium purchased by Telenet in early 2007), and in parts of the Walloon region, largely via Brutele. We therefore estimate that 80% of the population have an actual choice between at least two alternative broadband access technologies. Competition between the two technological platforms could lead to high speed offerings: most DSL connections have download speeds of 4 Mbps (ADSL2+ can now offer higher speeds) while cable modem connections are mainly 10 and 20 Mbps.

[3] RE-ADSL stands for reach-extended ADSL, which makes it possible for ADSL systems to reach as far as in KMS

4.2.3. DSL coverage and take-up

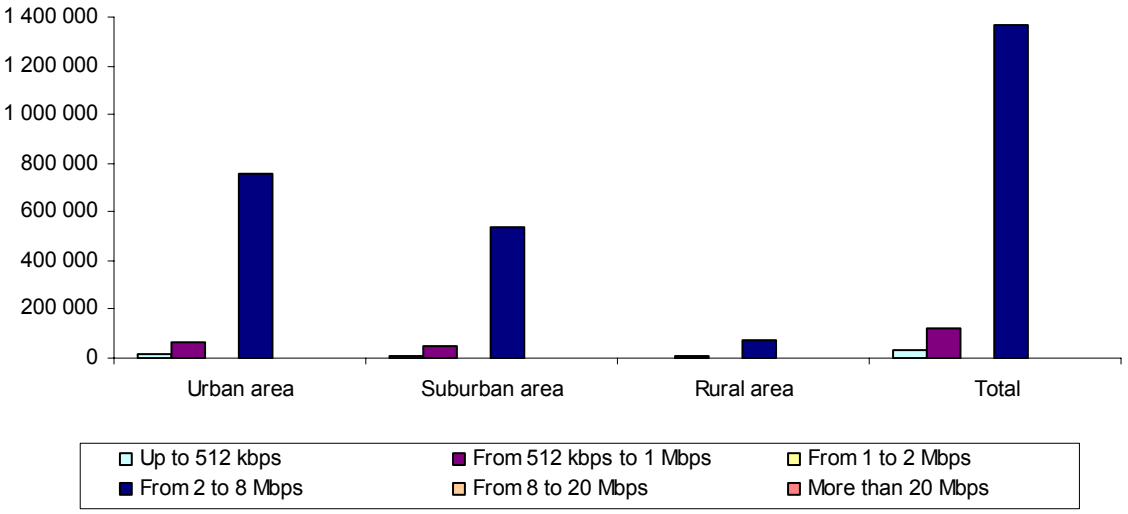
Coverage and penetration



While coverage is very broad, DSL take-up grew at a reduced pace in 2006 (+17.2%) but could still gain more than 220,000 new subscribers within the year.

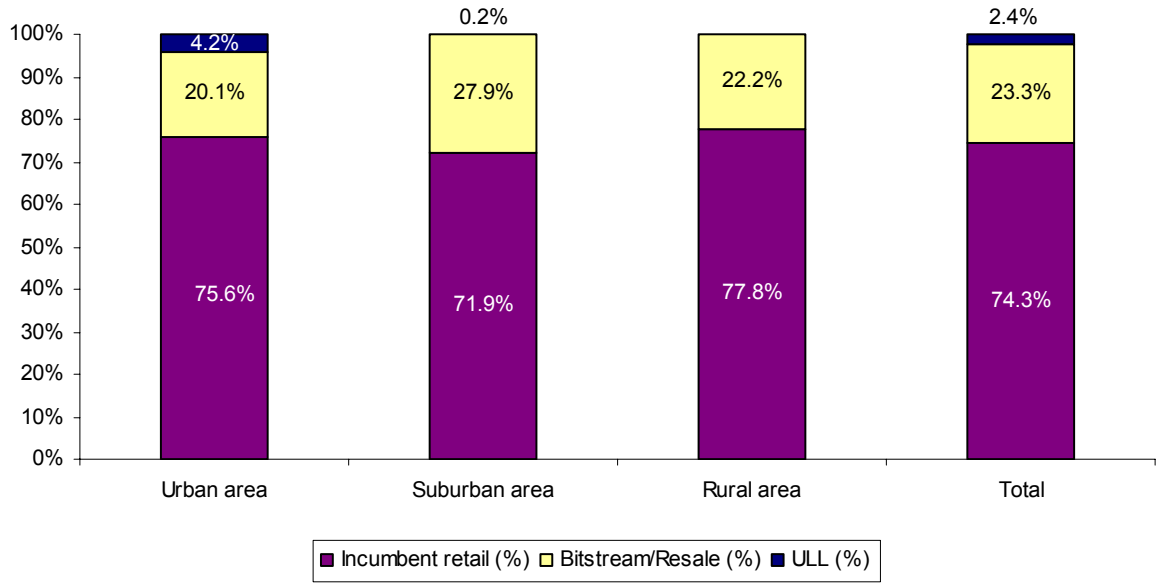
ADSL penetration is a bit higher in rural areas due to the fact that competition with cable modem is still not effective in parts of those territories, especially in Walloon rural areas.

Number of DSL connections by download rate



Most ADSL offers have a downstream speed of 4 Mbps. Some alternative operators launched “light” offers (downstream speed of 512 Kbps) in early 2004. Belgacom also launched an ADSL Light offer (maximum download speed of 512 Kbps) in May 2004, which became ADSL Time when ADSL Light was upgraded to 1 Mbps. These offers enjoyed only limited success, however, as most users subscribe to the 4 Mbps offers (e.g. Belgacom ADSL Go or ADSL Plus) or more, through ADSL2+ and VDSL.

Percentage of DSL connections by type of provider

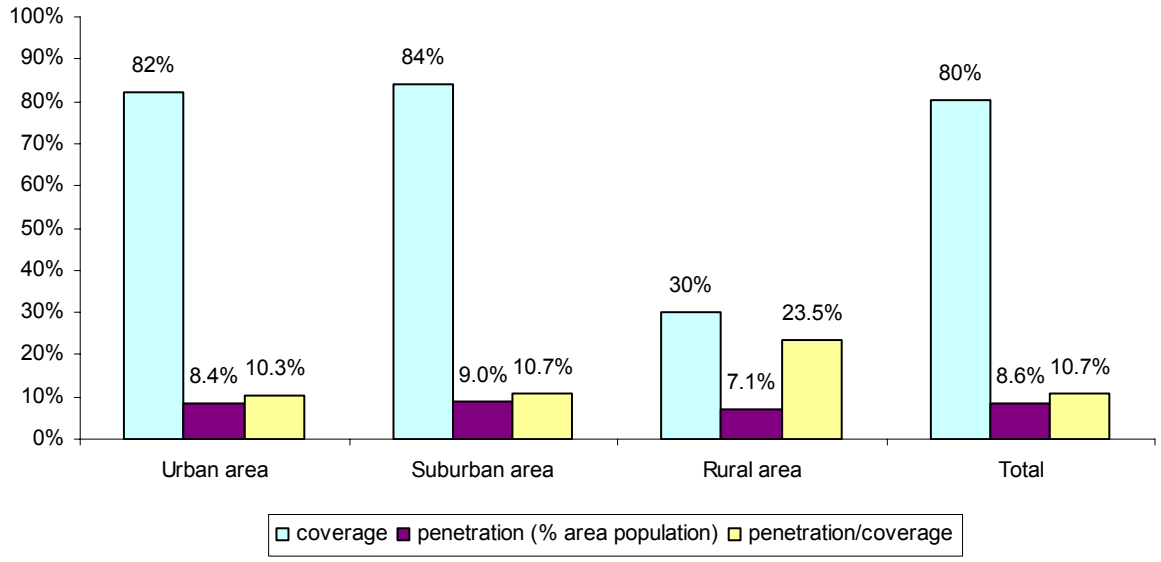


Unbundling remains low in Belgium although it increased significantly in 2006 (from 9,281 lines at the beginning of the year to 36,597 at the end). Competition in the DSL segment was driven mainly by bitstream and resale offers (+75,783 subscribers or +27.3%).

Decreasing from 77.8% to 74.3%, Belgacom's share of the retail DSL market remains high compared to that of its counterparts in most other West European countries.

4.2.4. Cable modem coverage and take-up

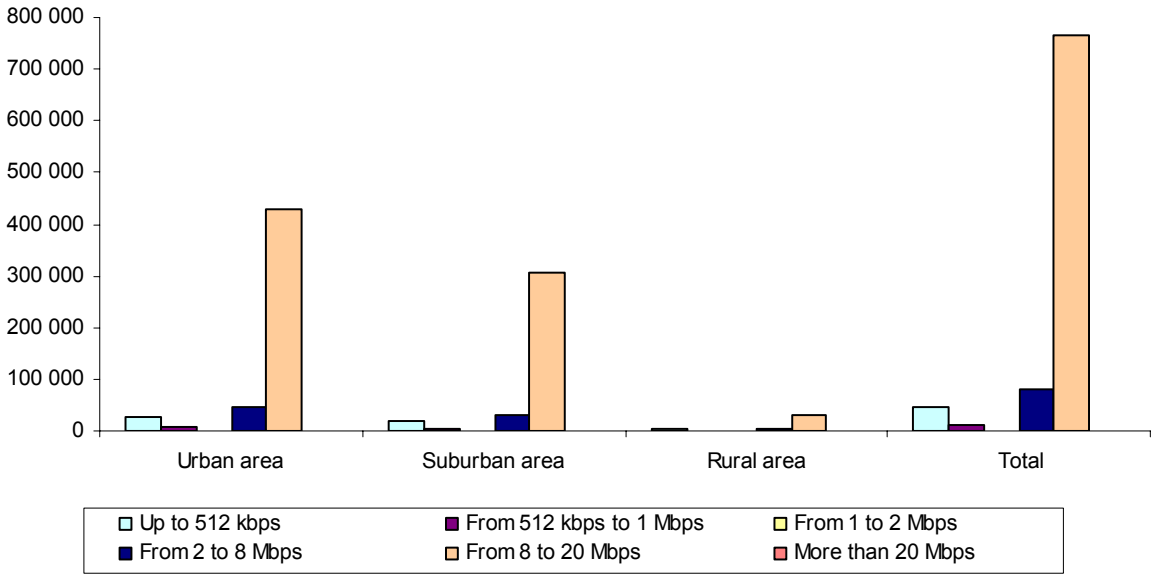
Coverage and penetration



Cable modem is available primarily in Flanders (where Telenet's network covers 99% of the population) and in Brussels. Following an abrupt slowdown in 2005, the cable modem market was again very dynamic in 2006 (+200,000 new subscribers or +28.7%).

In late 2006, Telenet announced it would acquire UPC Belgium.

Number of cable modem connections by download rate



Most cable modem users subscribe to download rates of 10 Mbps to 20 Mbps.

4.2.5. Other broadband access technologies

Wi-Fi

At the end of 2006, Belgacom provided services via several hundred hotspots in airports, train stations, hotels, restaurants, museums and parks. Telenet, which has taken over Sinfilo and signed a deal with Belgian railways and with Mobistar for the latter's customers to utilise its Wi-Fi network, now operates more than 1,000 hotspots across the country.

Estimates indicate a base of close to 2,000 hotspots in Belgium.

WLL/WiMAX

There were 5,500 WLL subscribers in Belgium at the end of 2006. ClearWire Belgium and Mac Telecom are the main operators; the local government of Wallonia also holds a WLL licence to provide services in the municipality of Charleroi.

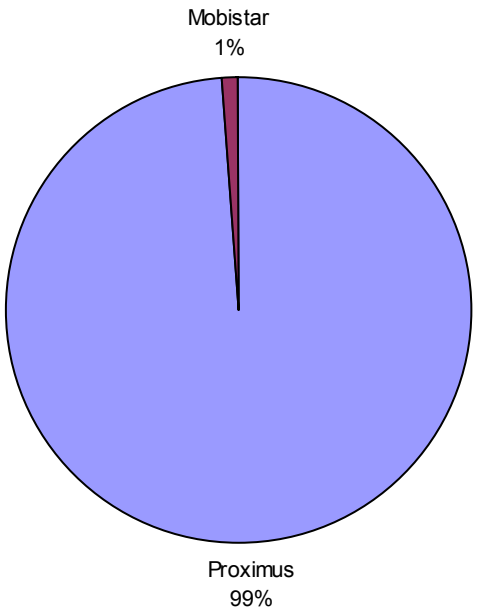
Cellular

The three Belgian cellular operators were awarded 3G licences in 2001 but they all asked for delays in meeting their coverage obligations. They began their trials in 2003 and Belgacom/Proximus opened commercial services to business users (data cards for laptops and PDAs) in May 2004, long before offering them to residential users (September 2005).

Although Proximus claims it had reached 80% coverage at the end of 2006, this relates to "UMTS+" including EDGE solutions. Mobistar's 3G coverage was estimated at 45% at the same date while BASE failed to achieve the minimum coverage requirement of 30%.

There were 106,200 3G customers in Belgium at the end of 2006, most of them subscribing to Proximus.

Breakdown of the 3G subscriber base* by operator (December 2006)



* Users with 3G handsets

4.3. Cyprus

4.3.1. Population

	Urban area	Suburban area	Rural area	National
Inhabitants	538,781	197,888	36,331	773,000
Share of total population	69.7%	25.6%	4.7%	100.0%

4.3.2. General broadband data

	12/02	12/03	12/04	12/05	12/06
DSL coverage (% of population)	0%	0%	-	70%	70%
DSL subscribers	0	0	15 ,760	43 ,500	60 ,934
DSL penetration (% of population)	0.0%	0.0%	2.0%	5.6%	7.8%
Cable modem coverage (% population)	0%	0%	0%	0%	-
Cable modem subscribers	0	0	0	0	314
Cable modem penetration (% population)	0.0%	0.0%	0.0%	0.0%	0.0%
FTTx subscribers	0	0	0	0	-
PLC subscribers	0	0	0	0	-
WLL subscribers	0	0	0	0	-
Satellite subscribers	0	0	0	0	0
Total	0	0	15 ,760	43 ,500	63 ,702
Total penetration (% population)	0.0%	0.0%	2.0%	5.6%	8.1%

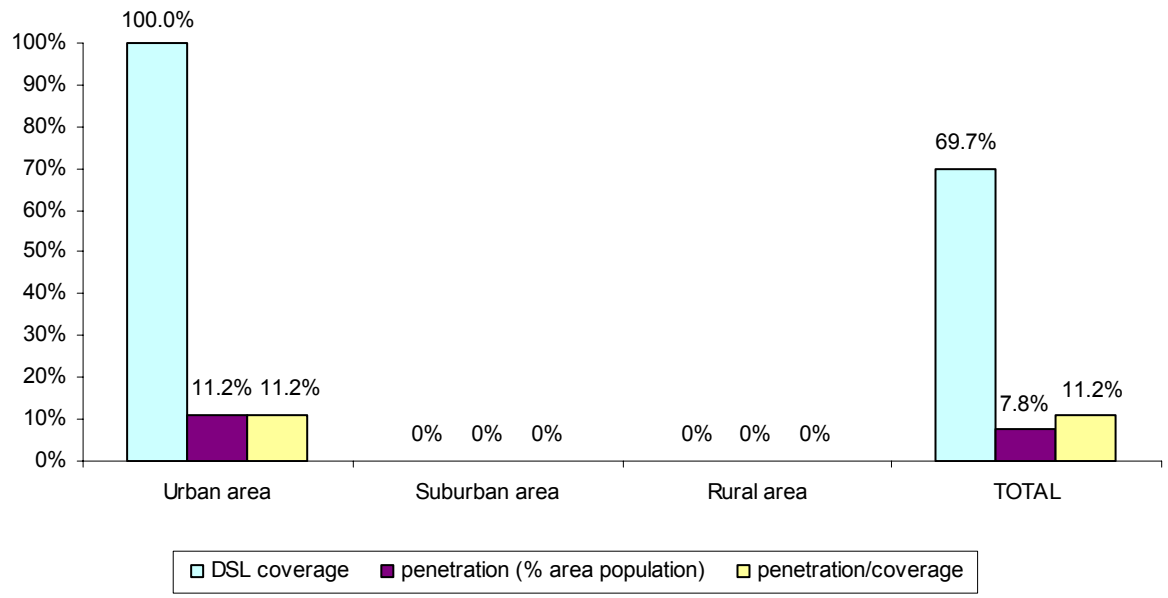
The broadband market in Cyprus is still limited (one of the lowest penetration in the EU-25, just ahead of Greece, Slovakia, Poland and Latvia) and built chiefly on DSL technology. Due to the limitations of the network infrastructure in Cyprus, broadband connection services are provided only in the urban areas. One of the limitations for broadband development in the past has been also the low price of dial-up Internet access (70,000 users at the end of 2005). But some changes were introduced in 2006:

- tariffs for fixed line telephony were increased substantially;
- unbundling was introduced, but with only little effect and bitstream offers do not yet exist;
- first cable modem connections were marketed;
- triple play offers were launched.

Cyta, the incumbent telco, controlled 95% of the broadband access market at the end of 2006. The first ever satellite services were introduced in 2007 and the government decided to award WiMAX licences (to begin operations in 2008) to encourage competition.

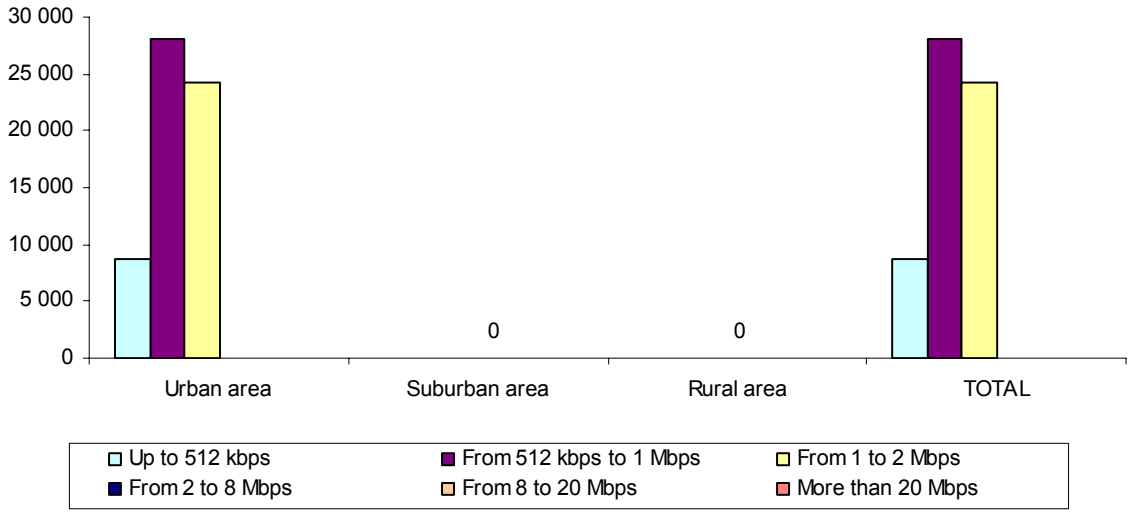
4.3.3. DSL coverage and take-up

Coverage and penetration



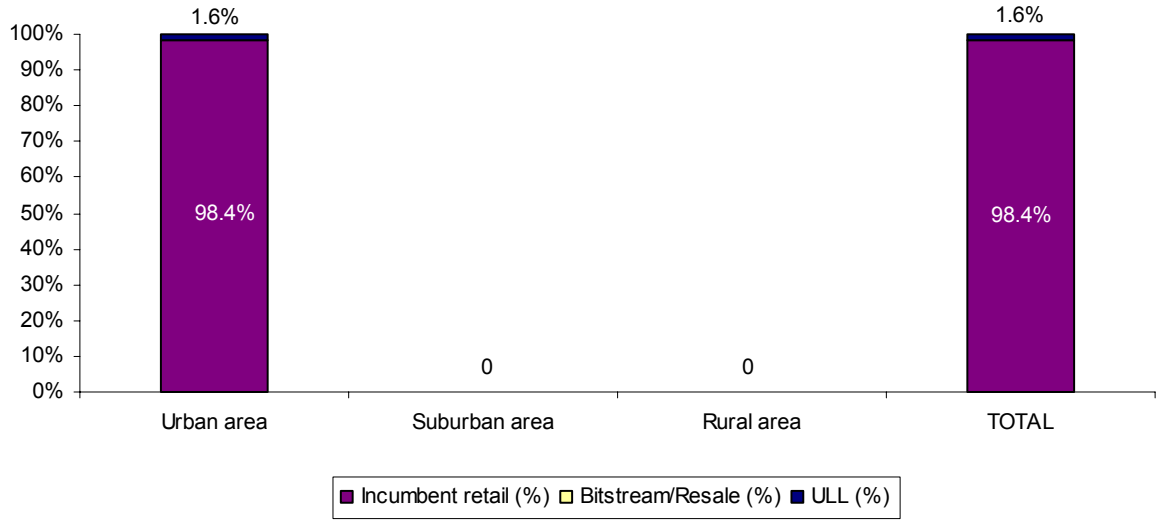
Broadband penetration in Cyprus for the year 2006 was still limited. New companies entered the market in 2007 (satellite services) and it is expected that the competition will drive down prices, bringing more Internet subscribers to the DSL services.

Number of DSL connections by download rate



Most DSL connections do not exceed download rates of 1 Mbps and deliver upstream speeds of up to 512 Kbps for residential users.

Percentage of DSL connections by type of provider



Incumbent telecommunication provider, CYTA, offers ADSL services through its ISP subsidiary, Cytanet. It also acts as a wholesaler to several local ISPs (SpiderNet, Avacom Net Services, LogosNet and Netway) but connections through unbundling offers have been marginal up to now.

4.3.4. Other broadband access technologies

Cable

Cablenet is a new Telephone-Television-Internet provider in the Cypriot market. The company initially marketed only TV services, and with the use of their new network infrastructure. Due to the difficult task of installing new infrastructure, progress was slow and limited to areas where demand is high (i.e. urban). In 2006, Cablenet launched Internet services on certain parts of its network and, although subscribers numbers are still quite low, the company's future looks promising.

WLL/WiMAX

Hotspot are developed in only a few public spaces such as cafes and airports, providing time restricted services to users that can subscribe through their mobile phones, using a texting-based registration procedure. Development on a global scale is not planned. At least five ISPs operate Wi-Fi technology: Ayza.net, NetHouse, Rflex, Cytanet and Thunderworx.

Cellular

Scancom Cyprus, a subsidiary of the Lebanese group Investcom Holding, is the most advanced cellular operator in terms of data services, although it was the second to enter the market (first operator was Cytamobile-Vodafone). It built up a GSM/GPRS/EDGE network and, on 20 December 2004, launched its first 3G offerings (on a trial basis). In response to Scancom's hasty rollout of next generation services, Cytamobile-Vodafone moved its own 3G rollout plans forward to the first half of 2005 (instead of 2006 as initially planned).

The first 3G services were introduced in 2005. However, the low availability of compatible 3G devices, combined with the high price for this service kept subscriber numbers down in 2006. Our estimates indicate 620 subscribers at the end of 2006, even though all major towns are covered by a 3G network.

4.4. The Czech Republic

4.4.1. Population

	Urban area	Suburban area	Rural area	National
Inhabitants	2,191,171	4,927,564	3,168,454	10,287,189
Share of total population	21.3%	47.9%	30.8%	100.0%

4.4.2. General broadband data

	12/02	12/03	12/04	12/05	12/06
DSL coverage (% of population)	-	-	-	75%	81%
DSL subscribers	0	7 ,272	105 ,000	279 ,853	494 ,570
DSL penetration (% of population)	0.0%	0.1%	1.0%	2.7%	4.8%
Cable modem coverage (% population)	-	2%	7%	24%	*30%*
Cable modem subscribers	17 ,100	18 ,180	60 ,000	132 ,944	216 ,000
Cable modem penetration (% population)	0.2%	0.2%	0.6%	1.3%	2.1%
FTTx subscribers	0	0	0	17 ,049	24 ,000
PLC subscribers	0	0	0	0	50
WLL subscribers	-	14 ,948	150 ,000	208 ,873	350 ,000
Satellite subscribers	-	-	-	4 ,000	4 ,000
Total	17 ,100	40 ,400	315 ,000	642 ,719	1 ,088 ,620
Total penetration (% population)	0.2%	0.4%	3.1%	6.3%	10.6%

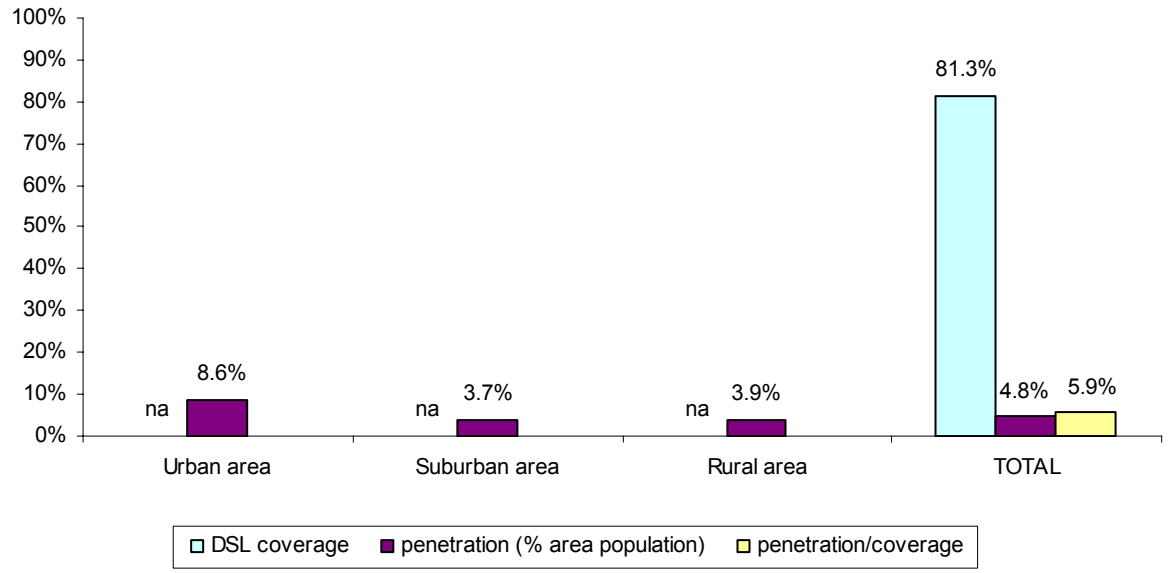
With 1,088,620 fixed broadband subscribers in the Czech Republic, or 10.6 subscribers per 100 inhabitants (just ahead of Hungary) the Czech broadband market has increased substantially over the past two years.

ADSL is the dominant technology and Telefonica O2 (former incumbent Cesky Telecom, purchased in 2005) still controls more than 80% of DSL connections: competitors (mainly GTS Novera, Volny, Tiscali) argue that wholesale prices are too high. Cable operators (UPC, Karneval Media) introduced triple play services in 2006; as did Telefonica 02 and several other DSL providers, including IPTV in their packages.

WLL is particularly successful in the Czech Republic with the number of Wi-Fi subscribers representing close to 1/3 of the total broadband user base.

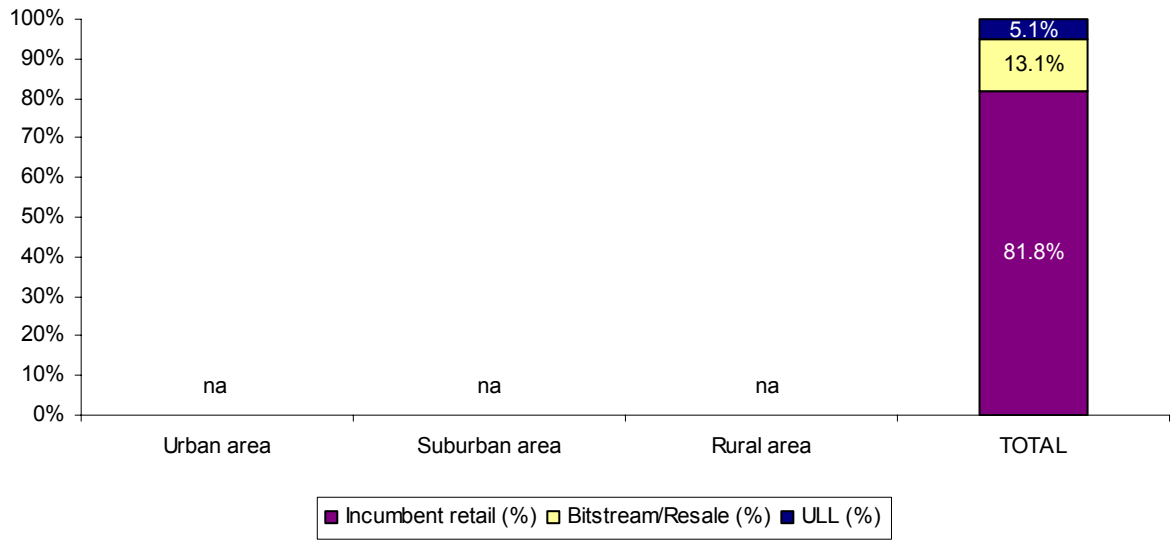
4.4.3. DSL coverage and take-up

Coverage and penetration



As of 31 December 2006, there were 494,570 subscribers connecting to the Internet via DSL in the Czech Republic – DSL being available on approximately 90% of Telefónica O2´s local exchanges (but serving only 81% of the population).

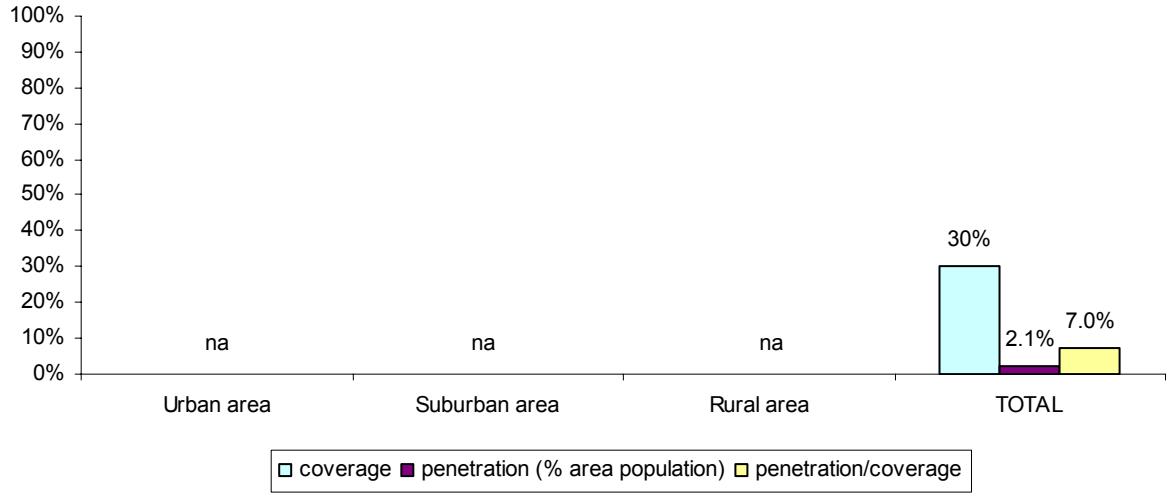
Number of DSL connections by type of provider



Retail DSL connections from Telefónica O2 represent just over 80% of total DSL connections. Connections through bitstream or resale offers account for more than 13% (marketed mainly by regional operators) while LLU is a still limited phenomenon (5.1%). Three operators use Local Loop Unbundling: Telenor, Radiokomunikace and, most recently, Czech On Line.

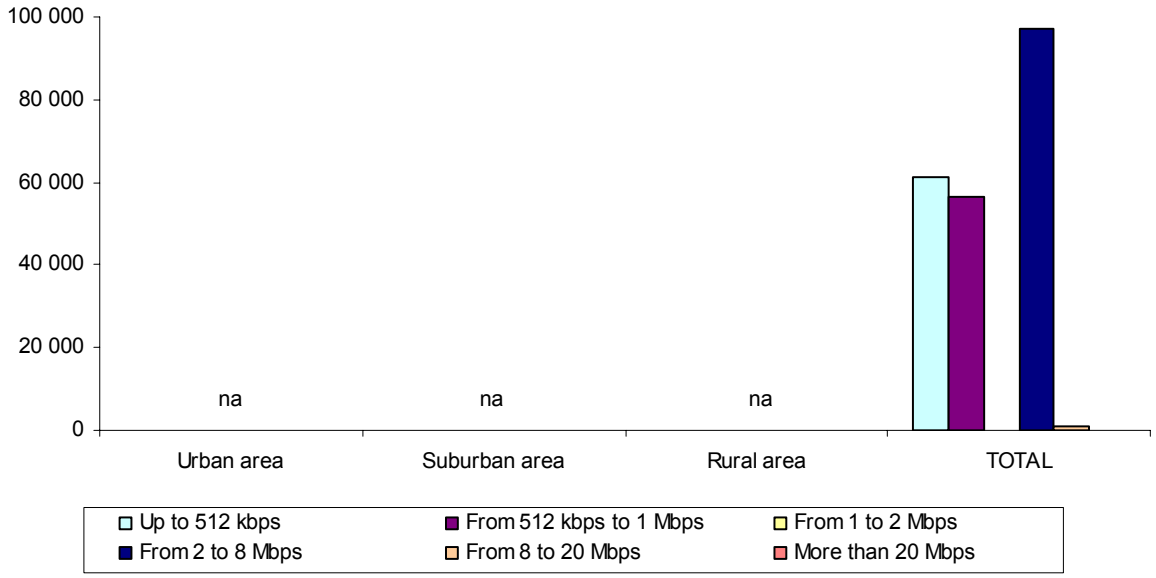
Cable modem coverage and take-up

Coverage and penetration



As of 31 December 2006, there were a total 216,000 cable modem subscribers in the country, having increased by around 83,000 since the previous year. The subscriber base is growing significantly, particularly as the number of localities with access to cable continues to rise.

Number of cable modem connections by download rate



4.4.4. Other broadband access technologies

FTTx

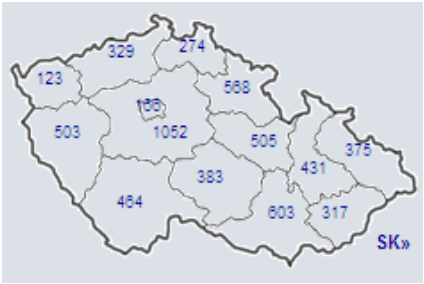
As of 31 December 2006, 24,000 subscribers were accessing the Internet via FTTx technology – the majority of them being businesses; the cost of installing fibre access being cost-prohibitive for residential connection.

The companies active in the market are T-Systems PragoNet, Casablanca INT, ČD Telematika, Dial Telecom, net4net, Sloane Park and Trioptimum.

Wi-Fi

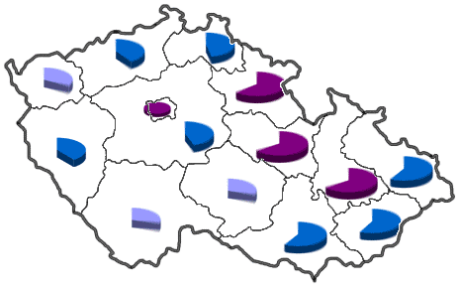
As of 31 December 2006, there were some 350,000 **Wi-Fi** customers in the Czech Republic. As former Český Telecom postponed the launch of ADSL for economic reasons, Wi-Fi could develop as an alternative to high-speed Internet service. Hundreds of providers were registered across the country.

Number of Wi-Fi providers in the regions



Source: www.Internetprovsechny.cz

Share of municipalities with wireless access in their region



Source: www.Internetprovsechny.cz

WLL/WiMAX

WiMAX technology (in the 3.5 GHz band) is available mainly in midsize cities (in bigger cities there can be a relative lack of available frequencies, and in small cities WiMAX would not be cost-effective), and dedicated to business users.

Satellite

This form of broadband Internet access does not play an important role in the residential market. Because of its high price, it is used primarily by medium-size and big businesses, and by companies in those regions where no other solution is available. As of 31 December 2006, there were 4,000 customers using fixed satellite network technology for their Internet access.

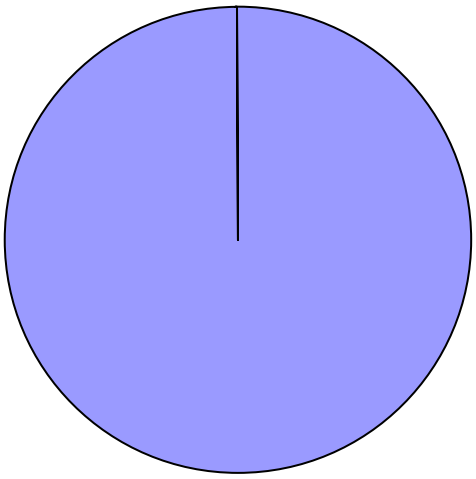
Cellular

Mobile broadband Internet access was given a major boost by the August 2004 launch of data services on the CDMA mobile network, operating in the 450 MHz band. This triggered the first wave of broadband Internet broadcasting, which was also enabled in part by the deployment of EDGE technology on the existing GSM network.

As of 31 December 2005, 70,342 subscribers were connected to broadband Internet through a mobile technology.

As of 31 December 2006, neither the Czech Ministry of Informatics nor the Czech Telecommunication Office had published figures on this sector but, considering mobile operators' customer growth rates, there could be more than 150,000 subscribers using mobile technologies for broadband Internet connection.

Breakdown of the 3G subscriber base* by operator (December 2006)



Telefonica 02
100%

* Users with 3G handsets

4.5. Denmark

4.5.1. Population

	Urban area	Suburban area	Rural area	National
Inhabitants	1,650,466	2,146,151	1,650,466	5,447,084
Share of total population	30.3%	39.4%	30.3%	100.0%

4.5.2. General broadband data

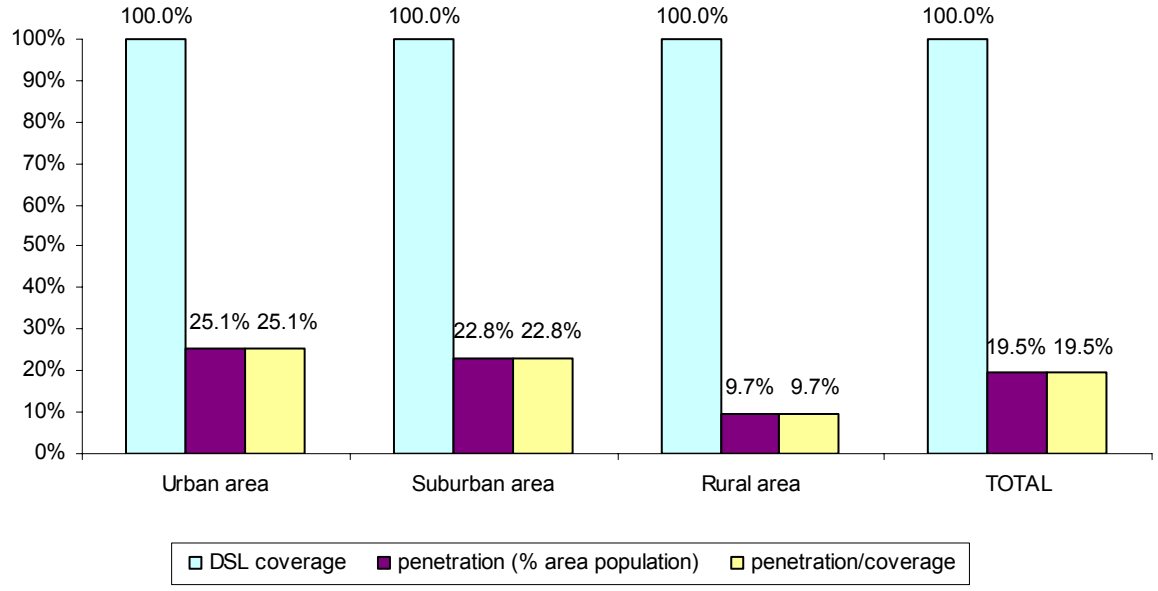
	12/02	12/03	12/04	12/05	12/06
DSL coverage (% of population)	95%	95%	95%	100%	100%
DSL subscribers	307 ,000	473 ,481	633 ,459	836 ,785	1 ,063 ,227
DSL penetration (% of population)	5.7%	8.8%	11.7%	15.5%	19.5%
Cable modem coverage (% population)	50%	50%	60%	60%	60%
Cable modem subscribers	133 ,548	243 ,602	343 ,664	462 ,441	496 ,227
Cable modem penetration (% population)	2.5%	4.5%	6.4%	8.6%	9.1%
FTTx subscribers	18 ,000	42 ,400	85 ,000	117 ,028	131 ,230*
PLC subscribers	0	0	0	92	99
WLL subscribers	1 ,485	2 ,332	3 ,019	15 ,184	20 ,124**
Satellite subscribers	0	0	0	111	149
Total	460 ,033	761 ,815	1 ,065 ,142	1 ,431 ,641	1 ,711 ,056
Total penetration (% population)	8.5%	14.1%	19.7%	26.5%	31.4%

* including 109,609 LAN subscribers (mainly FTTB + Ethernet)
** including 5,939 Wi-Fi and 12,341 WiMAX subscribers

With over 1.7 million customers and a penetration rate of 31.4% at the end of 2006, the Danish broadband market is the most advanced of the EU-25 and one the globe's leading markets.
DSL accounts for 62% of broadband connections and the incumbent carrier, TDC, still has a 70% share of this segment. All local exchanges are DSL-equipped, but eligibility stands at only 95% due to technical constraints (distance, quality of the copper pair…). TDC is also active in the cable segment through its subsidiary, TDC Kabel TV (70% of the cable TV subscriber base).
The main competitors, which have a combined share of only 20% of broadband connections, are Cybercity, Telia Denmark and Tele2 (DSL), Telia Stofa and Arrownet (cable) and several WiMAX operators (Danske Telecom, mobile operator Sonofon, bulterNetworks).

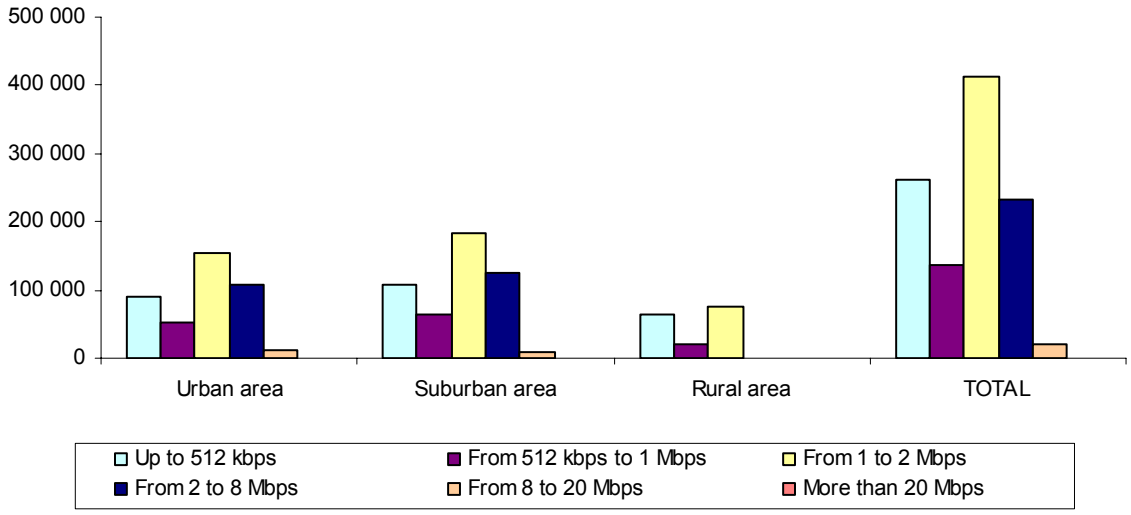
4.5.3. DSL coverage and take-up

Coverage and penetration

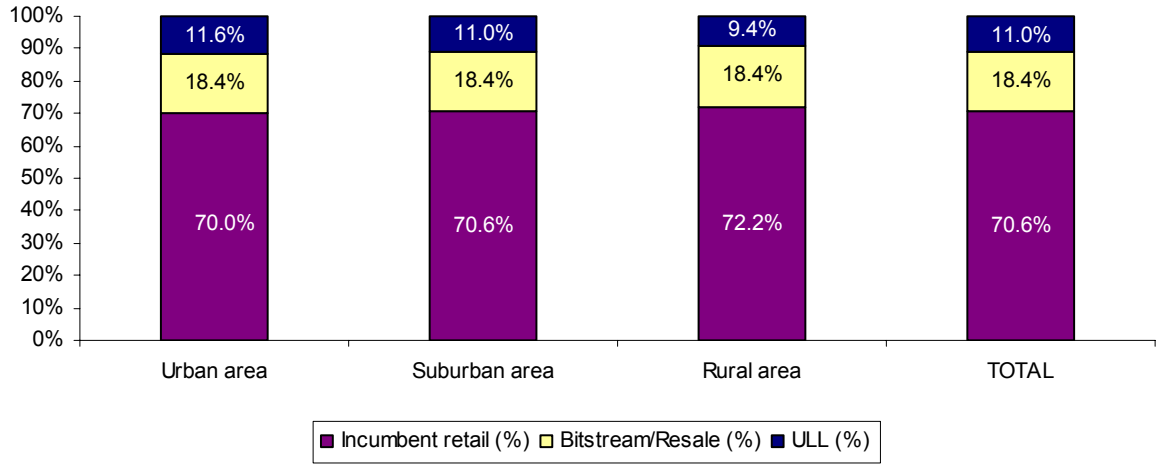


DSL coverage is very high in all parts of Denmark, although take-up is still far higher in urban and suburban areas than in rural areas.

Number of DSL connections by download rate

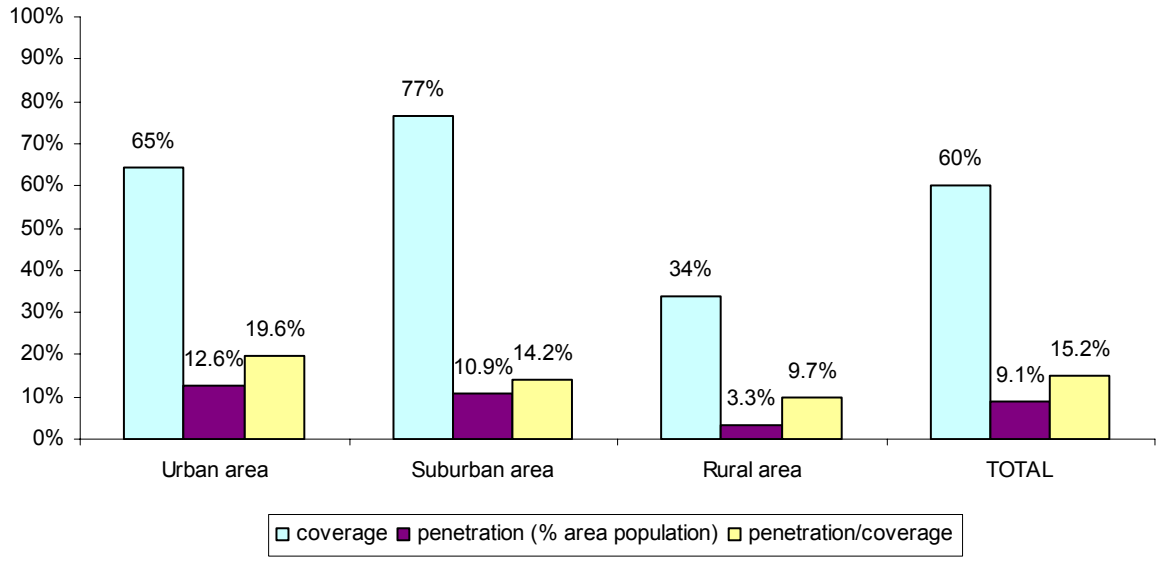


Number of DSL connections by type of provider



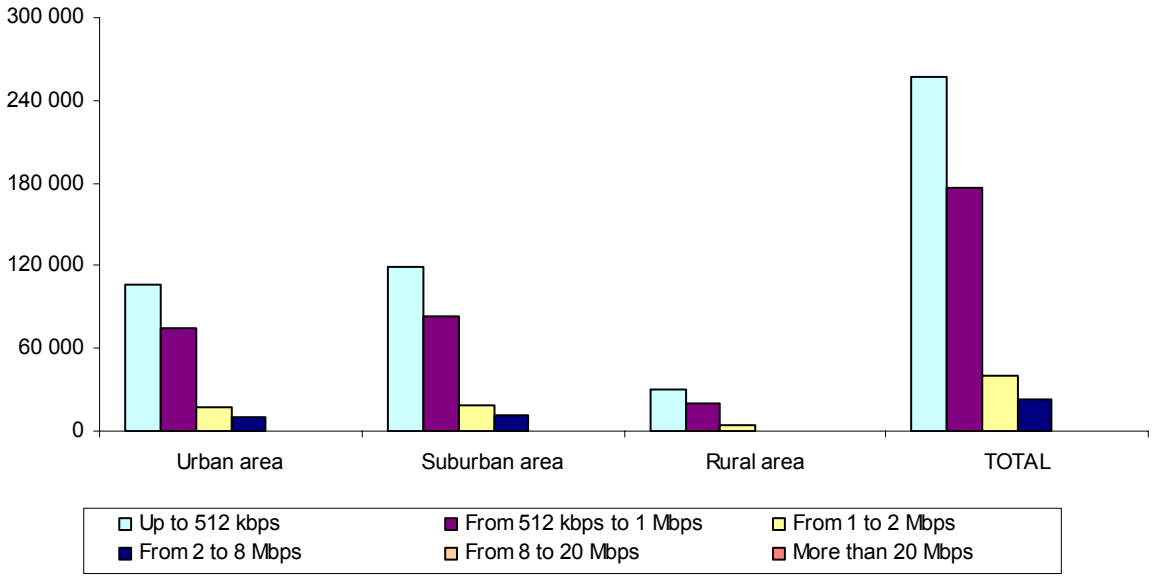
4.5.4. Cable modem coverage and take-up

Coverage and penetration



Cable modem subscriber base has increased only little compared to DSL. The subsidiary of the incumbent operator, TDC Kabel, holds over 40% of the cable modem market; the regulator is looking for ways to make competition more effective in this segment.

Number of cable modem connections by download rate



4.5.5. Other broadband access technologies

FTTx

FTTH and FTTC networks are growing rapidly in Denmark.

	12/02	12/03	12/04	12/05	12/06
FTTx subscribers	18 000	42,400	85,000	117,028	131,230

Wi-Fi

Wi-Fi has been relatively successful in Denmark. In addition to established operators such as TDC, the market is now populated by new entrants such as Danske Telecom, a Debitel subsidiary, which has launched services, and prominent Wi-Fi player, Hotspot Networks.

At the end of 2006, the number of Wi-Fi subscribers totalled 5,939.

WLL/WiMAX

Overall state of WLL in Denmark:

	12/02	12/03	12/04	12/05	12/06
WLL coverage *Percentage of the population covered* (3.5 GHz)	close to 90%	close to 90%	close to 90%	close to 90%	close to 90%
WLL subscribers	1 ,485*	2 ,332	3,019	7,479	14,185

*Estimate

WLL penetration is low in Denmark. Sonofon is the leading market player, but there are other WLL providers in Denmark:

- Sonofon (3.5 GHz + 26 GHz),
- bulterNetworks (26 GHz),
- Danske Telecom (3.5 GHz + 26 GHz),
- Arrownet (10 GHz).

At the end of 2006, the number of WLL and WIMAX subscribers were 12,341 for WiMAX and 1,844 for WLL, in other words, WLL use is decreasing while WiMAX is increasing significantly.

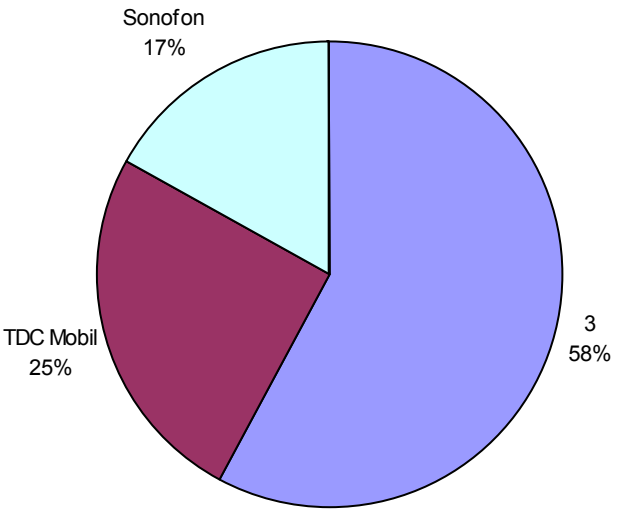
Satellite

Denmark is home to a very small base of satellite Internet subscribers, numbering only 149 at the end of 2006.

Cellular

All four existing mobile operators were awarded 3G licences in September 2001. Hutchison's Hi3G launched the country's first 3G service in October 2003, and was the country's sole provider of 3G services until 7 November 2005, which marked the launch of TDC's 3G voice and data services. Meanwhile, in December 2005 Sonofon won the re-auction of Orange's 3G concession, returned by Telia earlier in the year. There have been encouraging signs for 3G operators, in the second half of 2006, two out three new mobile subscribers signed up for 3G and the total number of 3G subscribers increased by 68% to 326,927: coverage at the end of 2006 reached 50% of population..

Breakdown of the 3G subscriber base* by operator (December 2006)



* Users with 3G handsets

4.6. Estonia

4.6.1. Population

	Urban area	Suburban area	Rural area	National
Inhabitants	932,320		412,364	1,344,684
Share of total population	69.3%	0.0%	30.7%	100.0%

4.6.2. General broadband data

	12/02	12/03	12/04	12/05	12/06
DSL coverage (% of population)	-	-	-	90%	>90%
DSL subscribers	-	-	70 ,000	85 ,000	102 ,000
DSL penetration (% of population)	-	-	5.2%	6.3%	7.6%
Cable modem coverage (% population)	-	-	-	53%	*53%*
Cable modem subscribers	-	-	45 ,000	53 ,000	63 ,000
Cable modem penetration (% population)	-	-	3.3%	3.9%	4.7%
FTTx subscribers	-	-	8 ,000	30 ,000	40 ,000
PLC subscribers	0	0	0	0	0
WLL subscribers	-	-	4 ,000	8 ,000	15 ,000
Satellite subscribers	0	0	0	0	0
Total	-	-	127 ,000	176 ,000	220 ,000
Total penetration (% population)	-	-	9.4%	13.1%	16.4%

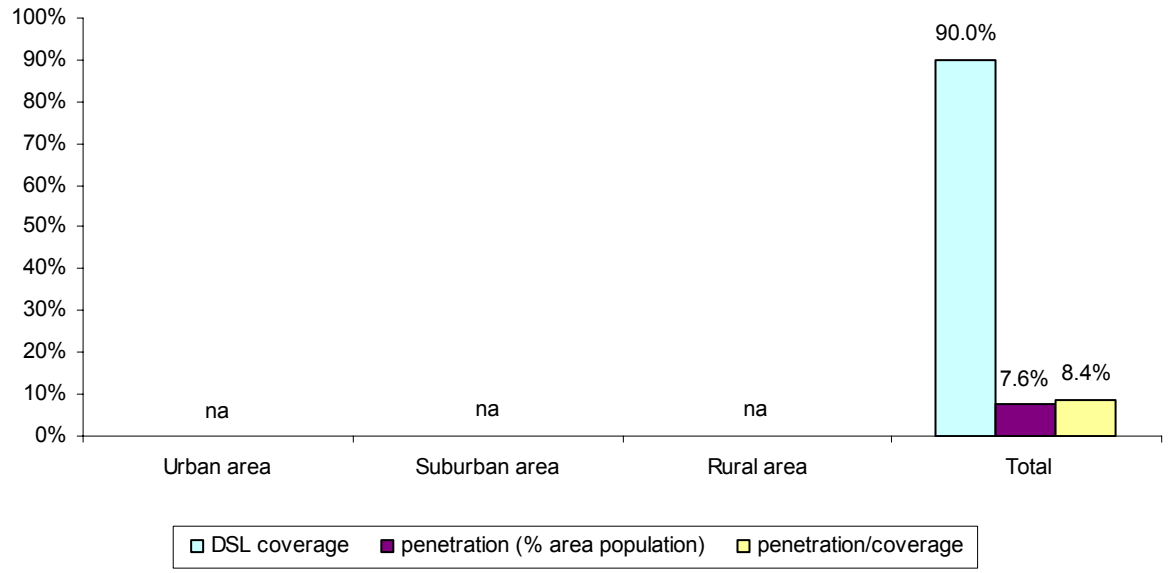
With a 16.4% penetration rate at the end of 2006, Estonia has made swift progress in broadband penetration, due to low prices and public support (eg. to expand access in rural areas), and is one the most advanced countries among the new Member States.

Various access technologies are available. ADSL accounts for just over 40% of connections and cable modem for close to 30% but the Estonian broadband market has been characterised over the past two years by the rapid increase of FTTx connections which represented over 18% of total at the end of 2006; in relative terms, this is the highest percentage in Europe.

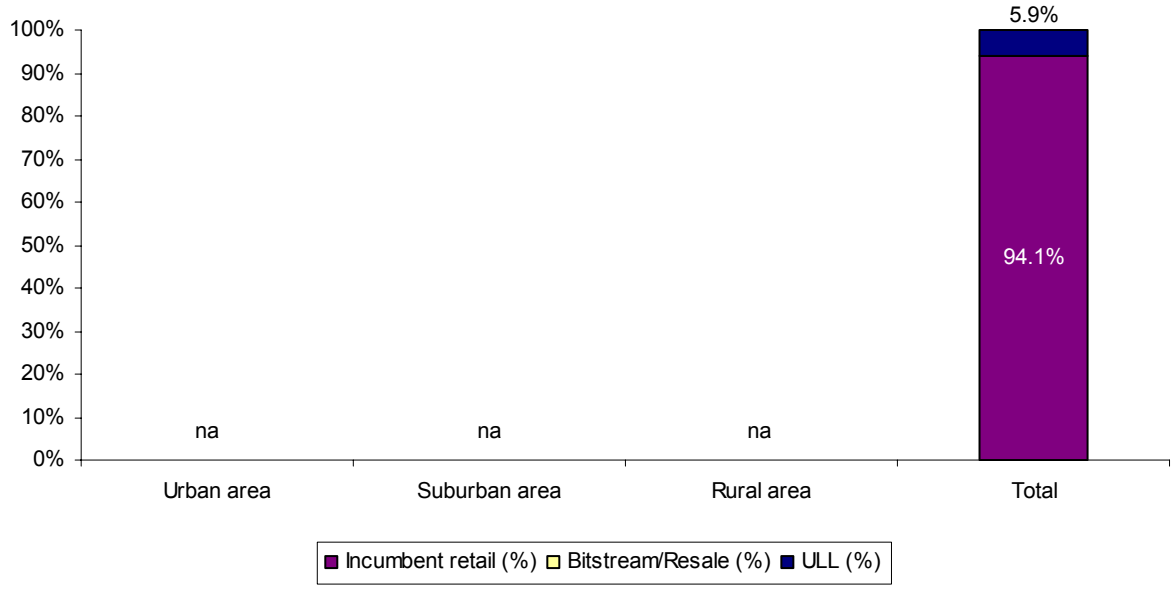
In the ADSL segment, the incumbent operator, Elion, still holds a 95% market share, as competitors complained that wholesale prices (unbundling only; bitstream or resale offers do not exist) are too high. Starman leads the cable market.

4.6.3. DSL coverage and take-up

Coverage and penetration

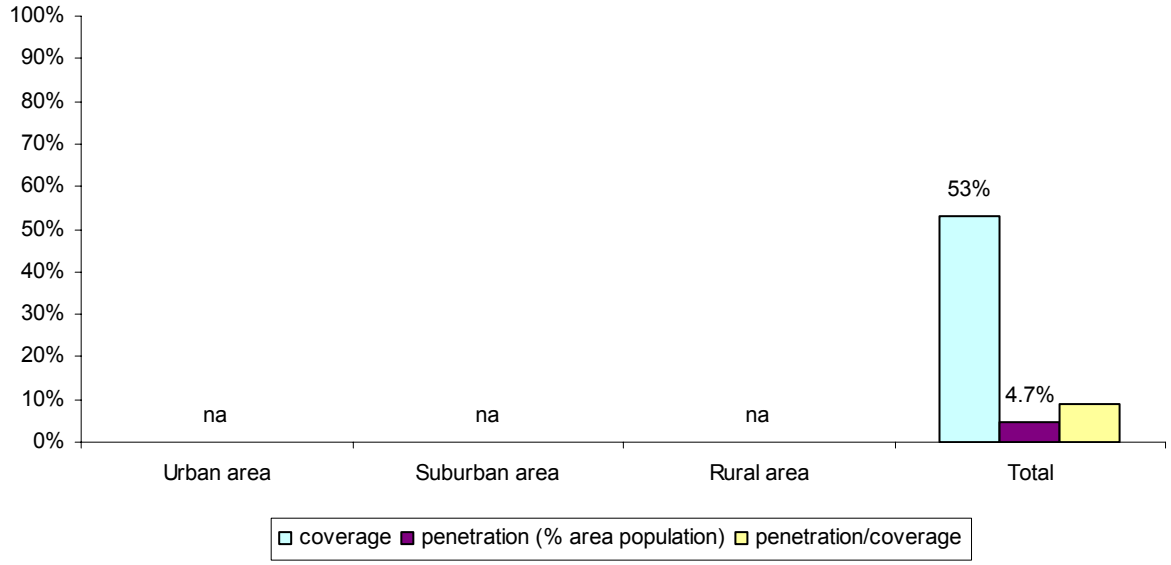


Number of DSL connections by type of provider



4.6.4. Cable modem coverage and take-up

Coverage and penetration



In 2006, 27 companies operated in the cable distribution services market, the largest ones being Starman, STV and Elion. 13 companies, which have notified the Communications Board for providing cable distribution service, do not actually provide the service. The lion's share (over 92%) of the cable distribution services market is controlled by Starman, STV and Elion, which entered the market in 2005. These are also the companies that are marketing cable TV along with broadband access.

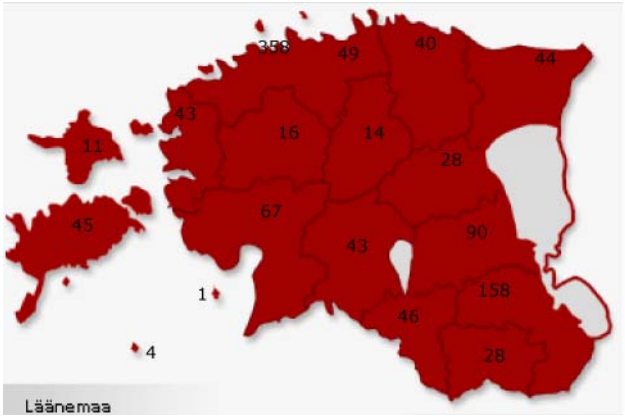
As of the end of 2006, the number of homes passed totalled 541,000, a 25% increase compared to 2005, with Elion's arrival on the scene having marked a shift in market share.

4.6.5. Other broadband access technologies

Wi-Fi

The first Wi-Fi hotspots were launched in Spring 2001. At the end of 2006, there were close to 800 Wi-Fi hotspots covering Estonia, most of them in Tallinn region.

Number of Wi-Fi hotspots by region

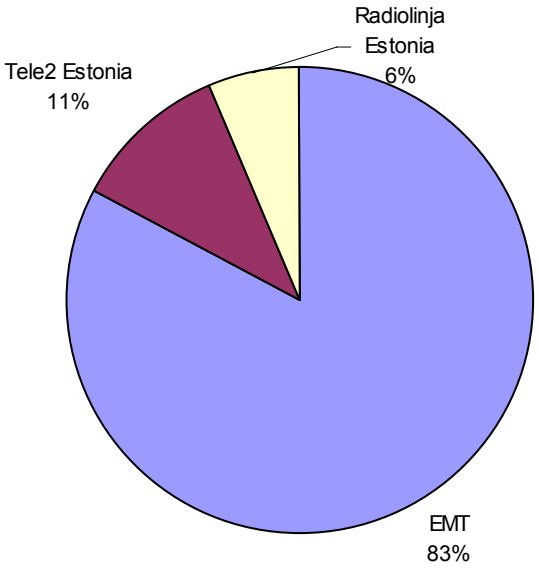


Much of this connectivity, especially in urban areas, is provided free-of-charge by private businesses like cafés, restaurants or gas stations as an additional customer service. However, there are a number of wISPs which offer flat rate access packages to subscribers.

Cellular

EMT, Tele2 and Elisa were awarded ten-year UMTS licences in summer 2003. EMT was the first to test a trial 3G network in September 2003, but waited until late October 2005 to launch commercial 3G services in the Tallinn area. At the end of 2006, 3G network was extended to Tartu and Parnu areas, with a number of subscribers estimated to be 5 550.

Breakdown of the 3G subscriber base* by operator (December 2006)



* Users with 3G handsets

4.7. Finland

4.7.1. Population

	Urban area	Suburban area	Rural area	National
Inhabitants	1,832,814	1,570,983	1,832,814	5,236,611
Share of total population	35.0%	30.0%	35.0%	100.0%

4.7.2. General broadband data

	12/02	12/03	12/04	12/05	12/06
DSL coverage (% of population)	87%	88%	89%	90%	92%
DSL subscribers	220 ,000	405 ,600	658 ,700	1 ,018 ,700	1 ,232 ,800
DSL penetration (% of population)	4.2%	7.8%	12.7%	19.5%	23.4%
Cable modem coverage (% population)	-	30%	32%	33%	*35%*
Cable modem subscribers	54 ,000	85 ,400	112 ,400	148 ,900	181 ,100
Cable modem penetration (% population)	1.0%	1.6%	2.2%	2.8%	3.4%
FTTx subscribers	0	100	2 ,700	2 ,700	8 ,400
PLC subscribers	100	600	900	800	800
WLL subscribers	0	2 ,600	3 ,300	3 ,500	4 ,900
Satellite subscribers	70	90	120	0	0
Total	274 ,170	494 ,390	778 ,120	1 ,174 ,600	1 ,428 ,000
Total penetration (% population)	5.3%	9.5%	14.7%	22.3%	27.1%

With 27.1 subscribers per 100 inhabitants, Finland ranks 3rd among the EU-25 (behind Netherlands and Denmark, and behind Norway and Iceland outside the EU-25) in terms of broadband penetration.

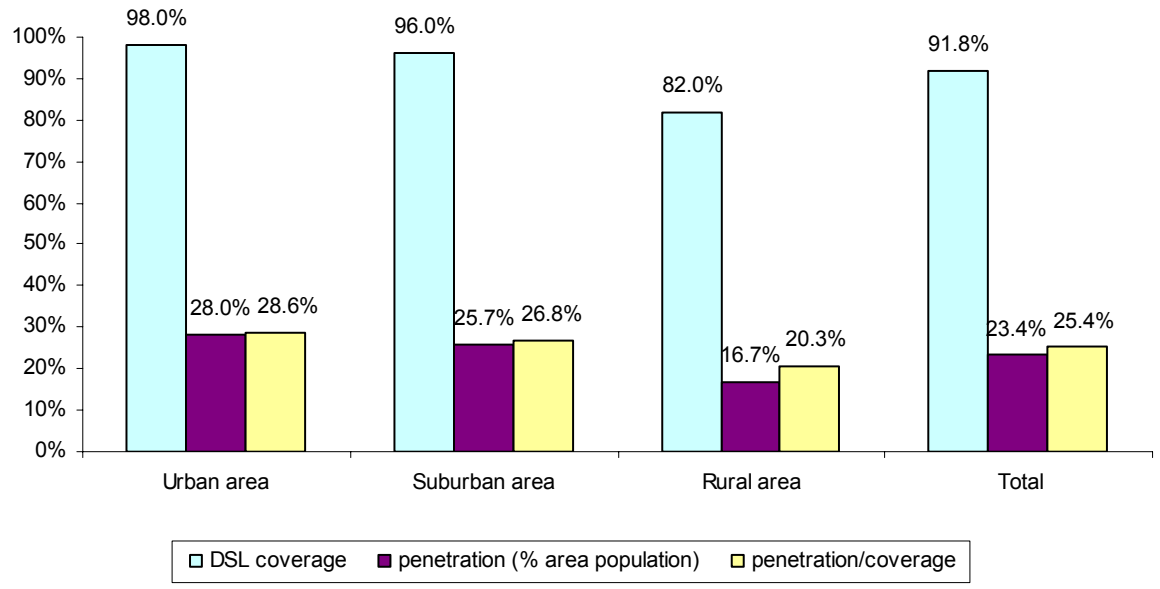
The strong development of broadband in Finland is due chiefly to the early introduction of broadband technologies and competition enablers (xDSL in 1994, unbundling in 1997), along with continuous government support: the National Broadband Strategy, launched in 2004, aims to have more than 90% of all Internet connections over broadband by the end of 2007, with average download speeds of 8 Mbps.

The Finnish market continues to be dominated by DSL, which is available to 92% of the population and accounted for 86% of total broadband connections at the end of 2006. Elisa, Finnet and TeliaSonera Finland, the 3 "incumbent" operators, provide DSL services through their own lines but alternative DSL operators could control more than 30% of the market, despite claims that wholesale offers are too expensive.

Cable modem is far less advanced, though there are numerous cable TV operators in Finland (more than 50 including Telia Sonera and Elisa). To improve competition, the Finnish government has recently encouraged WiMAX initiatives, particularly for covering remote regions.

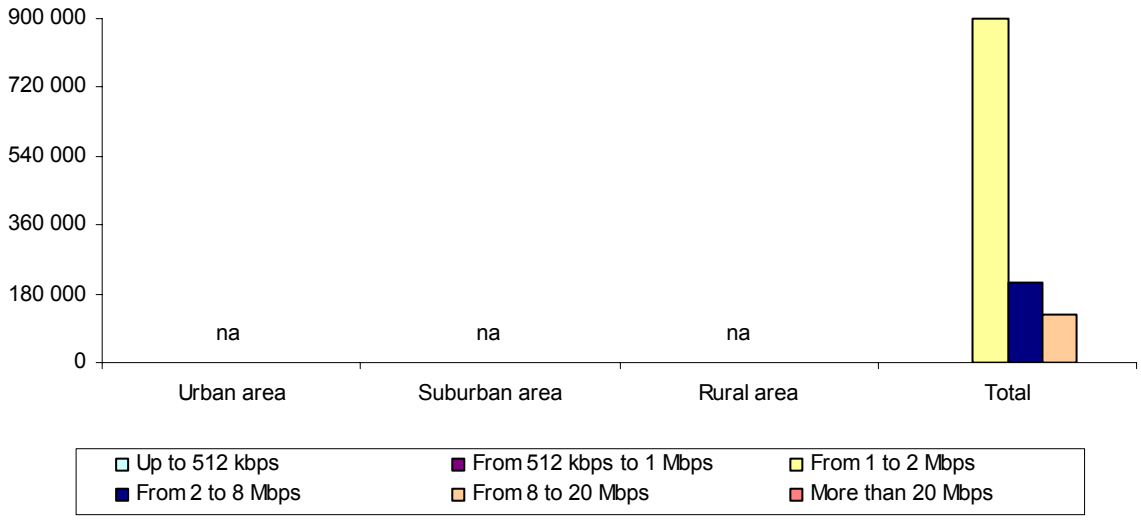
4.7.3. DSL coverage and take-up

Coverage and penetration



DSL coverage in urban areas totals close to 100%, whereas in sparsely-populated areas coverage is still only around 82%. As a result, municipalities are providing partial funding to extend coverage in rural areas.

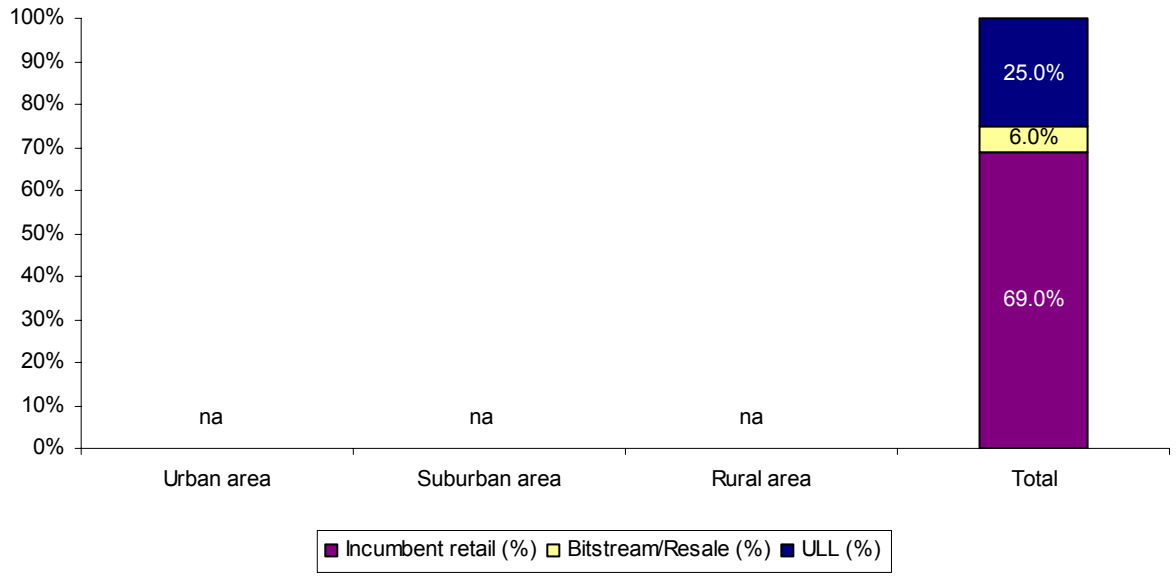
Number of DSL connections by download rate



Because no data is available from operators, we have to rely on figures from Ficora, the national regulatory authority. They report that 27% of all broadband subscriptions (DSL and cable) had a download rate of 2 Mbps or more, and 10% a download rate of 8 Mbps or more.

Since DSL dominates the market, the figures are probably reasonably accurate for DSL.

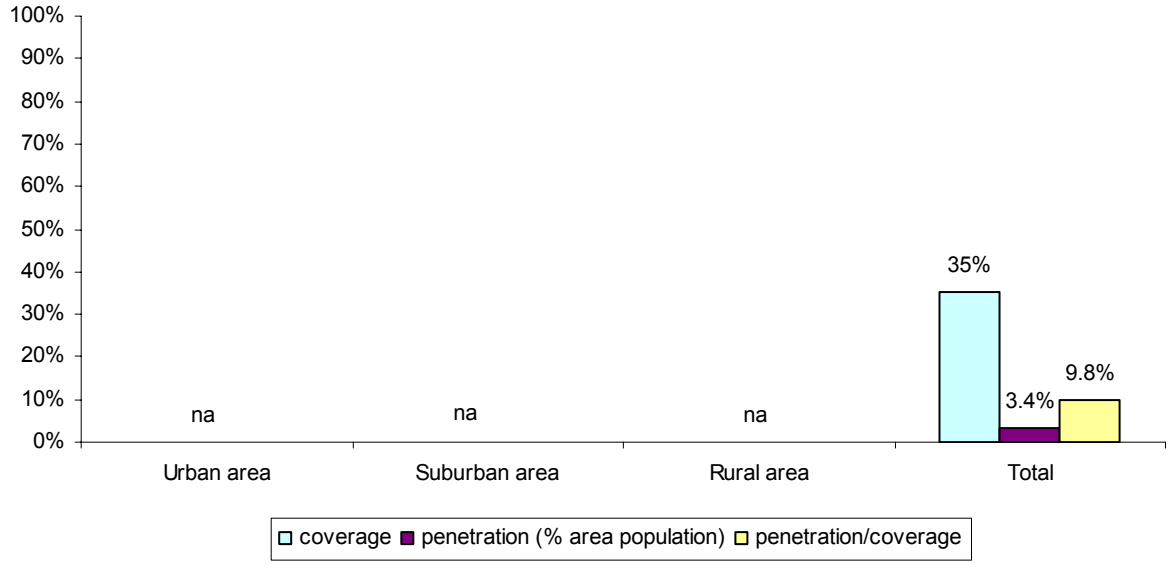
Percentage of DSL connections by type of provider



Due to the Finnish market structure, three telcos are considered incumbent operators: Elisa, Finnet and TeliaSonera Finland. They still control 69% of the retail DSL market (69.6% at the end of 2005) which means that the wholesale market share has been stable; however, unbundling is gaining ground while the share of bitstream/resale offers is decreasing (from 10% at the end of 2005 to % at the end of 2006).

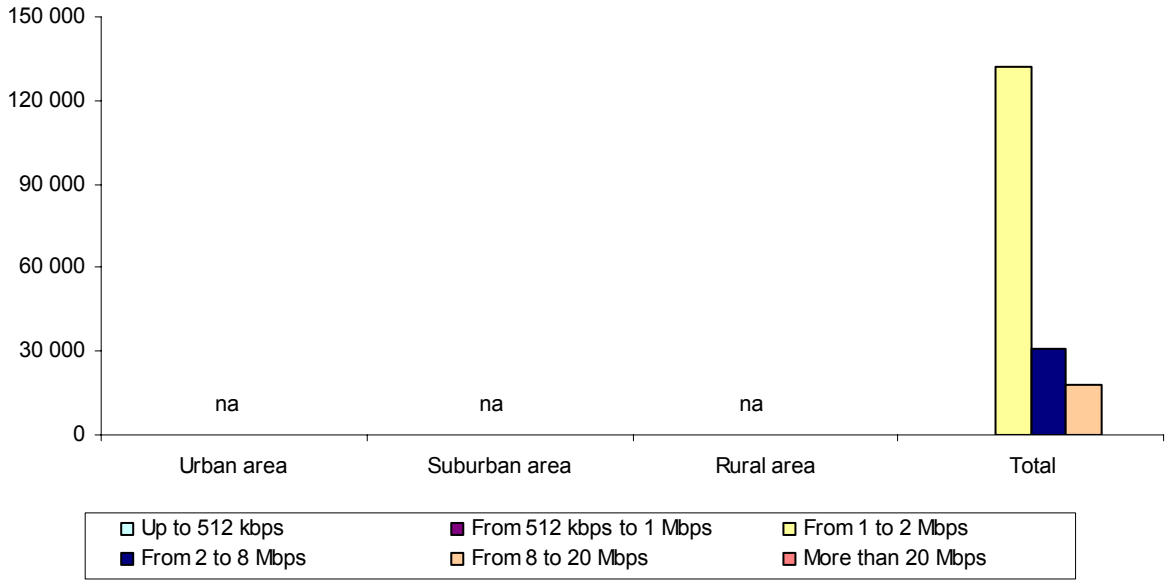
4.7.4. Cable modem coverage and take-up

Coverage and penetration



35% of the Finish population can be covered by cable modem. Cable modem is available primarily in urban areas.

Number of cable modem connections by download rate



Because no data is available from operators, we have to rely on national figures from Ficora, the regulation authority (see comments in the DSL section).

4.7.5. Other broadband access technologies

PLC

Powerline access does not play a major role in the Finnish broadband market and the number of subscriptions saw little development in 2006. Powerline services' coverage is estimated at over 10,000 households in Finland. The Finnish regulator estimates that less than 10% of these, i.e. only 800 households, were actually subscribing to PLC services at the end of 2006. The number is unchanged from the end of 2005.

Wi-Fi

The exact number of hotspots is not known, but the number of WLAN broadband connections was 2,800 at the end of Q1 2007. This includes the hotspots, but also "normal, dedicated" subscriptions using WLAN technology (although those are probably quite rare).

WLL/WiMAX

The WLL market in Finland has failed to develop. Among the companies that were awarded a WLL licence, most withdrew from the market at a very early stage, including Formus Communications, Callahan Broadband, Firstmark Communications and Advanced Radio Telecom. Others began offering commercial services, e.g. Suomi Communications, but later withdrew from the market as well. Not all WLL licences were returned to the regulator, however, and at end of 2005 Finland was home to a base of 3,200 WLL subscribers.

The market appeared to pick up a little in 2006, as the number of subscribers at the end of the year had increased by more than 50%, to a total of 4,900. However, the latest figures for Q1 2007 suggest a decline, even when compared to the figures from 2005.

Satellite

Satellite Internet access does not play a major role in the Finnish broadband market. Some international satellite operators (e.g. Bentley Telecom) cover Finland as well, but have few customers there: a base of only 120 Internet via satellite subscribers by the end of 2004.

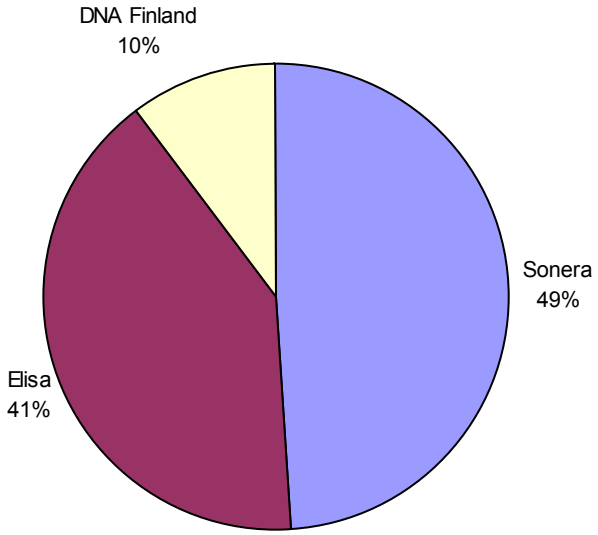
Cellular

While TeliaSonera, Elisa and DNA had either launched commercial services or deployed trial UMTS networks by mid-2005, Tele2 and its Suomen 3G division had failed to build out any 3G infrastructure at all, despite having received a government warning in 2004 that it risked losing its concession if it did not meet minimum rollout requirements. In June 2005 the government followed through with its change and revoked Suomen 3G's licence. Two months later, Tele2 announced it would leave the Finnish market altogether. DNA launched its 3G network in metropolitan Helsinki, Tampere and Lahti in December 2005, having awarded Ericsson a contract to roll out the first phase of its network in July that year.

3G coverage varies depending on the operator. At the end of 2006, it was around 40%-50% for each of the three MNOs. Cumulatively it might be a little more, although the operators are largely covering the same areas. Previous estimates of 65% coverage were therefore probably a little optimistic and a 60% population coverage at the end of 2006 is certainly more accurate.

The exact number of 3G subscriptions is not known, but according to a study by the Ministry, there were roughly 530,000 3G capable handsets in Finland at the end of 2006.

Breakdown of the 3G subscriber base* by operator (December 2006)



* Users with 3G handsets

4.8. France

4.8.1. Population, Households and Business Units

	Urban area	Suburban area	Rural area	National
Inhabitants	33,579,903	15,027,081	14,279,216	62,886,200
Share of total population	53.4%	23.9%	22.7%	100.0%

4.8.2. General broadband data

	12/02	12/03	12/04	12/05	12/06
DSL coverage (% of the population)	-	79%	91%	96%	98%
DSL subscribers	1 ,411 ,700	3 ,262 ,800	6 ,245 ,795	8 ,777 ,215	11 ,877 ,557
DSL penetration (% of the population)	2.3%	5.4%	10.1%	14.1%	18.9%
Cable modem coverage (% population)	-	26%	26%	26%	26%
Cable modem subscribers	282 ,992	393 ,000	496 ,568	566 ,400	700 ,000
Cable modem penetration (% population)	0.5%	0.6%	0.8%	0.9%	1.1%
FTTx subscribers	0	0	500	6 ,800	14 ,000
PLC subscribers	0	0	0	0	<800
WLL subscribers	-	610	1 ,200	1 ,200	1 ,200
Satellite subscribers	-	650	1 ,000	1 ,000	1 ,000
Total	1 ,694 ,692	3 ,657 ,060	6 ,745 ,063	9 ,352 ,615	12 ,594 ,557
Total penetration (% population)	2.8%	6.0%	11.0%	15.0%	20.0%

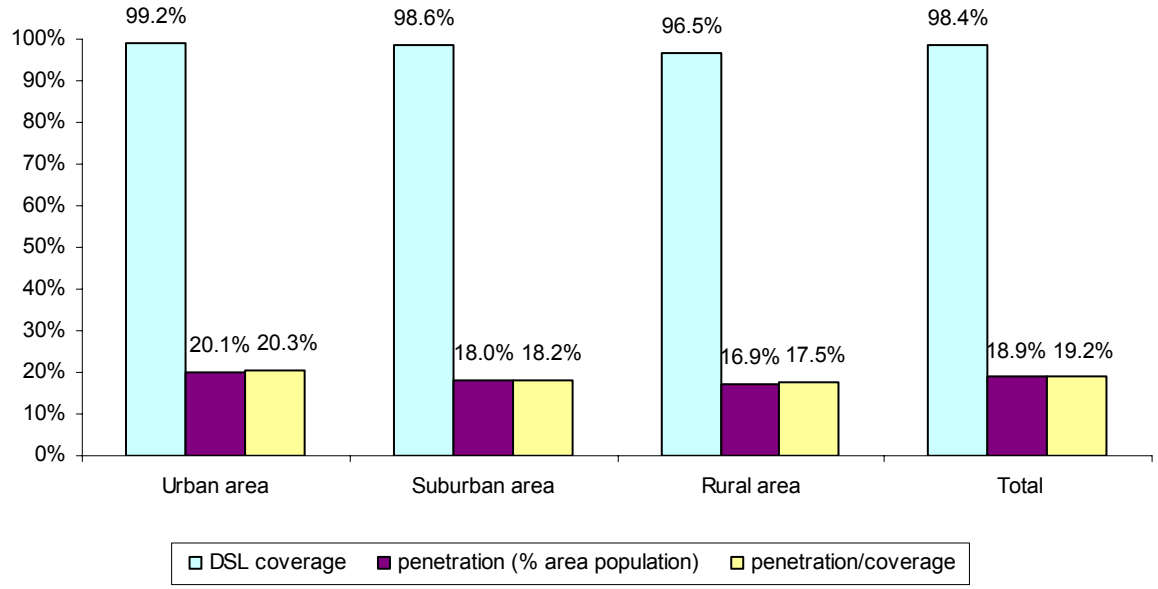
The total number of broadband subscribers in France increased by 35% in 2006 (compared to +39% in 2005) and totalled 12.6 million at the end of the year.

DSL is by far the most developed type of broadband access, accounting for 94.3% of total connections (vs. 93.8% at the end of 2005), with cable modem accounting largely for the balance. FTTx is growing but deployments were still limited to only a few areas (mainly Paris and Pau) at the end of 2006. In recent months, broadband developments were boosted by triple play offers: the number of IPTV subscribers in particular was over 2.5 million at the end of 2006.

As concerns broadband coverage, DSL is now available to more than 98% of the French population with significant progress having been made in rural areas over the past three years.

4.8.3. DSL coverage and take-up

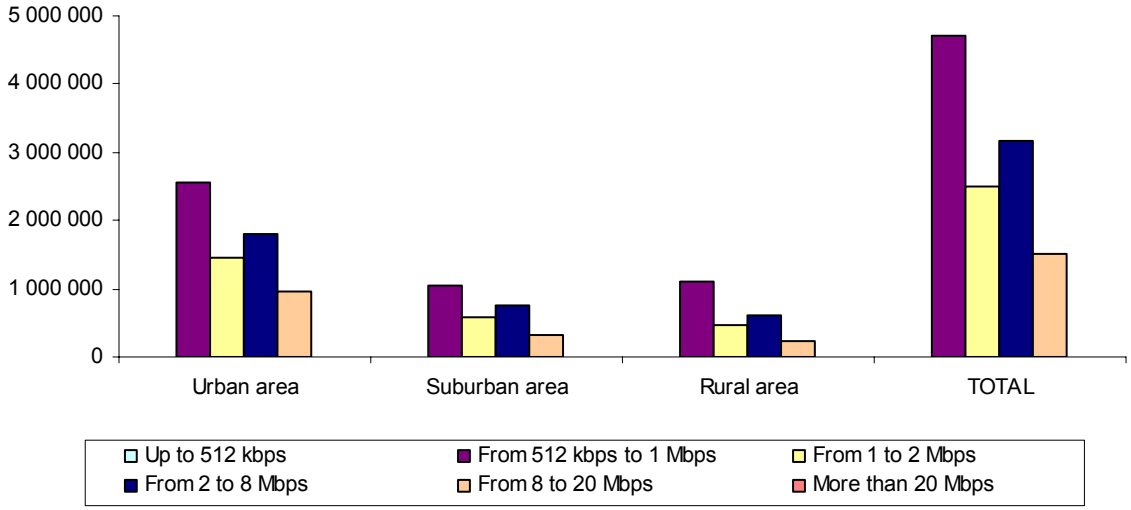
Coverage and penetration



At the end of 2006, 98.4% of the population was covered by DSL, which represents "only" a 2-point increase over the past year but growth was particularly significant in rural areas (from less than 88% at the end of 2005 to 96.5% at the end of 2006).

The penetration rate increased more than one third in 2006, from 14.1% at the beginning of the year to 18.9% at the end, added to which gaps between urban areas and rural areas became minimal (20.1% vs. 16.9%).

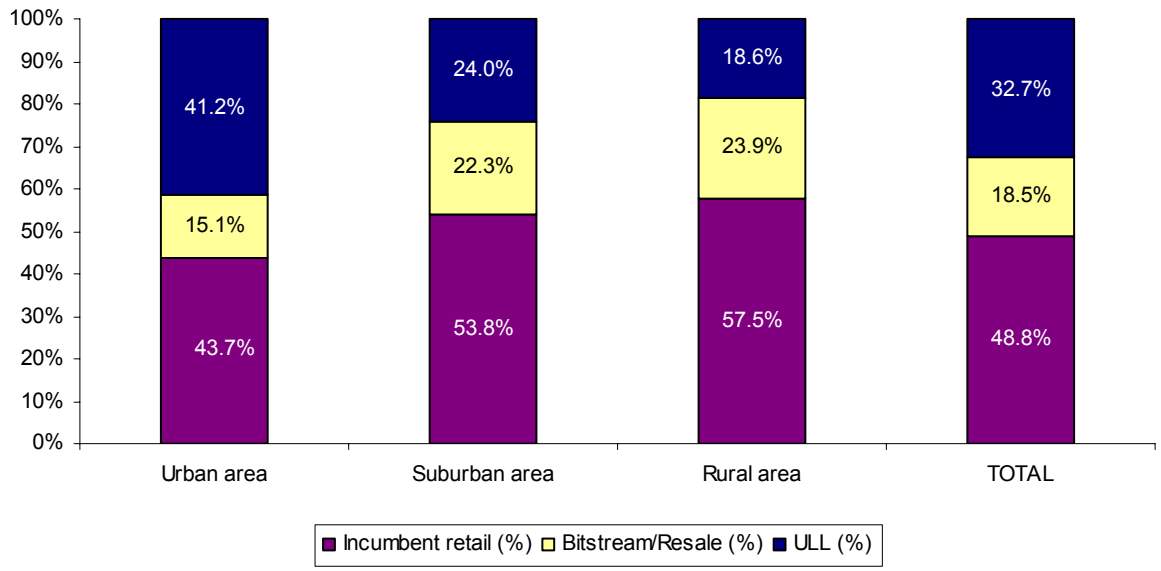
Number of DSL connections by download rate



The French ADSL market is characterised by a very high proportion of connections with download rates over 8 Mbps, supported by ADSL2+ technology. We estimate that 1.5 million connections

(12.6% of total DSL connections) were in this group at the end of 2006, more than twice the number a year before.

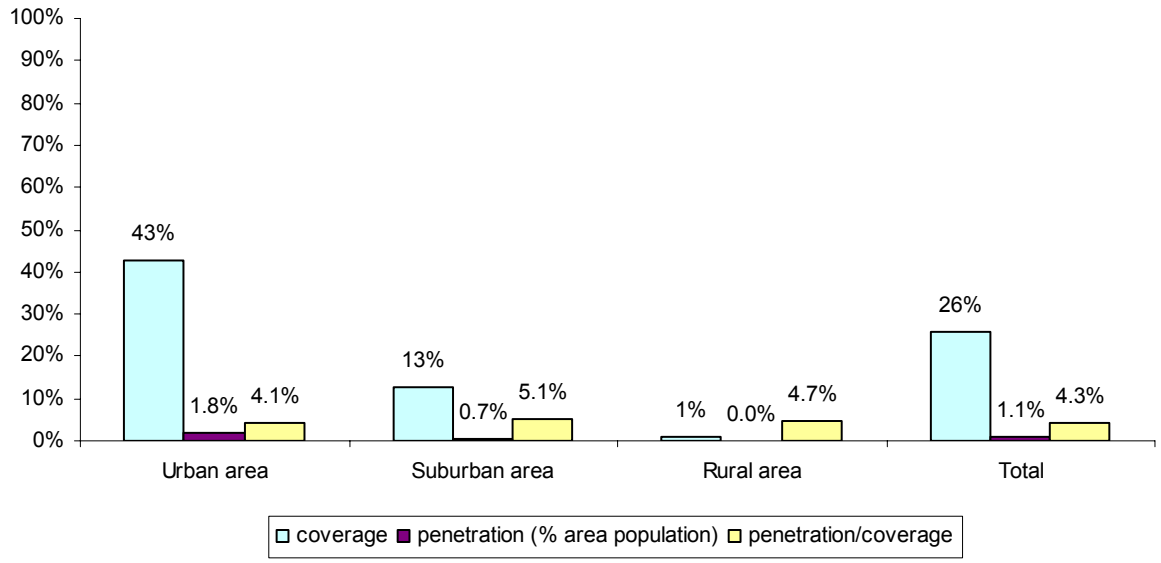
Percentage of DSL connections by type of provider



Nearly half of all DSL connections are marketed directly by France Telecom's ISP subsidiary, Orange (formerly Wanadoo), and 18% are provided by other operators or ISPs through a DSL resale product ("bitstream access"). The percentage of unbundled lines is largely the same as the year before (32.1% at the end of 2005) but the proportion of fully unbundled lines increased dramatically during the period, from 21% (592,000 full unbundled lines out of 2.82 million ULL + shared access) to 54% (2.12 million ULL out of 3.94 million ULL + shared access).

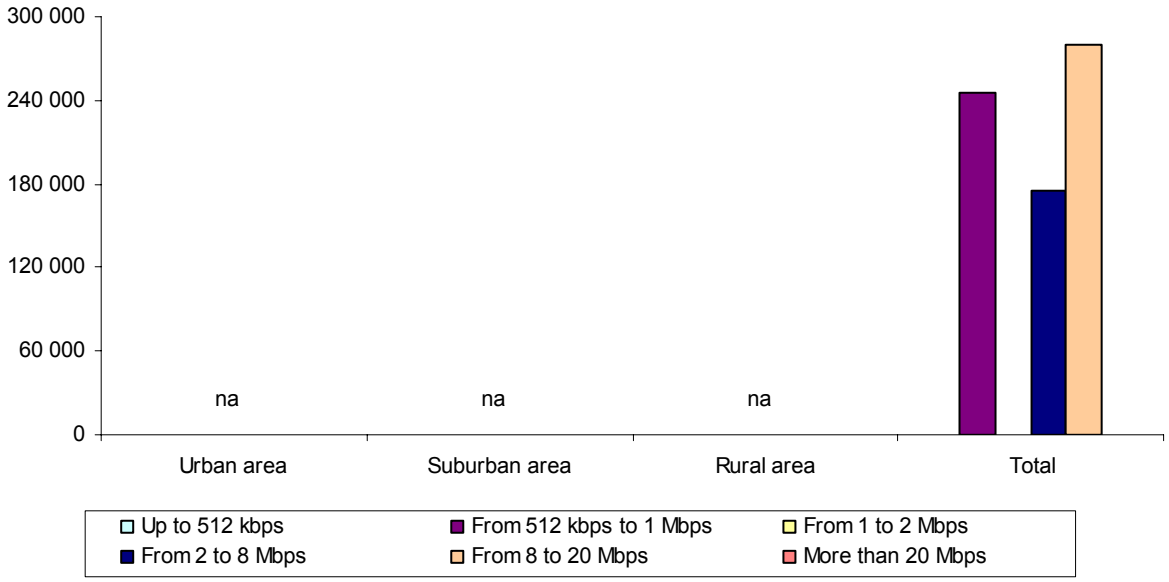
4.8.4. Cable modem coverage and take-up

Coverage and penetration



26% of the French population is covered by cable modem technology: there have been no new deployments in recent times. Cable in general and cable modem in particular are available almost exclusively in medium-size and large towns.

Number of cable modem connections by download rate



In December 2006, the French cable market was controlled by only one operator, following the merger of Noos/UPC and Numericable mid-year. Around 40% of broadband cable connections in France deliver download rates over 8 Mbps.

4.8.5. Other broadband access technologies

FTTx

In 2004-2005, a few operations were launched in specific locations: PBC (Pau Broadband Country) in Pau, a midsize town in south-western France, and in Paris and parts of its suburbs. Early in 2006, France Telecom announced that it would be conducting FTTH trials, while more and more plans for FTTH commercial rollouts were heard in the second half of the year and in early 2007: in September 2006, Iliad-Free unveiled a 4-year plan to pass 4 million households. France Telecom, then neuf cegetel also announced large-scale FTTH deployment plans. Citéfibre and Erenis, the first two commercial operators active in Paris, were acquired respectively by Iliad and neuf cegetel.

PLC

In April 2005, PLC access went beyond the experimental stage in France but, for now, its development as an alternative to ADSL is being hampered by EDF, owner of the country's electricity network, and which is not authorised to market Internet access.

The development of indoor powerline carrier systems is allowed, provided they do not create any interference with existing systems.

Wi-Fi

Hotspots have been deployed widely in public areas (hotels, airports, railway stations, conference centres, etc.), providing wireless access to the net for a specific clientele, the bulk of which are travelling business people. There were between 8,000 and 10,000 hotspots in France at the end of 2006, with Orange as the leading player, putting the country among the leaders in this area.

WLL/WiMAX

Altitude Telecom, the only remaining WLL service provider, was purchased by Iliad in September 2005.

WiMAX licences were awarded in 2006 to two operators in each region. The main beneficiaries of these licences are Bolloré Telecom and HDRR (a consortium led by TDF).

Satellite

Several two-way offers are now available in France, targeting SMEs in rural areas.

One of the most important players is Ouranos Networks (ex-Aramiska) with more than 350 two-way satellite subscribers in France.

Other major players are Divona and Sat2way.

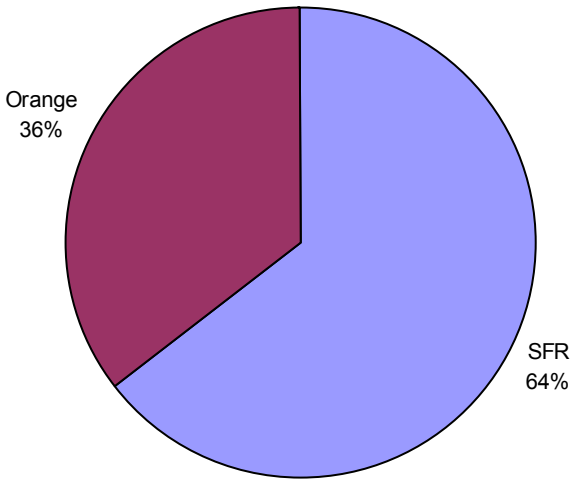
We estimate that there were 1,000 satellite subscribers in France at the end of 2006.

3G

Orange and SFR launched their 3G services over the course of 2004 while Bouygues Telecom, which was awarded a licence in 2002, has not yet opened its commercial service and still offers data services using EDGE.

65% of the population was covered for 3G at the end of 2006 (close to 40 million inhabitants) and the user base totalled 4,168,000 subscribers, a 200% increase over the past year.

Breakdown of the 3G subscriber base* by operator (December 2006)



* Users with 3G handsets

4.9. Germany

4.9.1. Population

	Urban area	Suburban area	Rural area	National
Inhabitants	40,270,497	29,537,164	12,693,188	82,500,849
Share of total population	48.8%	35.8%	15.4%	100.0%

4.9.2. General broadband data

	12/02	12/03	12/04	12/05	12/06
DSL coverage (% of population)	83%	86%	91%	92%	93%
DSL subscribers	3 ,195 ,000	4 ,500 ,000	6 ,720 ,000	10 ,380 ,000	14 ,300 ,000
DSL penetration (% of population)	3.9%	5.4%	8.1%	12.6%	17.3%
Cable modem coverage (% population)	5%	8%	10%	15%	36%
Cable modem subscribers	45 ,000	87 ,000	145 ,000	240 ,000	600 ,000
Cable modem penetration (% population)	0.1%	0.1%	0.2%	0.3%	0.7%
FTTx subscribers	0	0	150	150	20 ,000
PLC subscribers	7 ,000	8 ,000	9 ,000	9 ,600	9 ,500
WLL subscribers	0	4 ,500	1 ,000	0	0
Satellite subscribers	25 ,200	45 ,000	41 ,000	57 ,000	56 ,000
Total	3 ,272 ,200	4 ,644 ,500	6 ,916 ,150	10 ,686 ,750	14 ,985 ,500
Total penetration (% population)	4.0%	5.6%	8.4%	13.0%	17.8%

Broadband penetration in Germany is just above the European average (17.8% compared to 17.5%). ADSL is by far the dominant technology (more than 95% of all broadband connections at the end of 2006). The incumbent carrier, Deutsche Telekom, has been losing market share in recent times, dropping to less than 50% at the end of 2006, due to the introduction of bitstream offers (imposed by the German regulator) and progress of unbundling.

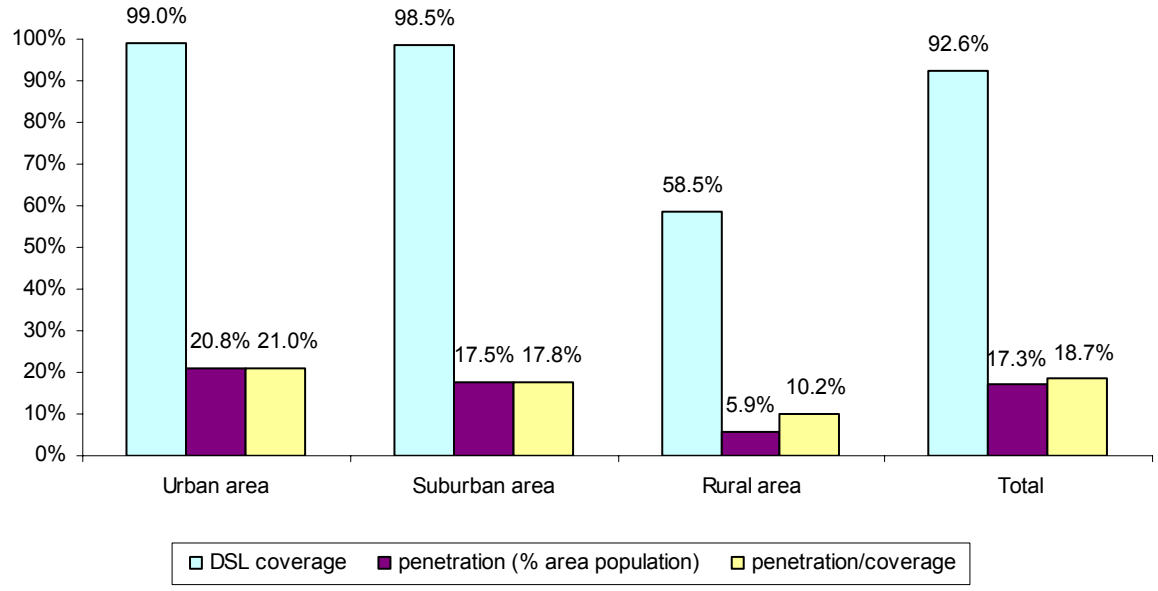
Though broadband cable penetration grew by 150% in 2006, cable modem is still marginal as operators were reluctant to invest in upgrading their networks (most of the infrastructure is built for one-way services only). Furthermore, the fact that the German cable infrastructure is run by large, level 3[4] and more than 4,000 smaller level 4[5] operators is hampering the development of the country's cable market.

FTTx – here FTTN+VDSL – made significant progress in 2006 as Deutsche Telekom, Germany's incumbent, began to deploy FTTN+VDSL in mid-2006.

[4] Distribution network
[5] Last mile

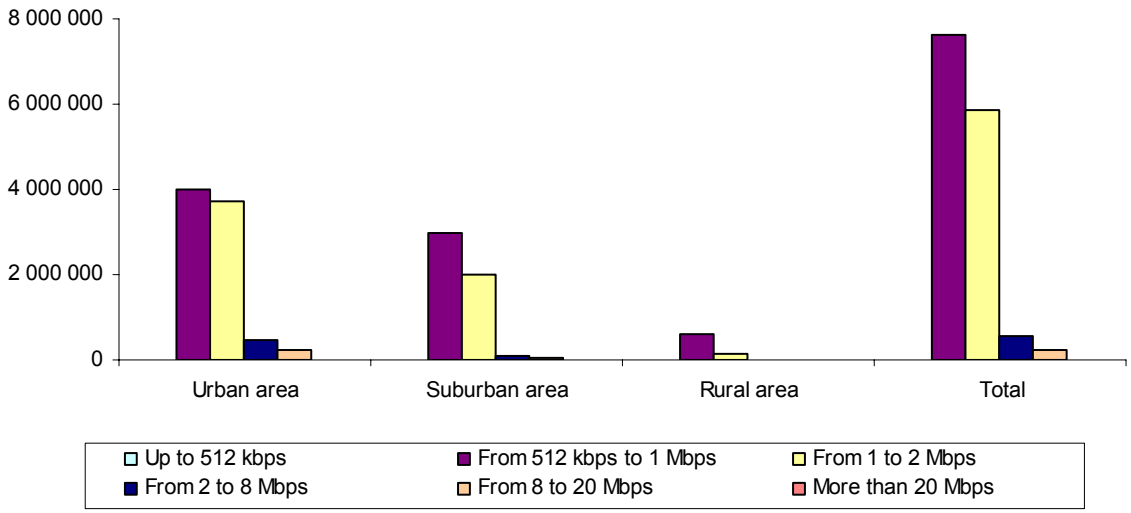
4.9.3. DSL coverage and take-up

Coverage and penetration



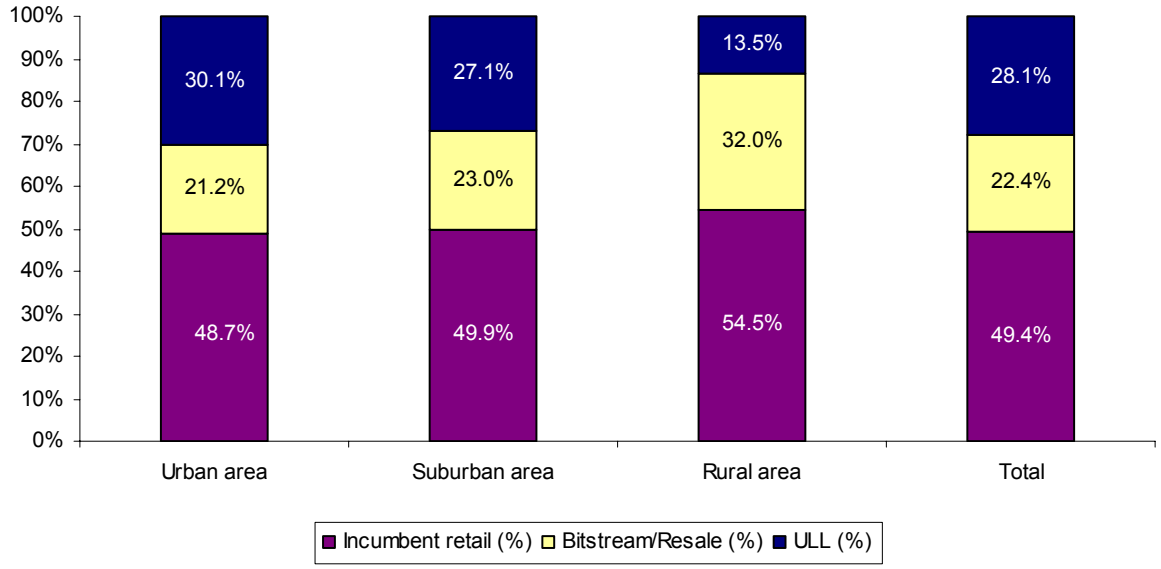
In Germany, most local exchanges are DSL equipped, but DSL coverage is generally much higher in urban areas, and significantly lower in Eastern Germany. Total DSL coverage in December 2006 is estimated at 92.6%.

Number of DSL connections by download rate



Download rates for DSL services between 512 Kbps and 1 Mbps and between 1 and 2 Mbps are predominant and together represent more than 90% of the DSL connections. Nevertheless, in 2006 more and more providers began to market faster connections at prices lower than in 2005.

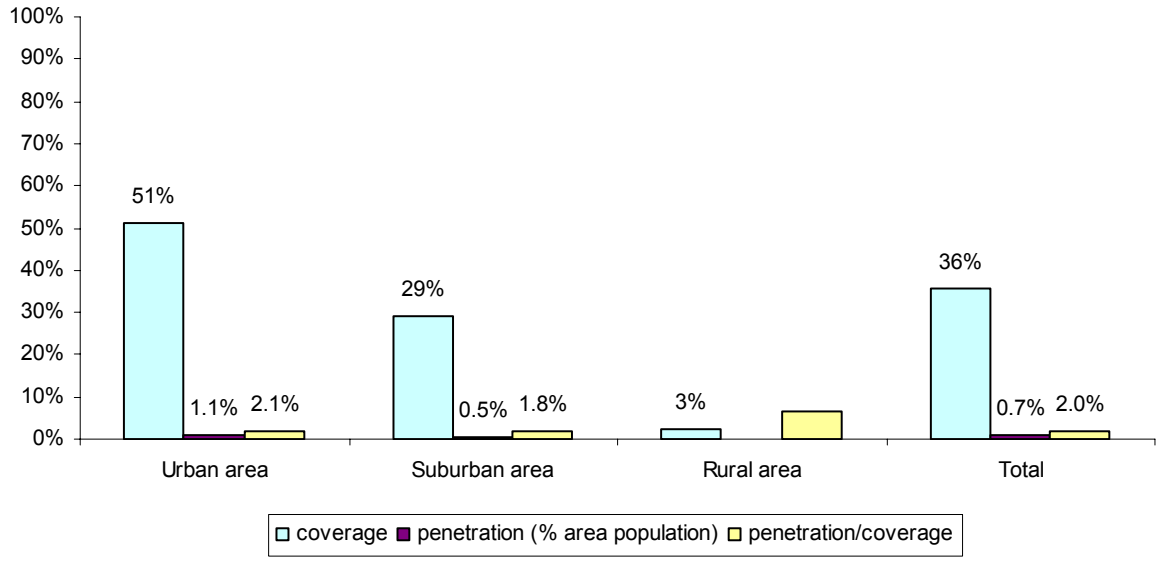
Percentage of DSL connections by type of provider



In 2006, new entrants again grew significantly faster than incumbent Deutsche Telekom. ULL increased from 24% in 2005 to 28% at the end of 2006. Resale connections were the fastest growing DSL segment. As a result the incumbent's retail market share had decreased to below 50% for the first time by the end of 2006. Germany's NRA the "Bundesnetzagentur" (Federal Network Agency) notified Deutsche Telekom of its new ATM bitstream access order in March 2007.

4.9.4. Cable modem coverage and take-up

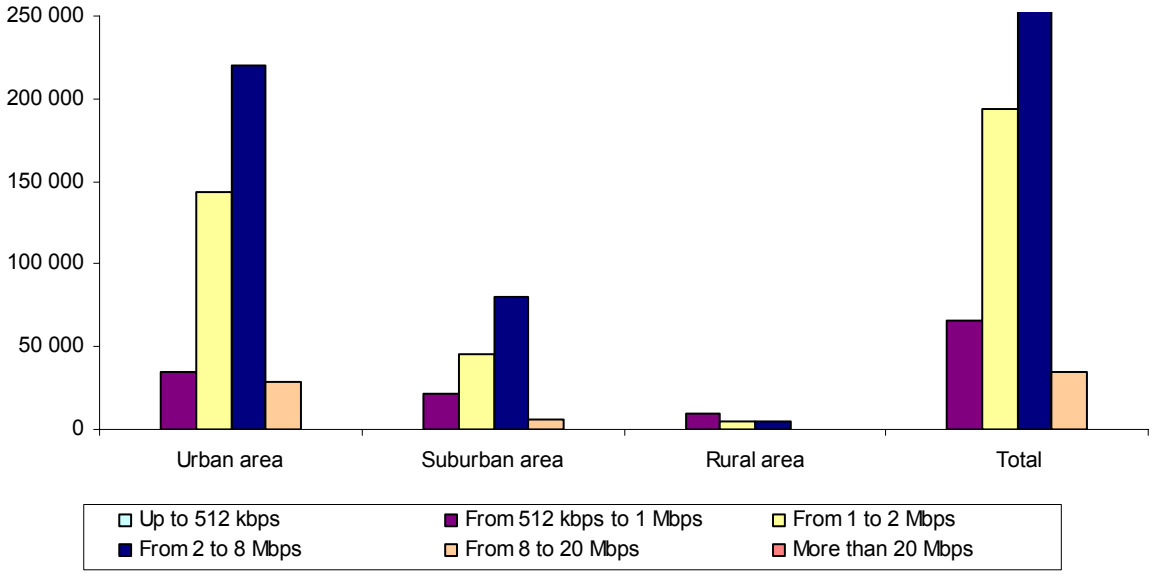
Coverage and penetration



Penetration of cable modem services in Germany is still very low (0.7%), despite considerable growth in 2006. Though cable operators made substantial progress in 2006, most of the cable infrastructure needs to be upgraded for interactive services and, as it stands, most of the it is unable to deliver broadband Internet. Upgrades to the cable network have been primarily in urban and suburban areas, and only in selected rural areas close to large cities.

In most regions that are covered by cable – mostly urban areas – DSL was available long before cable modem services were launched, which has contributed widely to low broadband cable penetration rates.

Number of cable modem connections by download rate



Cable modem subscribers used higher download rates than DSL subscribers. More than half of the cable modem users were subscribing to offers with download speeds higher than 2 Mbps.

4.9.5. Other broadband access technologies

FTTx

Until mid-2006, users did not have access to FTTx and development was still limited. In October 2006, incumbent carrier, Deutsche Telekom, began to rollout its FTTN+VDSL network in the major German cities. By the end of 2006, 12 of the country's largest cities, and 6 million households were covered. Another 15 cities and 2.3 million households will be covered in 2007, and 50 cities altogether by the end of 2008. Deutsche Telekom offers download rates of 25 or 50 Mbps. However, FTTN+VDSL broadband access is only marketed in a bundle together with Deutsche Telekom's IPTV service. By the end of 2006, some 20,000 households were subscribing to the IPTV/FTTN+VDSL bundle. Deutsche Telekom has not announced any plans to deploy FTTH. As Germany has failed to remove new provisions in German law that could grant Deutsche Telekom a 'regulatory holiday' in spite of its dominant position in the broadband market, the European Commission announced at mid-2007 that it will refer Germany to the European Court of Justice.

The first provider to deploy FTTH in Germany is NetCologne, a city carrier based in Cologne. The operator began to connect the first households in the centre of Cologne in December 2006, offering up to 100 Mbps. However, FTTH penetration is still very low. By the end of 2007 NetCologne plans to have covered 9,000 households with FTTH.

PLC

According to Germany's NRA the "Bundesnetzagentur", there were 9-500 PLC-based Internet subscribers in Germany at the end of 2006, compared to 9,600 at the end of 2005.

Wi-Fi

In 2006, the number of PWLAN hotspots rose to roughly 9,200, after having doubled the year before. Most commercial (there are also a few non-commercial) PWLAN hotspots are located in urban areas, especially in hotels, cafés, airports and university campuses.

WLL/WiMAX

Until now, there have only been field trials for WiMAX in Germany, as frequencies were not allocated until December 2006.

Satellite

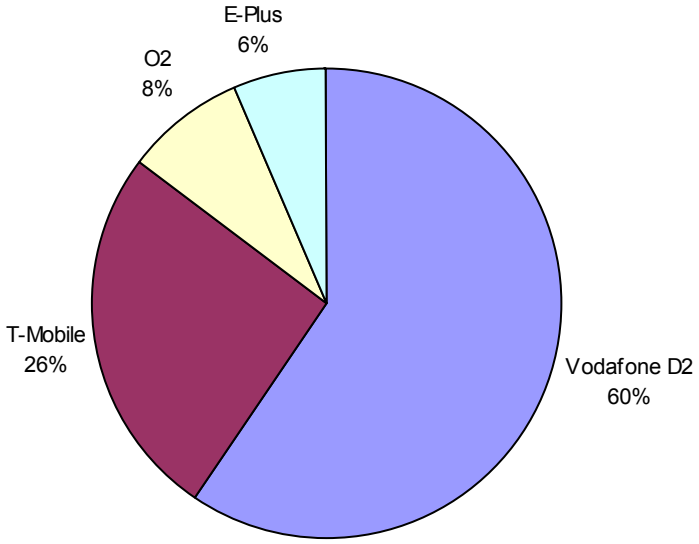
Satellite Internet subscribers totalled an estimated 56,000 at the end of 2006 compared to 57,000 the year before. However most of the subscribers do not have two-way access due to high costs, with just under 1,000 customers subscribing to two-way satellite broadband.

Cellular

By the end of 2006, UMTS subscribers in Germany had more than doubled to 5.5 million, from 2.3 million at the end of 2005. Depending on the provider, 3G coverage ranges from 55% to roughly 80%, with most of the 36,000 base stations deployed in urban areas.

T-Mobile announced that its UMTS network had been fully upgraded to HSDPA in 2006, and became the first operator to begin deploying an EDGE infrastructure that same year. Vodafone launched HSDPA services in Q2 2006, 02 launched HSDPA in some urban areas in December 2006 while E-Plus has announced plans to launch HSDPA in July 2007.

Breakdown of the 3G subscriber base* by operator (December 2006)



* Users with 3G handsets

4.10. Greece

4.10.1. Population

	Urban area	Suburban area	Rural area	National
Inhabitants	6,244,538	1,739,154	3,034,736	11,018,428
Share of total population	56.7%	15.8%	27.5%	100.0%

4.10.2. General broadband data

	12/02	12/03	12/04	12/05	12/06
DSL coverage (% of population)	0%	2%	9%	12%	18%
DSL subscribers*???	0	8 ,183	46 ,547	158 ,000	485 ,793
DSL penetration (% of population)	0.0%	0.1%	0.4%	1.4%	4.4%
Cable modem coverage (% population)	0%	0%	0%	0%	0%
Cable modem subscribers	0	0	0	0	0
Cable modem penetration (% population)	0.0%	0.0%	0.0%	0.0%	0.0%
FTTx subscribers	0	0	0	220	474
PLC subscribers	0	0	0	0	0
WLL subscribers	0	0	0	419	648
Satellite subscribers	0	0	0	0	*350*
Total	0	8 ,183	48 ,547	158 ,639	487 ,265
Total penetration (% population)	0.0%	0.1%	0.4%	1.5%	4.4%

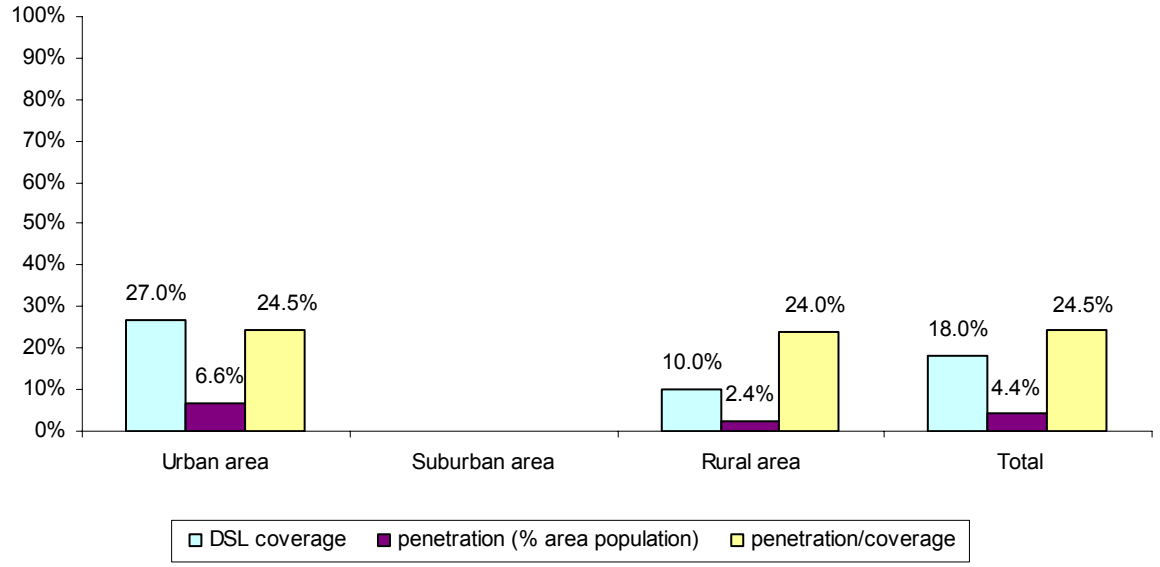
Despite a substantial increase of the subscriber base in 2006, Greece remains the less advanced market of the EU-25 in terms of broadband penetration.

DSL accounts for close to 100% of broadband connections as cable is not available in the country. Numerous alternative broadband access providers could enter the market and gain as much as 37% of the subscriber base, but their offers are based chiefly on bitstream lines provided by OTE, the incumbent operator.

In order to develop competition and coverage, the government is promoting unbundling as well as new access technologies (in particular through the award of WiMAX licences) and is supporting usage in remote regions, for students, etc. through specific programmes.

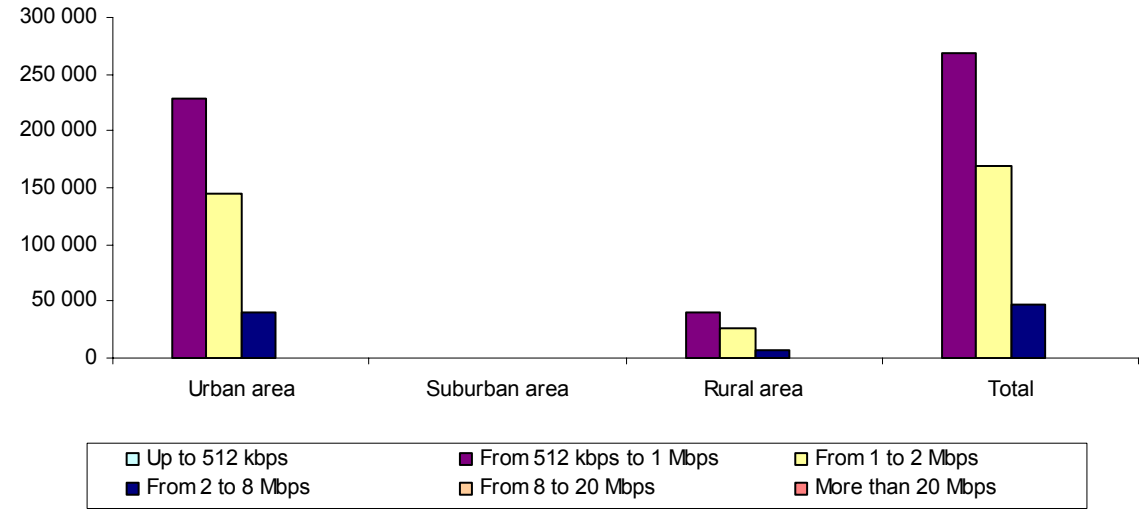
4.10.3. DSL coverage and take-up

Coverage and penetration



There were 485,793 ADSL accesses in operation in Greece at the end of 2006, most of them available in urban areas (470,765), where the incumbent operator, OTE, has concentrated its investments.

Number of DSL connections by download rate

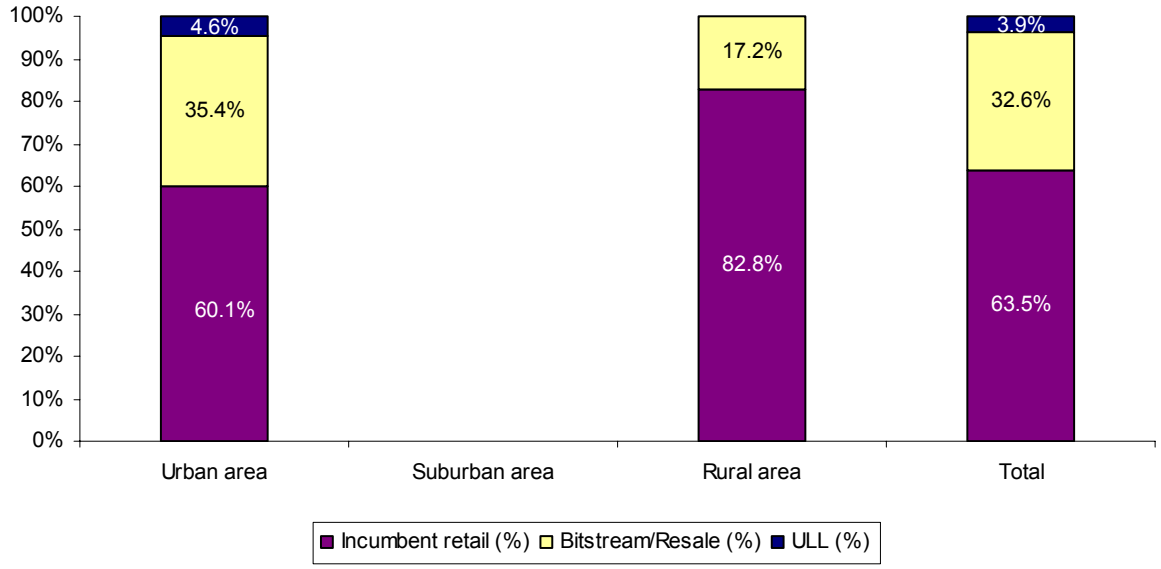


Increasing access speeds presumes an improvement of the services provided and, by extension, contributes to increasing broadband penetration.

In the last quarter of 2006, the doubling of the nominal speed of the ARYS lines[6] could improve the quality and variety of services (real-time, interactive service, Video On Demand, etc). The majority of the ARYS lines offer speed of 768 kbps (download), with a significant percentage being faster lines (2048 kbps download). The average speed is around 1 Mbps.

[6] ADSL lines operated by OTE to be sold through retail or wholesale offers (except unbundled lines)

Percentage of DSL connections by type of provider



ADSL access through ARYS OTE lines represents the bulk of broadband connections, accounting for 96.1% of the market.

LLU is increasing steadily (+283% between December 2005 and December 2006, and a 45% increase in the last quarter of 2006 alone). One outstanding phenomenon is the increase in the number of fully unbundled lines, proof of the healthy momentum of LLU with the implementation of collocation in OTE's exchanges.

Nevertheless, LLU is still relatively limited, accounting for fewer than 20,000 lines (19,504), i.e. less than 4% of the total ADSL in operation.

4.10.4. Other broadband access technologies

Other fixed broadband technologies represent only 0.7% of total broadband connections – revealing of the lack of facilities-based competition in Greece.

Cable

Cable modem is not available in Greece.

FTTx

In late 2006, there were announcements of commercial FTTH services, with plans for development in 2007. There were a total 474 FTTx connections at the end of 2006.

Wi-Fi

Hotspots have not been widely deployed in Greece. There were only 14 Wi-Fi hotspots at the end of 2006.

WLL/WiMAX

FWA licenses were awarded to three operators in 2005, with the fourth one awarded in mid-2006 – and so enabling the development of WiMAX technology. There is still no data available for this technology. At the end of 2006, there were 648 FWA subscribers in Greece.

Satellite

There were 350 satellite Internet subscribers at the end of 2006.

Cellular

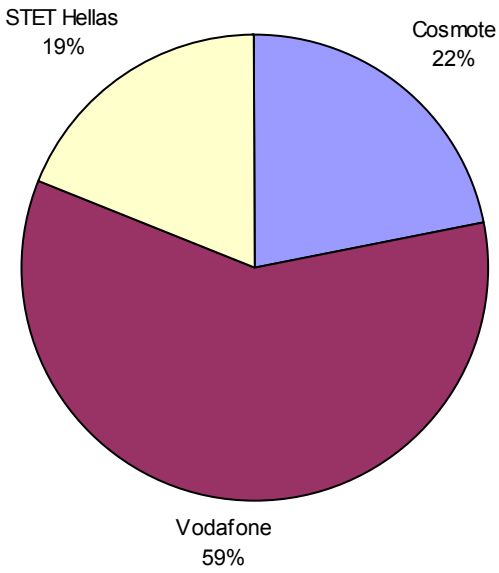
The mobile operators in Greece are Cosmote, Vodafone and TIM Hellas. According to the terms of their licences, coverage of all venues and territories that were hosting Olympic Games-related activities inside Attica, and all roads and arteries that lead to those territories, had to be completed by June 2004, and at least 50% of the Greek population had to be covered by December 2006.

All of the above mentioned coverage conditions have been met for packet-switched services with a physical DL bitrate of at least 144 kbps, and 64 kbps for UL.

At the end of December 2006, Cosmote was providing UMTS coverage in all major Greek cities at a speed of 3.6 Mbps/384 kbps and at 1.8 Mbps/384 kbps in rural areas, covering 70% of the population. Vodafone reports 55% coverage of the population with around 400,000 3G subscribers and roughly 20,000 3G Internet connections.

There are some 650,000 3G subscribers in Greece, with the breakdown by operator provided in the chart below.

Breakdown of the 3G subscriber base* by operator (December 2006)



* Users with 3G handsets

4.11. Hungary

4.11.1. Population

	Urban area	Suburban area	Rural area	National
Inhabitants	3,416,103	3,395,949	3,264,948	10,077,000
Share of total population	33.9%	33.7%	32.4%	100.0%

4.11.2. General broadband data

	12/02	12/03	12/04	12/05	12/06
DSL coverage (% of population)	-	58%	70%	85%	89%
DSL subscribers	32 ,054	114 ,813	235 ,969	372 ,523	613 ,000
DSL penetration (% of population)	0.3%	1.1%	2.3%	3.7%	6.1%
Cable modem coverage (% population)	-	-	-	66%	72%
Cable modem subscribers	31 ,190	77 ,189	135 ,803	191 ,997	293 ,000
Cable modem penetration (% population)	0.3%	0.8%	1.3%	1.9%	2.9%
FTTx subscribers	-	-	-	1 ,000	1,000
PLC subscribers	0	0	0	0	0
WLL subscribers	-	-	-	10 ,200	64 ,964
Satellite subscribers	-	-	-	-	-
Total	63 ,244	192 ,002	371 ,772	575 ,720	971 ,964
Total penetration (% population)	0.6%	1.9%	3.7%	5.7%	9.6%

The Hungarian broadband market has been growing steadily since 2002, to reach nearly 1 million subscribers at the end of 2006. However, the penetration rate (9.6%) is still low compared to most other European countries.

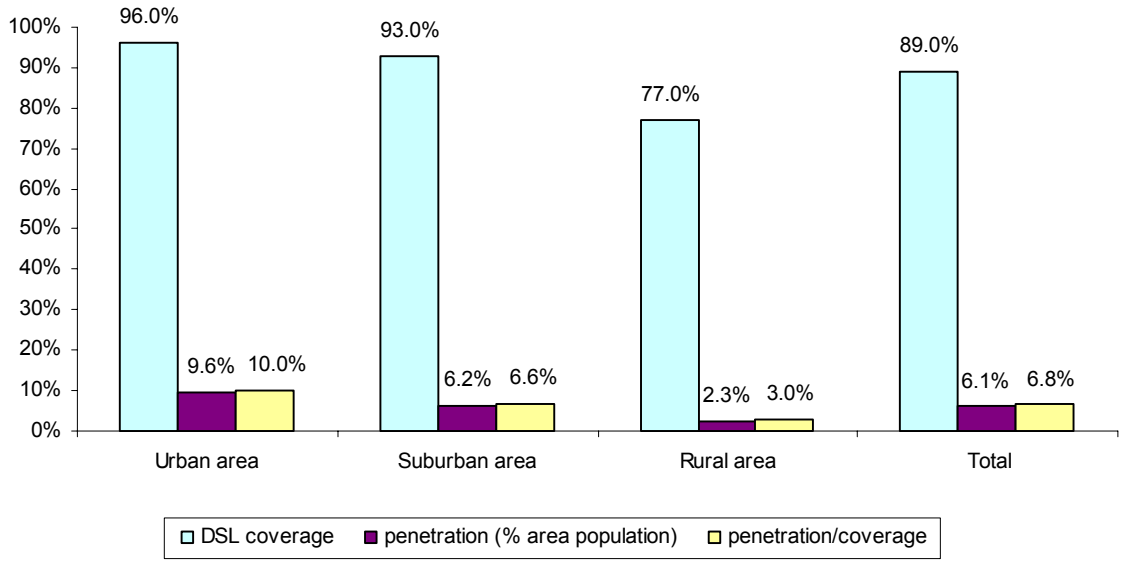
DSL is the dominant broadband access technology, representing approximately 613,000 subscriptions, the three quarters of them being directly supplied by the four local loop operators, Matáv (owned by Deutsche Telekom), Invitel, HTCC and Monortel. Some 70 alternative ISPs offer DSL connections through bitstream offers. In October 2006, the Hungarian regulator (NHH) revised unbundling rules to make it more attractive.

It has taken a long time for WLL to emerge (licences were awarded in 2001) but considerable strides are now being made.

IPTV is becoming a hot topic, with the launch of a pioneer service in late 2006 and other operators following suit in 2007.

4.11.3. DSL coverage and take-up

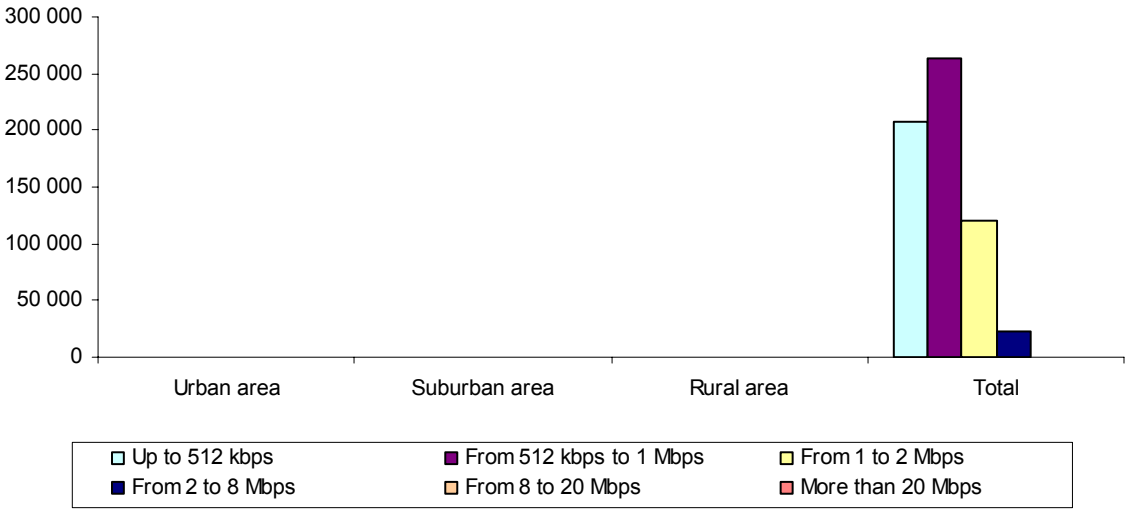
Coverage and penetration



While xDSL coverage is broad (89% of the territory), take-up as of December 2006 represented an average penetration of 6.1% of the total population.

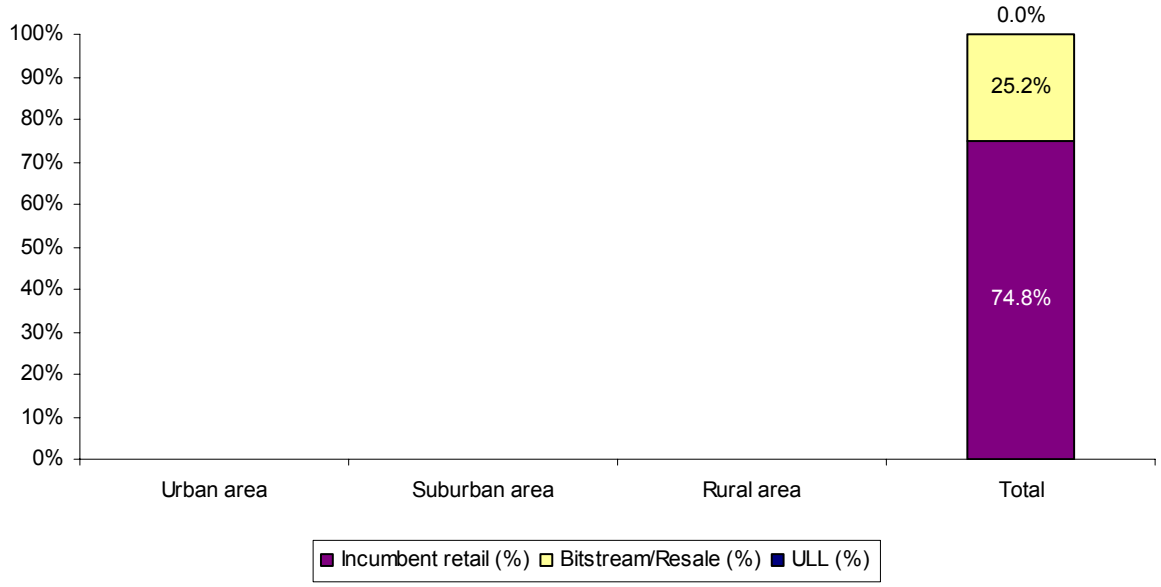
Broadband subscriptions grew rapidly in 2006 due to increasingly competitive services, while competition between xDSL and cable operators in Hungary have also led to an increase in connection speeds. The initiator of bandwidth expansion was xDSL provider T-Online.

Number of DSL connections by download rate



Most of the installed xDSL connections (close to 80%) have a downstream speed below 1 Mbps, like in 2005, but the segmentation at the low end of the market has changed: there is no longer a 144-384 Mbps offer in the xDSL portfolio, the entry-level service running at 512 kbps, downstream. Thanks to recent bandwidth extensions, at the end of 2006 the majority of connections were running at 512 kbps to 1 Mbps.

Percentage of DSL connections by type of provider

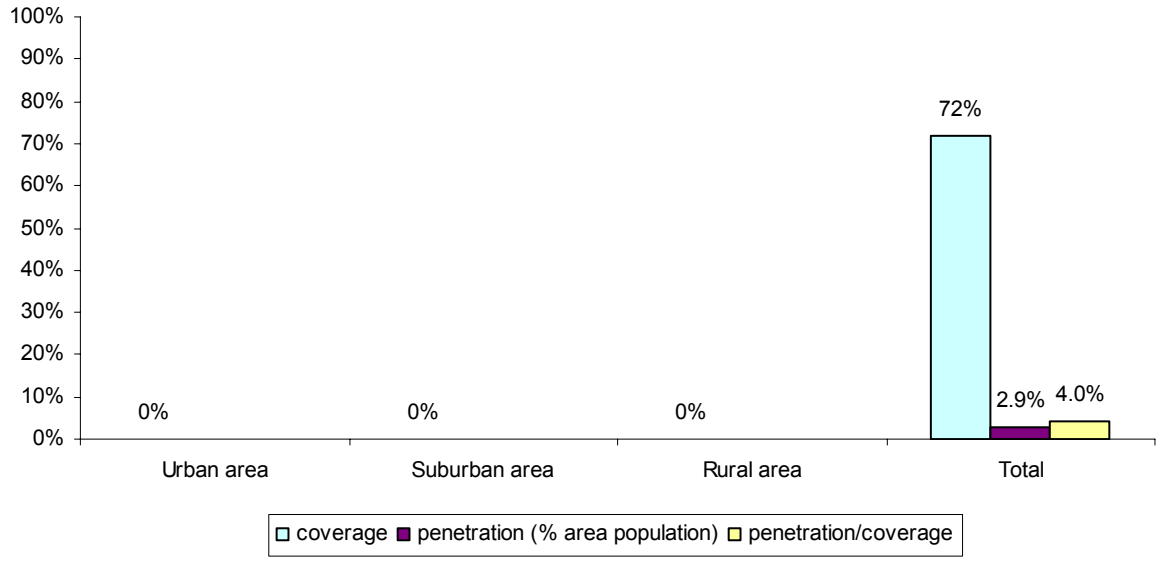


xDSL connections retailed by the incumbent carrier include those provided by T-Com itself but also those marketed by its subsidiaries, Emitel and other market players such as HTCC which markets its products under the Invitel and Pantel brands.

Resale xDSL accounts for 25.2% of the subscriber base, while ULL was not used by the end of 2006.

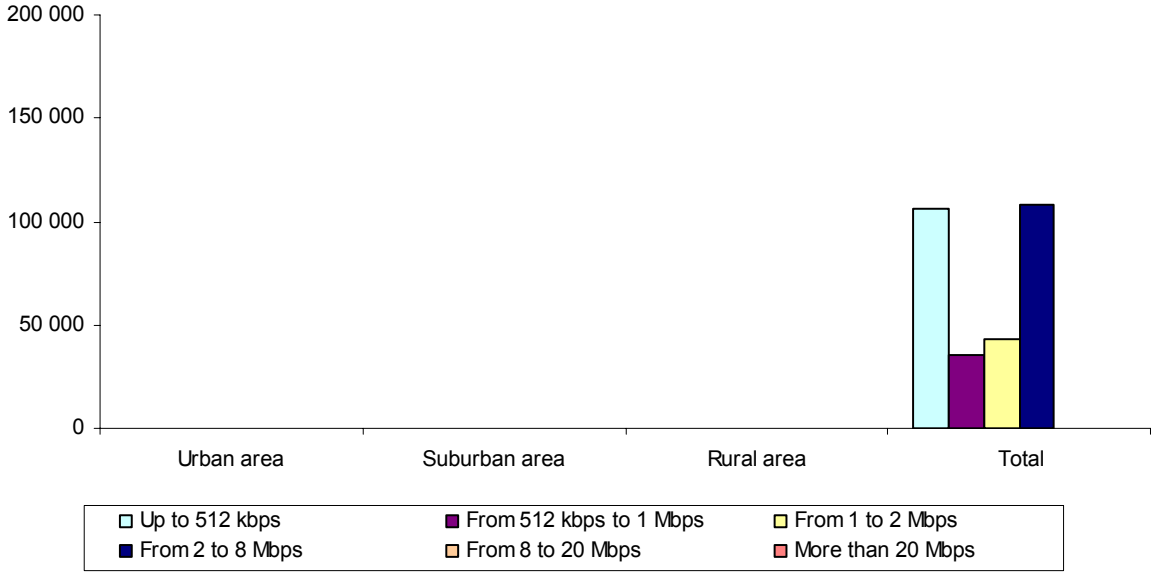
4.11.4. Cable modem coverage and take-up

Coverage and penetration



The dominant player in the Hungarian broadband cable market is UPC, which delivers its services under the Chello brand. UPC Hungary is a subsidiary of Liberty Global Plc., as is the telco Monortel. Also present in the market are T-Kábel, owned by Deutsche Telekom, with a considerably smaller network than UPC's, along with several local cablecos, including TVNet, Fibrenet and EMKTV Plc., and a host of smaller providers.

Number of cable modem connections by download rate



The distribution of cable based ISPs' bandwidth is very different from the xDSL providers. Thanks to previous bandwidth extensions, the proportion of the low-end users is relatively small. Cable operators were clearly more efficient in migrating their users to high-speed services.

4.11.5. Other broadband access technologies

FTTH

There is some FTTH activity in the country in the business segment, but it is not significant as yet and does not seem to be making any significant strides.

WiFi

Wi-Fi has enjoyed a rapid growth in Hungary, due notably to the free usage of the 2.4GHz frequency band which can be used for business applications.

WLL/WiMAX

Fixed wireless broadband access (FWBA) licences in the 3.5GHz band were awarded via auction in 2001, although it has taken some time for any operator to build an offer for residential users, preferring instead to offer FWBA for leased lines, IP-VPN, VoIP and multimedia services. Compatibility tests on the 5.8 GHz band were not completed until the end of 2006.

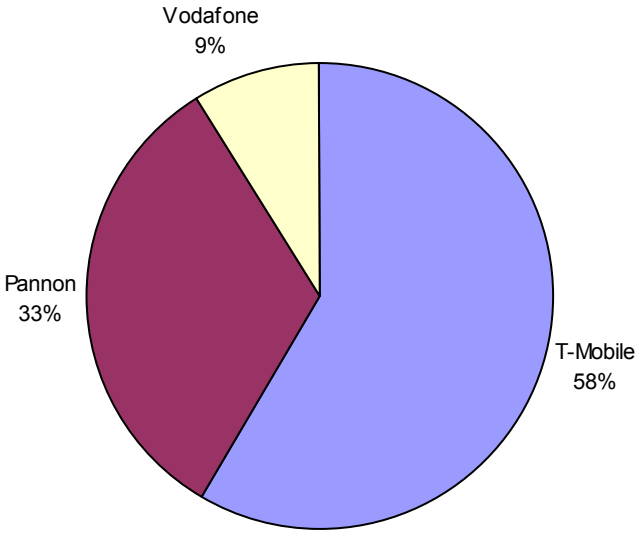
Cellular

After several postponements, Hungary finally awarded 3G licences in September 2004.

T-Mobile Hungary, Vodafone and Pannon were awarded licences in 2005 and, according to the terms of their concessions, were required to roll out 3G services in Budapest by January 2006. A year after the launch of the service, 3G coverage totalled 28% of the territory (and an estimated 34% at the end of 2006).

There were 313,000 3G subscribers at the end of 2006.

Breakdown of the 3G subscriber base* by operator (December 2006)



* Users with 3G handsets

4.12. Iceland

4.12.1. Population

	Urban area	Suburban area	Rural area	National
Inhabitants	184,244	-	109,333	293,577
Share of total population	62.8%	0.0%	37.2%	100.0%

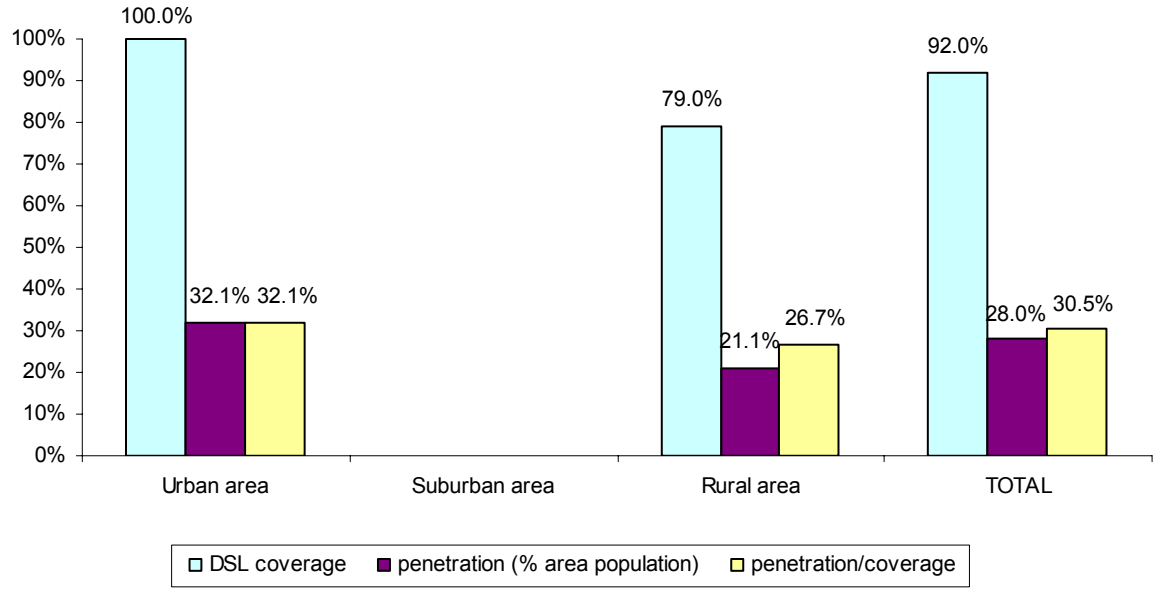
4.12.2. General broadband data

	12/02	12/03	12/04	12/05	12/06
DSL coverage (% of population)	86%	90%	92%	92%	92%
DSL subscribers	24 ,270	40 ,419	50 ,612	75 ,897	84 ,350
DSL penetration (% of population)	8,3%	13,8%	17,2%	25,9%	28,1%
Cable modem coverage (% population)	-	31%	31%	31%	31%
Cable modem subscribers	500	700	670	432	500
Cable modem penetration (% population)	0,2%	0,2%	0,2%	0,1%	0,1%
FTTx subscribers	-	-	92	204	500
PLC subscribers	500	700	1 ,020	-	-
WLL subscribers	-	700	795	1 ,380	1 ,500
Satellite subscribers	-	,	75	104	150
Total	25 ,270	41 ,819	53 ,264	78 ,017	87 ,000
Total penetration (% population)	8.6%	14.3%	18.1%	26.6%	29.0%

Broadband penetration is very high in Iceland, due chiefly to the increase in DSL take-up, with cable modem becoming marginal. The penetration rate (29% at the end of 2006) puts Iceland almost at the same level as the global front-runners Denmark and Netherlands, and slightly above South Korea. This is due to the fact that Iceland is geographically isolated and that broadband access is an economical way (even if tariffs are high compared to other European countries) for communicating with people overseas, especially for corporate users.

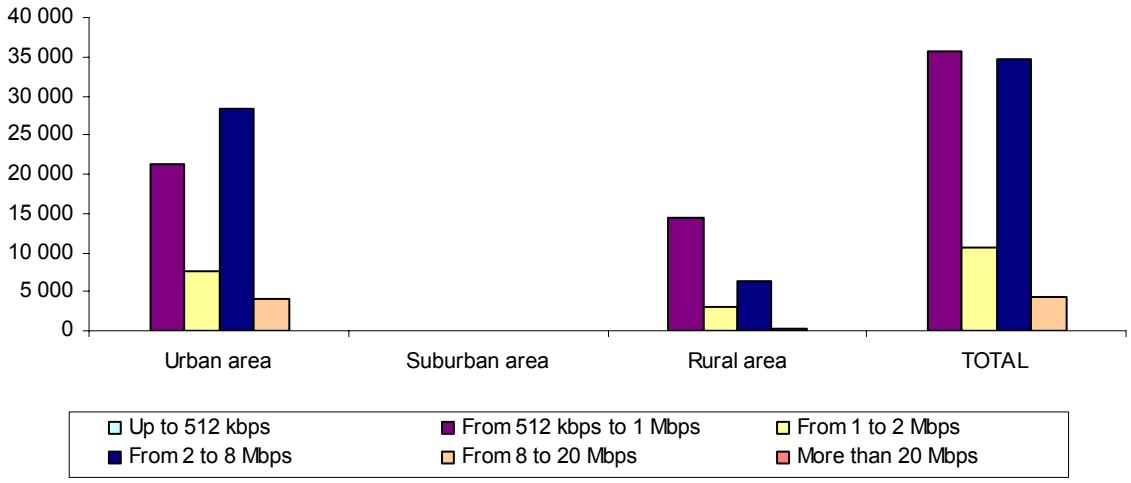
4.12.3. DSL coverage and take-up

Coverage and penetration



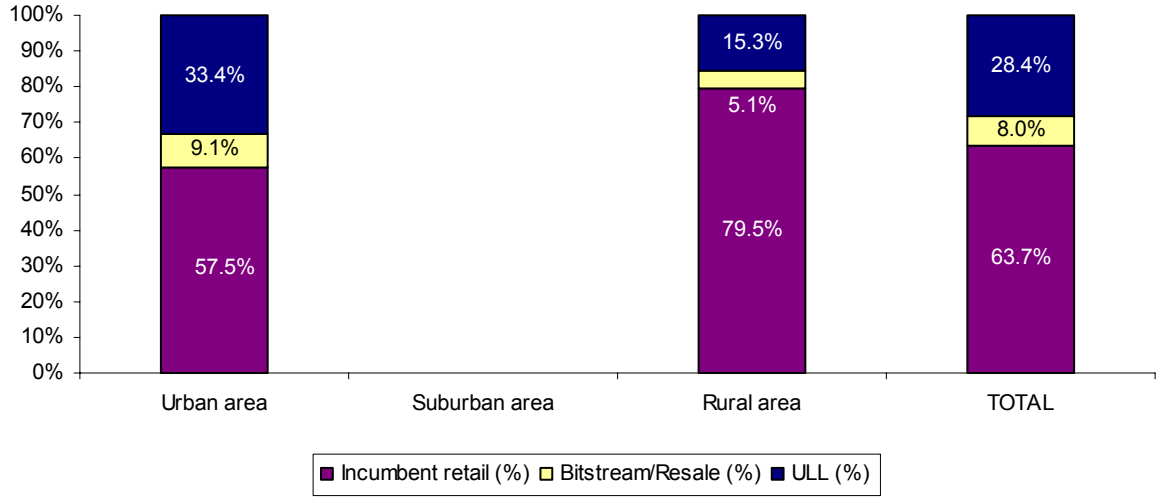
The coverage in Reykjavik is 100%. In the rest of the country (rural), average coverage is 79% of the population.

Number of DSL connections by download rate



Nearly half of DSL users subscribed to offers with download rates of over 2 Mbps.

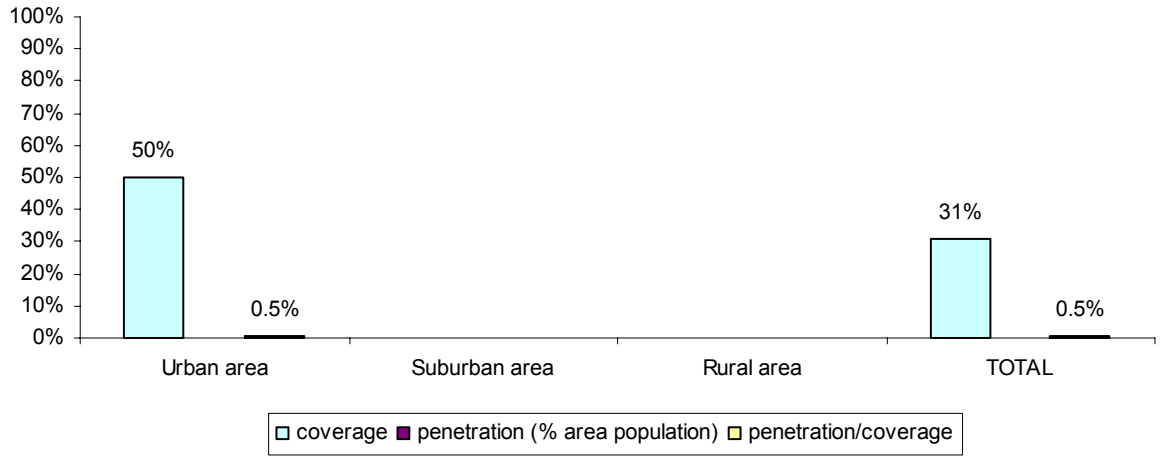
Percentage of DSL connections by type of provider



Unbundling is well developed in Iceland, notably in urban areas where customer density is high.

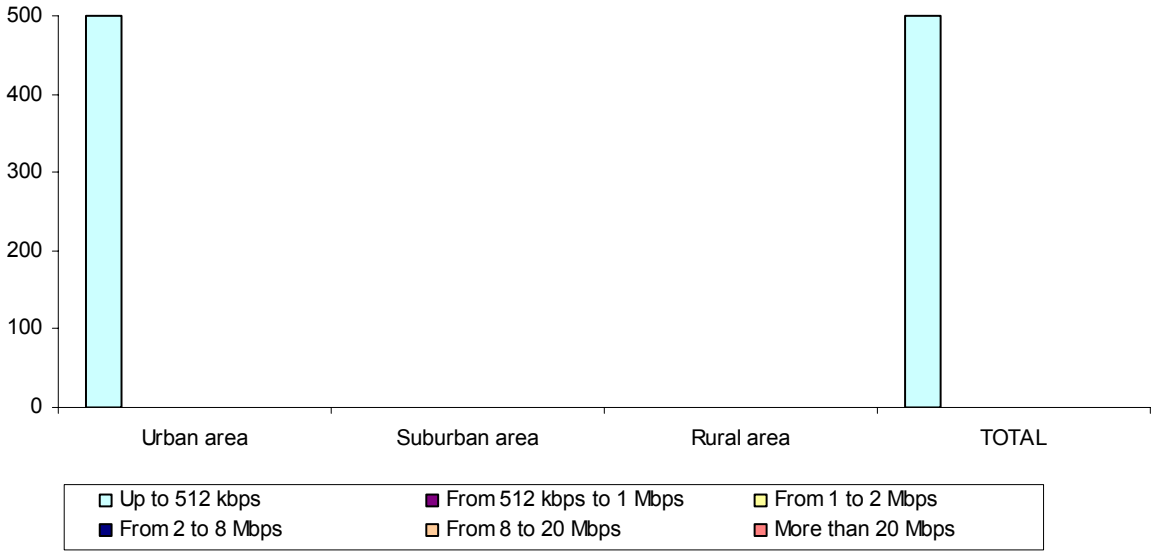
4.12.4. Cable modem coverage and take-up

Coverage and penetration



Cable modem services are provided only by the incumbent, Siminn, and mainly in the Reykjavik area.

Number of cable modem connections by download rate



The number of cable modem subscribers has not changed significantly over the past four years; all connections supply download rates not exceeding 512 Kbps.

4.12.5. Other broadband access technologies

FTTx

A subsidiary of Reykjavik Energy, Lina.net, markets FTTH services, with incumbent telco, Siminn, and og Vodafone also offering optical fibre access (only FFTB or FTTC for Siminn). There were 500 FTTx subscribers in Iceland at the end of 2006

PLC

PLC services are offered by Reykjavik Energy, which has the capability to provide broadband access (coverage) to roughly 30,000 of the approximately 70,000 households in Reykjavik. There were 1,020 subscribers at the end of 2004, a total which increased only slightly in 2005 and 2006.

Wi-Fi

Siminn, og Vodafone and a few small operators offer Wi-Fi access at different hotspots.

Cellular

At the end of 2006, there were no 3G subscribers in Iceland. Siminn, the cellular subsidiary of incumbent Iceland Telecom, has been granted a 3G licence in March 2007.

4.13. Ireland

4.13.1. Population

	Urban area	Suburban area	Rural area	National
Inhabitants	1,804,078	758,052	1,672,795	4,234,925
Share of total population	42.6%	17.9%	39.5%	100.0%

4.13.2. General broadband data

	12/02	12/03	12/04	12/05	12/06
DSL coverage (% of population)	-	61%	71%	82%	86%
DSL subscribers	3 ,300	23 ,824	115 ,583	202 ,246	389 ,245
DSL penetration (% of population)	0.1%	0.5%	2.7%	4.9%	9.2%
Cable modem coverage (% population)	-	*4%*	4%	4%	*8%*
Cable modem subscribers	2 ,300	4 ,900	8 ,045	25 ,000	55 ,320
Cable modem penetration (% population)	0.0%	0.0%	0.0%	0.6%	1.3%
FTTx subscribers	0	0	0	450	*4 ,600*
PLC subscribers	-	-	-	-	-
WLL subscribers	5 ,000	7 ,603	11 ,000	40 ,000	*75 ,000*
Satellite subscribers	-	-	-	2 ,950	*4 ,000*
Total	10 ,600	36 ,327	134 ,628	270 ,646	528 ,165
Total penetration (% population)	0.3%	0.9%	3.3%	6.6%	12.5%

Nota: figures in *italics* are estimates

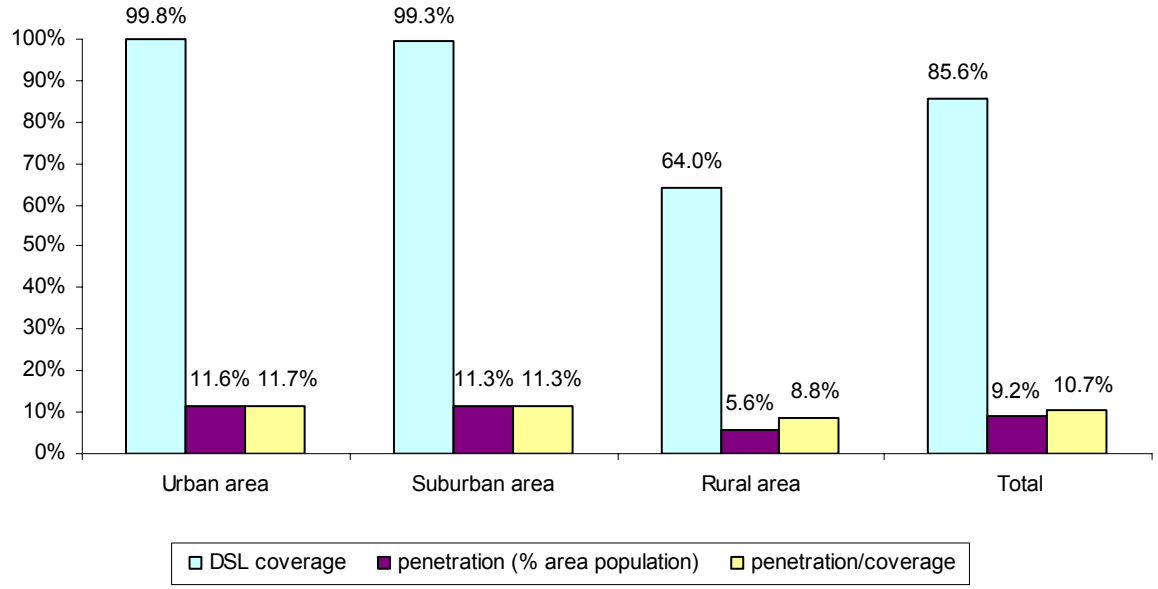
Both broadband coverage and penetration in Ireland grew steadily throughout 2006. Coverage increased to 86% of households, but is still struggling to reach the entire population, chiefly because of the difficulty and economic viability of equipping the remaining rural exchanges and of ensuring the integrity of the oldest parts of the copper local loop to be capable of carrying broadband. Though Ireland still ranks amongst the less advanced European countries, it is significant that broadband penetration has increased steadily to reach 12.5% at the end of 2006, nearly doubling over the course of the year.

DSL accounted for close to 80% of broadband connections at the end of 2006: incumbent carrier Eircom's competitors could increase their market share (about one third of the DSL access market at end of period) through both bitstream/resale offers and unbundling.

As concerns cable, UPC Ireland (which took over ntl Ireland and Chorus) is the only provider of broadband access, while WLL rollouts may well be encouraged, especially for coverage of rural regions.

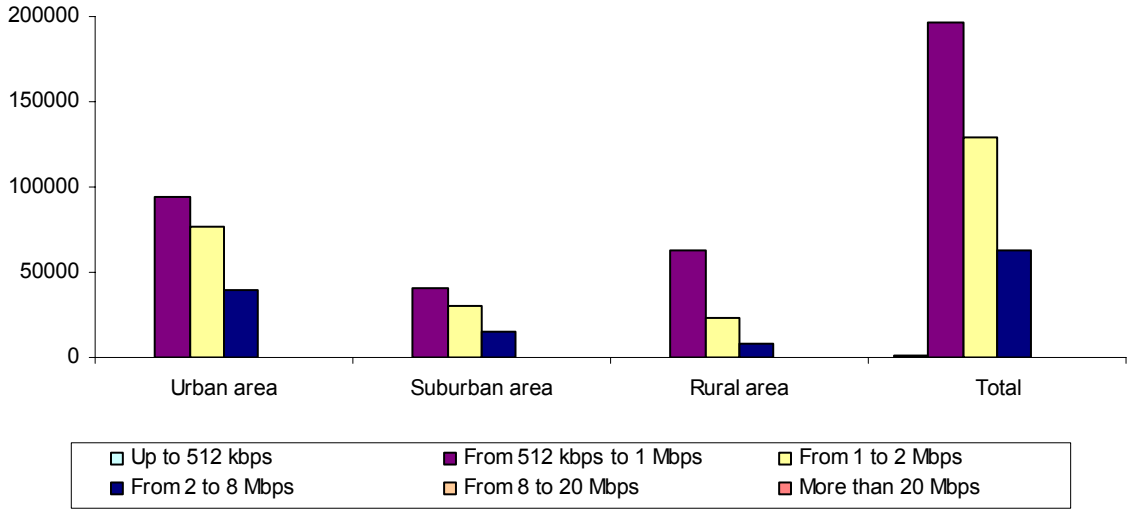
4.13.3. DSL coverage and take-up

Coverage and penetration



Overall, broadband penetration improved in 2006, moving closer to the EU average, with DSL remaining the dominant technology. DSL subscribers totalled 389,245 at end of 2006, a 92%-increase over the year. But a lack of awareness and basic ICT penetration amongst the general public are hampering the rise of local loop unbundling (LLU), which is also suffering from high tariffs (prices for full unbundled loops in Ireland were the most expensive amongst the EU countries in 2006) while a lack of strong competition and competitive pricing structures still appears to be hindering market growth, and coverage in rural areas still remains a major concern.

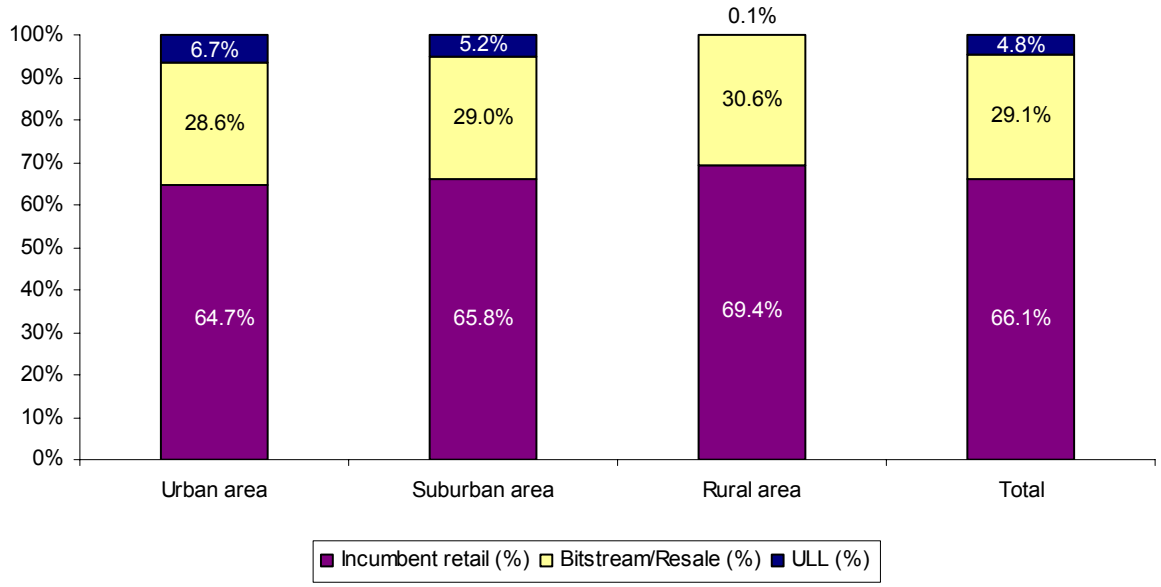
Number of DSL connections by download rate



In January 2006, Eircom announced price reductions for entry level services together with speed upgrades on their mid and higher range services, with increases to 2 and 3 Mbps for residential customers, and up to 5 Mbps for wholesale business users.

At end of 2006, half (50.5%) of Eircom subscribers were supplied with broadband services of between 512 kbps and 1 Mbps, with 33% receiving between 1 Mbps and 2 Mbps (up from 19.4% in 2005), and 16.1% receiving between 2 Mbps and 8 Mbps (7.7% 2005)

Percentage of DSL connections by type of provider

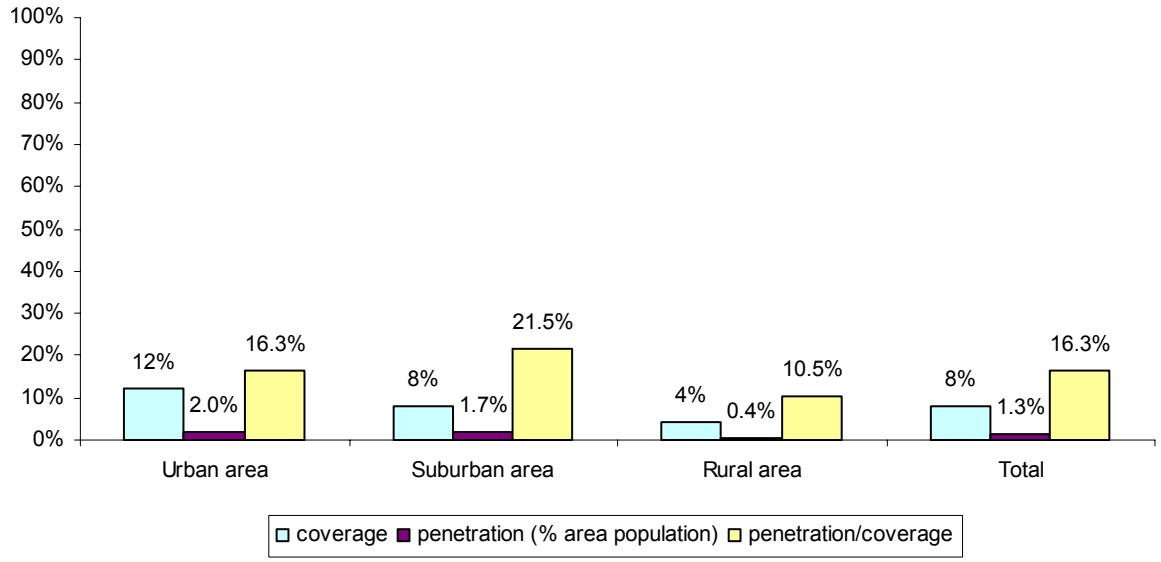


Unbundling made further progress in 2006, with unbundled lines increasing to 18,559 (up from 4,978 at end of 2005), whilst bitstream/resale lines also grew by 29.1% (22.6% in 2005), resulting in a decrease in Eircom's share of DSL from 74.9% at end of 2005 to 66.1% at the end of 2006.

Three operators – BT Ireland, Magnet Entertainment and Smart Telecom – are actively providing unbundled services.

4.13.4. Cable modem coverage and take-up

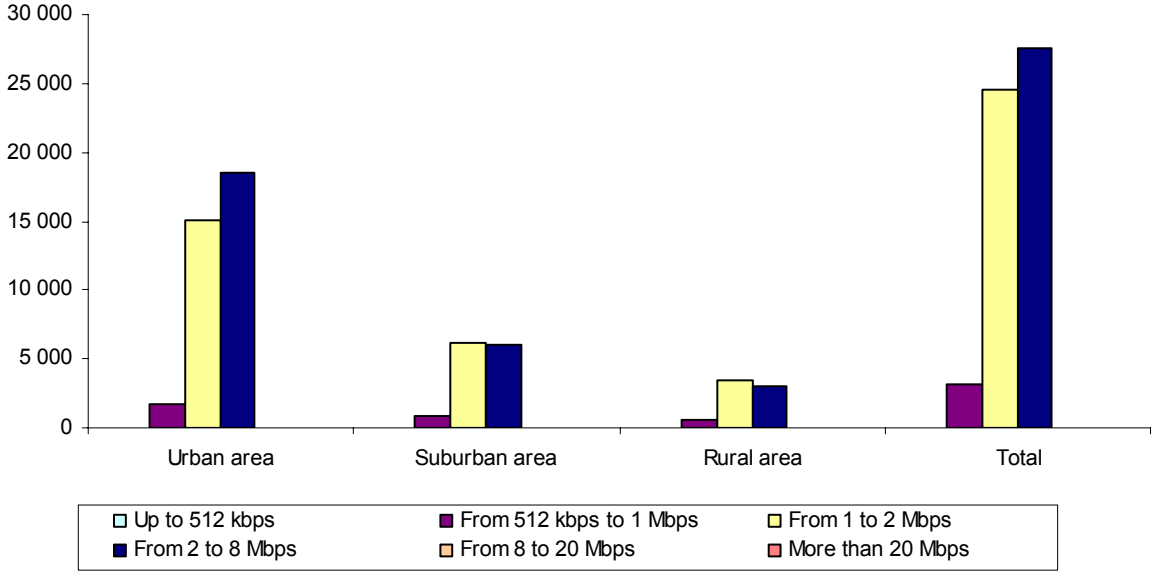
Coverage and penetration



Broadband cable provider UPC Ireland enjoyed strong growth in 2006, increasing the number of broadband subscribers by 121%, to 55,320.

Overall, broadband cable accounted for 11% of total broadband users at the end of 2006, remaining below the EU average.

Number of cable modem connections by download rate



4.13.5. Other broadband access technologies

WLL/WiMAX

With 11 companies in Ireland now holding in excess of 160 licenses, ComReg has successfully developed the market for operators to offer Fixed Wireless Access Local Area services, operating in the 3.5GHz and 10.5 GHz bands. Operators include Airspeed, Clearwire, Digiweb, FastWeb and Irish Broadband.

In 2006, FWALA continued to provide broadband access to a small but growing number of users, reaching 75,000 subscribers at the end of Q4 2006, an increase of 88% over the year, and met ComReg's objectives of assisting overall broadband deployment and market competition.

As noted previously, given Ireland's particular geographic and demographic profile, FWALA technology offers certain advantages for operators in specific suburban and rural areas, including faster and affordable deployment of base stations and consumer equipment, along with frequency reuse, given that coverage is limited to a maximum 15-km radius around each base station (near line of sight).

However the current allocation of licenses in 3.5GHz and 10.5GHz bands is such that it has resulted in a number of 'dead zones' between licensed areas where no further licences in these bands can be allocated. ComReg is currently in discussions with the industry over the steps to take to remedy the situation ('increasing FWALA flexibility'), possibly using the license-exempt spectrum available at 2.4GHz and 5.8GHz.

WiMAX continued to be considered and actively developed by operators for broadband delivery. As noted previously, as part of its three-year investment programme, Eircom will deploy Wi-Max in five major urban areas further the goal of full broadband coverage. Trials were conducted during the latter part of 2006, reportedly involving 180 customers in 45 locations.

WiMAX operator, Irish Broadband, also increased investments to develop its WiMAX regional network operating in the 3.5GHz band, including the development of mobile WiMAX services.

Satellite

Satellite continued to serve a small number of users in rural areas, and at the end of 2006 satellite providers were delivering broadband access to a total of 4,000 subscribers, of which 350 of these were served by Eircom.

FTTx

FTTx subscribers increased to 4,600 by end of 2006 (450 in 2005).

This number is expected to increase significantly in 2007, primarily thanks to Eircom's plans to deploy FTTC (fibre to the curb) prior to the larger-scale FTTC rollout which is due to commence in the second half of 2007.

Cellular

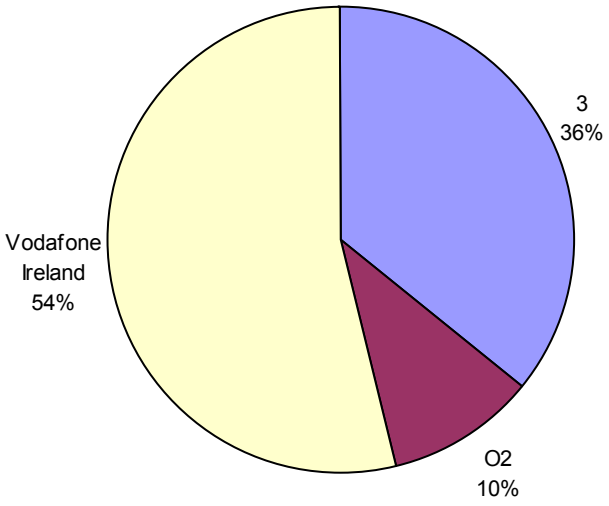
In 2006, 3G coverage increased from 60% to more than 80% of the population. More significantly, the 3G subscriber base made real strides over the course of the year, increasing from 243,200 at the end of 2005 to 892,000 at the end of 2006.

Vodafone, 02 and 3 all enjoyed a significant increases in their 3G customer base, with Vodafone supplying 3G services to over half of all 3G users (480,500 customers) with a mix of voice and data services.

3G licence-holder Smart Telecom had its licence revoked in 2006 due to concerns over its financial status, with a subsequent High Court ruling confirming that Smart should not have been offered the

licence in the first place. Previously unsuccessful bidders, Eircom and Meteor, may now have the chance to be awarded that licence.

Breakdown of the 3G subscriber base* by operator (December 2006)



* Users with 3G handsets

4.14. Italy

4.14.1. Population

	Urban area	Suburban area	Rural area	National
Inhabitants	28,452,601	22,329,432	7,969,667	58,751,700
Share of total population	48.4%	38.0%	13.6%	100.0%

4.14.2. General broadband data

	12/02	12/03	12/04	12/05	12/06
DSL coverage (% of population)	69%	82%	85%	87%	89%
DSL subscribers	981 ,000	2 ,280 ,000	4 ,434 ,745	6 ,673 ,900	8 ,250 ,000
DSL penetration (% of population)	1.7%	4.0%	7.7%	11.5%	14.0%
Cable modem coverage (% population)	0%	0%	0%	0%	0%
Cable modem subscribers	0	0	0	0	0
Cable modem penetration (% population)	0.0%	0.0%	0.0%	0.0%	0.0%
FTTx subscribers	99 ,000	160 ,100	198 ,920	233 ,000	260 ,000
PLC subscribers	0	0.0%	0	0	0
WLL subscribers	0	300	600	830	1 ,000
Satellite subscribers	30 ,000	65 ,000	110 ,000	128 ,400	101 ,000
Total	1 ,110 ,000	2 ,505 ,400	4 ,744 ,265	7 ,036 ,130	8 ,612 ,000
Total penetration (% population)	2.0%	4.4%	8.2%	12.1%	14.7%

Total broadband Internet connections in Italy exceeded 8.6 million lines at the end of 2006, a 22% increase over the previous year. As cable networks are non existent, DSL has been by far the main broadband access technology.

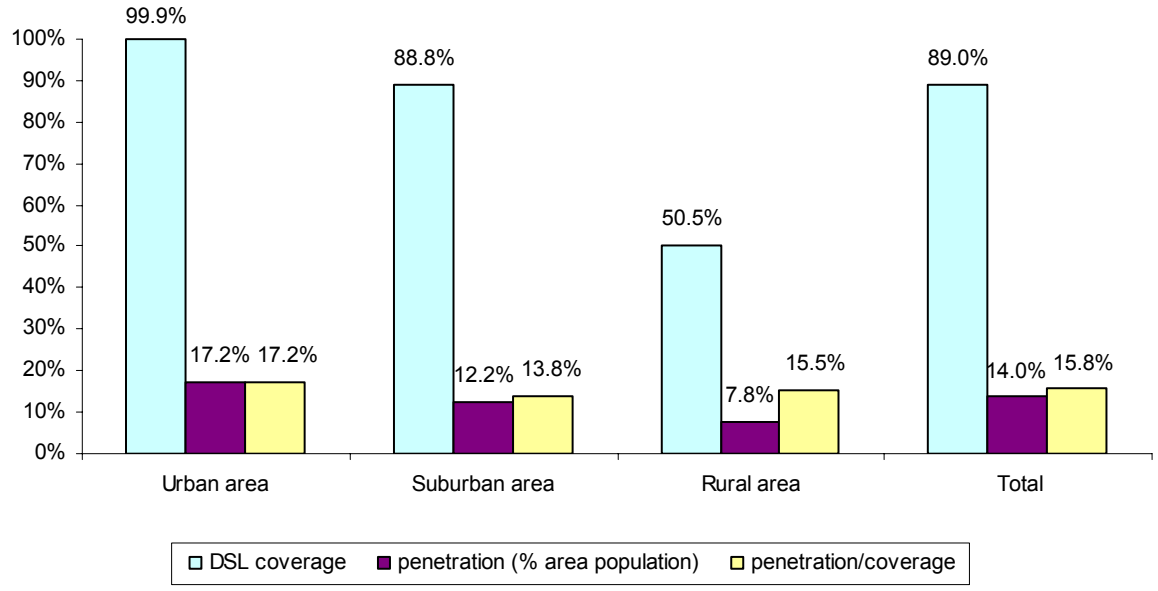
Market growth is driven by:

- the steady decrease of xDSL prices, most being a monthly flat rate;
- healthy market competition with alternative operators using unbundling solutions in particular (even though Telecom Italia controlled 68% of the DSL market at the end of 2006), and all players providing advanced services.

Bundling of complementary services (Voice over IP + Internet access) is increasing when based on xDSL network. FTTH subscriber numbers are still growing but at half rate of xDSL.

4.14.3. DSL coverage and take-up

Coverage and penetration

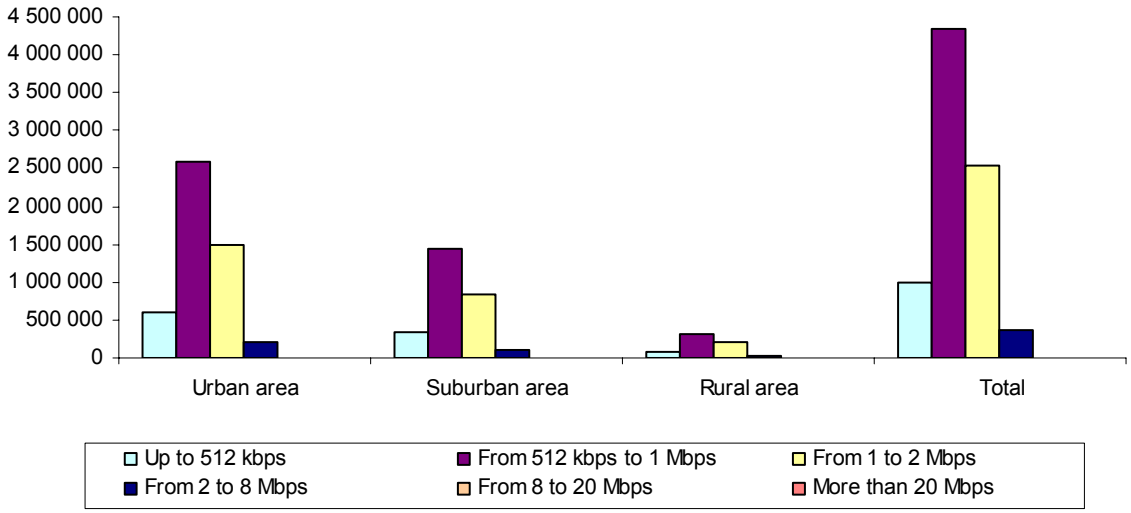


According to Telecom Italia, at the end of 2006, the local exchanges equipped with ADSL access devices (DSLAM) numbered roughly 10,400, which corresponds to 89% of the total population.

Analysis of different sources indicates that 99.9%, 88.8% and 50.5% of the population in urban, suburban and rural areas, respectively, live in municipalities with ADSL coverage.

Coverage in rural areas rose by six points in 2006 (from 45% at the end of 2005), and total coverage by two points (87% at the end of 2005). However, according to Telecom Italia, total coverage is expected to increase by six points by the end of 2007, reaching 95% of total population.

Number of DSL connections by download rate



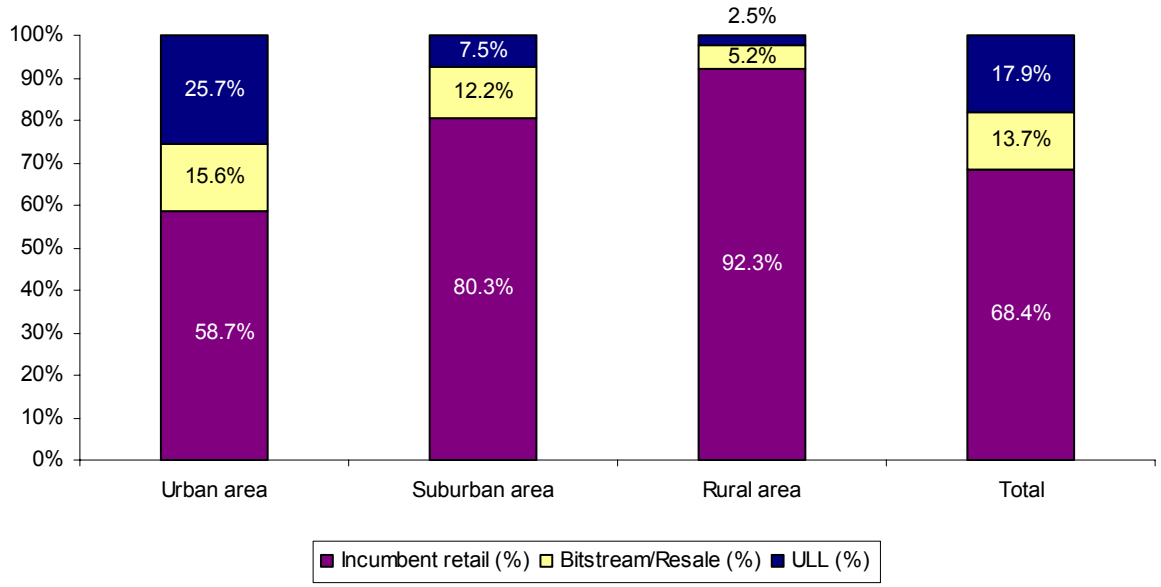
At the end of 2006, 52.6% of active connections were running at a download rate of between 512 kbps and 1 Mbps (chiefly at 640 kbps).

Up until December 2006, most OLO[7]/ISPs were providing primarily DSL services at speeds of 1280 or 2048 Mbps downstream, and 256 or 512 Kbps upstream, whereas many of Telecom Italia connections run at 640 Kbps downstream, and 256 Kbps upstream, while FastWeb supplies DSL services with downstream rates of 10 or 20 Mbps.

Over the last four months, the market's leading players launched new ADSL services delivering higher downstream rates (ADSL2+):

- the incumbent launched ADSL2+ (20 Mbps) services in February 2006. The population covered by the network at the end of December 2006 is estimated by Telecom Italia at 45%;
- FastWeb (4th largest telco in the fixed telecommunications market) launched its ADSL 2+ service in April 2006;
- Tiscali has been marketing DSL services with a downstream rate of 24 Mbps since December 2005;
- three other players – Ngi, Omninetwork and SiADSL– offer DSL services with downstream rates at 2048 Mbps.

Percentage of DSL connections by type of provider



At the end of December 2006, with 5.6 million ADSL, Telecom Italia controlled 68% of the DSL market directly – a share that has decreased slightly since 2005 (73%). The growth rate of DSL lines sold by Telecom Italia to end users, year to year, was around 16%.

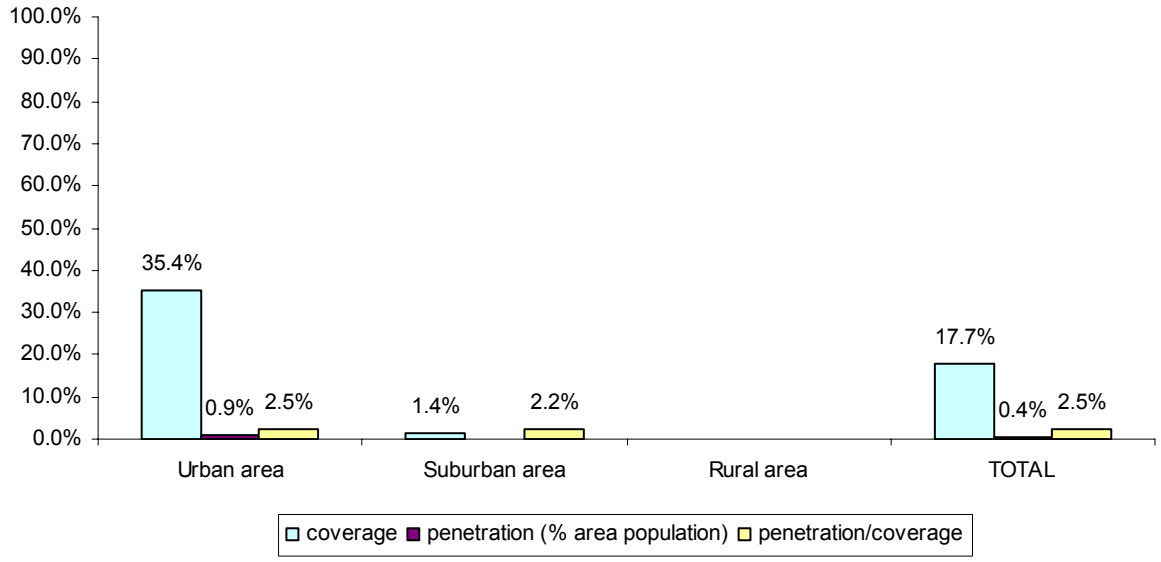
With a growth rate of 66%, ULL and Shared Access lines are the fastest growing market: with 1,480,000 units, their share increased from 14% to 18% in the last year.

The third component in the xDSL market, i.e. xDSL resold by OLO/ISPs, is relatively unchanged at 14% (13% in 2005).

[7] Other Licensed Operators

4.14.4. FTTH coverage and take-up

Coverage and penetration

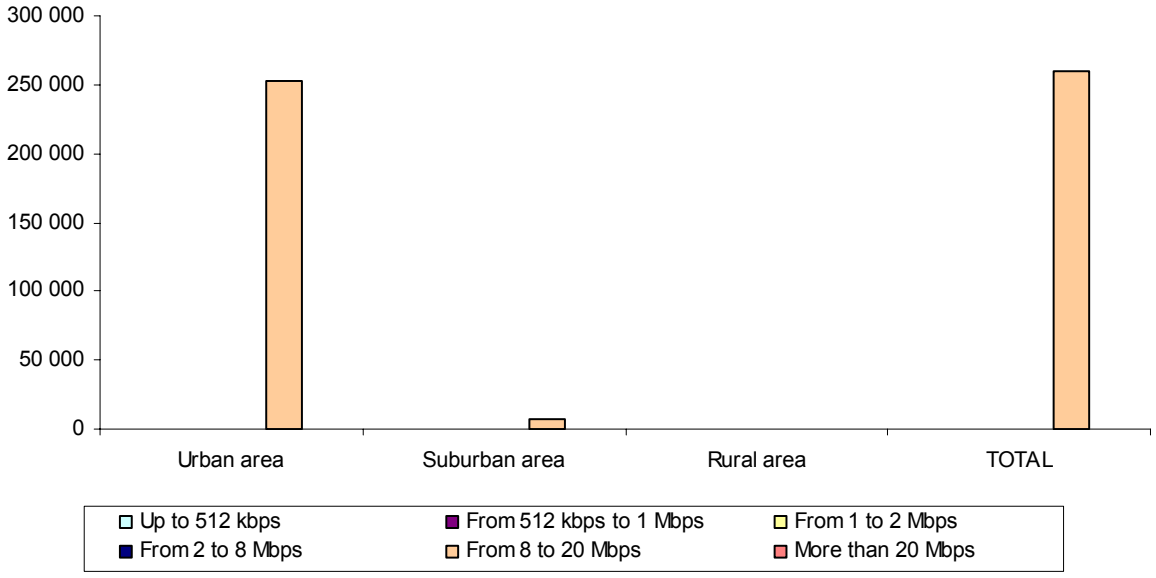


Coverage refers to the percentage of customers covered by the FTTH network.

FastWeb markets FTTH services chiefly to businesses and households, while Colt Telecom, BT Albacom, Wind and Telecom Italia market their services to a small group of businesses and corporate customers.

FTTH is available primarily in Milan and its outskirts, while in Rome, Turin and other big cities the coverage is restricted to certain zones (i.e. industrial or university areas).

Number of FTTH connections by download rate



All FTTH access services sold in the last year can reach a speed of at least 10 Mbps.

4.14.5. Other broadband access technologies

PLC

Over the past three years, pilot projects based on powerline Internet access have been launched in Italy by ENEL (National Power Distributor), in partnership with I-light Spa (a telecommunication engineering company owned by the Main.net Communications Ltd, Israel), and by Local Public Utilities.

The main initiatives took place in the cities of Brescia, Cremona, Grosseto (with Wind, owned until 2004 by ENEL) and Sassuolo (with the OLO Satcom).

Wi-Fi

In March 2007, there were 2,790 active Wi-Fi hotspots in Italy, of which 790 deployed directly by Telecom Italia.

The best-equipped region was Lombardy with 494 hotspots, followed by Lazio (358), Emilia-Romagna (276) and Veneto (245).

WLL/WiMAX

WLL services are based on the 24.5 GHz and 27.9-29.5 GHz frequencies, also known as LMDS in Italy. These services were liberalised in 2002 via Ministry of Communications tender. Licences were awarded to 13 network operators.

At the end of 2006, Databank estimates a base of roughly 1,000 WLL business customers, based on interviews with the players (Infracom: 950 customers in north-eastern Italy).

Starting in autumn 2005, Radio LAN system vendors (Alvarion, Aperto…), in partnership with ISPs and OLOs, launched 36 WiMAX trials in areas on the losing side of the digital divide (i.e. not covered by DSL on the copper network). According to the Ministry of Communications, these trials were to continue through to the end of December 2006.

Meanwhile, several ISPs and Radio LAN system vendors have begun trials on Hiperlan and Wi-Fi technologies with local authorities and consortia in 30 other areas affected by the digital divide. The initial goal here is to interconnect local authorities with schools and public libraries, and then to make wireless broadband access available to households and businesses.

The wireless backbone in these trials is based on Hiperlan technologies (using the licence-exempt 5GHz frequency), while access to the network is achieved via Wi-Fi access points.

At the end of 2006, the Ministry of Communications and Ministry of Defence reached an agreement on the allocation to WiMAX of certain frequencies (3.4-3.6 GHz) which were previously assigned to military purposes only, starting in June 2007. The authority also plans on tripling the allocated spectrum over the next 5 years (by 2011), guaranteeing broadband access throughout the country.

In spring 2007, debates took place between authorities and telcos over the general terms of licences, and particularly over the high cost of local licences, given the size of the equipment investments needed compared to the relatively small number of potential users in uncovered areas.

Satellite

Two-way satellite Internet access in Italy is supplied primarily by ISP Netsystem.com (also in partnership with Telecom Italia).

According to Ecta, at end of September 2006, there were 105,690 satellite Internet subscribers in Italy.

Because users of this technology are decreasing, due to the availability of a better broadband offer in a greater percentage of the country, Databank estimates users number at the end of the year at roughly 101,000.

Cellular

At the end of 2006, there were 80.6 million cellular subscribers in Italy. The penetration rate is roughly 143%, also taking account of “Machine to Machine” lines which are estimated to total 2.1 million.

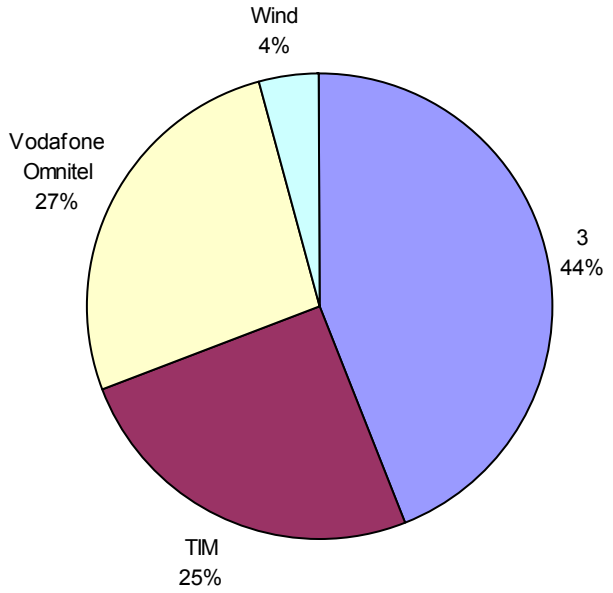
At the end of the year, there were 16.6 million active UMTS lines, a remarkable increase from the 9.8 million lines at the end of 2005 (13.8% of total mobile lines).

Four operators share control of the mobile market in Italy:

- TIM (Telecom Italia) with 32.4 million customers, of which 4.2 million UMTS;
- Vodafone Italia, with 26.2 million customers, of which close to 4.5 million had signed up for UMTS services at the end of 2006;
- Wind, with 14.7 million mobile customers, of which roughly 1.7 “i-mode” service customers (we estimate 1 million are served over GPRS and 0.7 million over UMTS);
- H3G with near 7.3 million UMTS customers (declared 6.81 at 24 august 2006).

At the end of December 2006, the UMTS network covered 70.8% of the population, while 99.8% were covered by GPRS and EDGE.

Breakdown of the 3G subscriber base* by operator (December 2006)



* Users with 3G handsets

4.15. Latvia

4.15.1. Population

	Urban area	Suburban area	Rural area	National
Inhabitants	1,470,000	62,800	748,400	2,281,200
Share of total population	64.4%	2.8%	32.8%	100.0%

4.15.2. General broadband data

	12/02	12/03	12/04	12/05	12/06
DSL coverage (% of population)	-	-	-	-	72%
DSL subscribers	11 ,962	18 ,713	*43 ,740*	68 ,569	120 ,000
DSL penetration (% of population)	0.5%	0.8%	1.9%	3.0%	5.3%
Cable modem coverage (% population)	-	-	-	-	50%
Cable modem subscribers	2 ,990	6 ,238	6 ,480	16 ,000	52 ,000
Cable modem penetration (% population)	0.1%	0.3%	0.3%	0.7%	2.3%
FTTx subscribers	0	0	0	1 ,000	1 ,200
PLC subscribers	0	0	0	44	60
WLL subscribers	-	-	*1 ,000*	54 ,623	92 ,000
Satellite subscribers	-	-	-	-	60
Total	14 ,952	24 ,950	51 ,220	140 ,236	265 ,320
Total penetration (% population)	0.7%	1.1%	2.2%	6.1%	11.6%

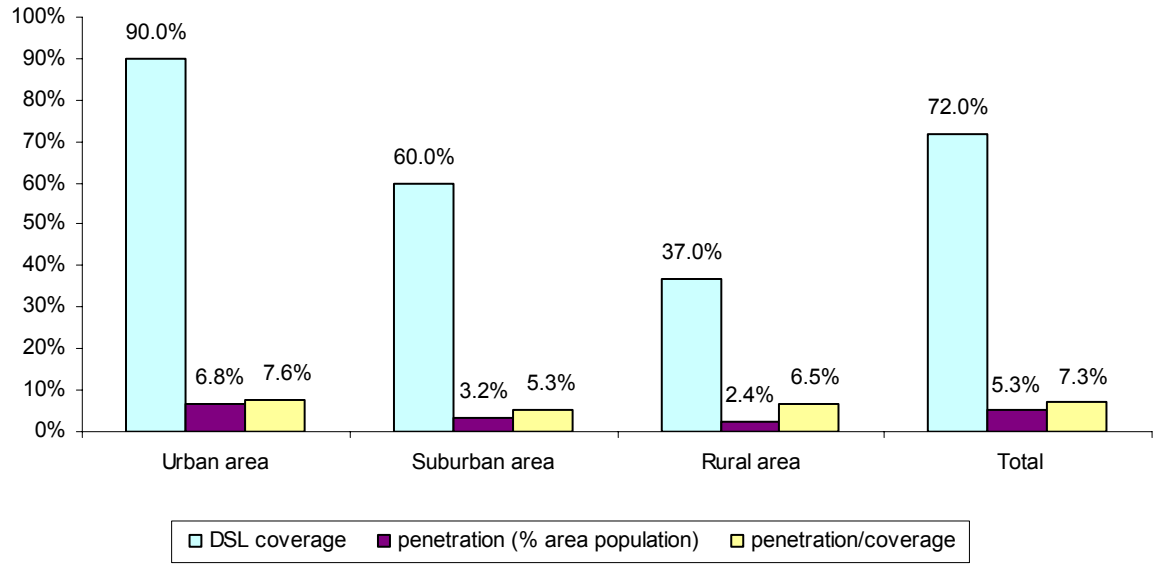
Broadband penetration in Latvia is estimated to have increased to 11.6% by the end of 2006. The rapid growth over 2005 and 2006 was driven particularly by developments in WLL, with Triatel offering CDMA-based fixed wireless access. At the end of 2006, Triatel reported 85,000 subscribers (50,000 at the end of 2005) and served roughly one third of broadband subscribers in Latvia.

DSL remains the dominant technology, however, with 45% of the subscriber base, with the market controlled by the incumbent carrier, Lattelekom, as resale/bitstream offers only represent 4% of DSL connections, and unbundling has only just begun to be used in urban areas.

Increasingly strong competition is coming from cable operators, namely Baltkom TV and IZZI, while FTTH is still fledgling.

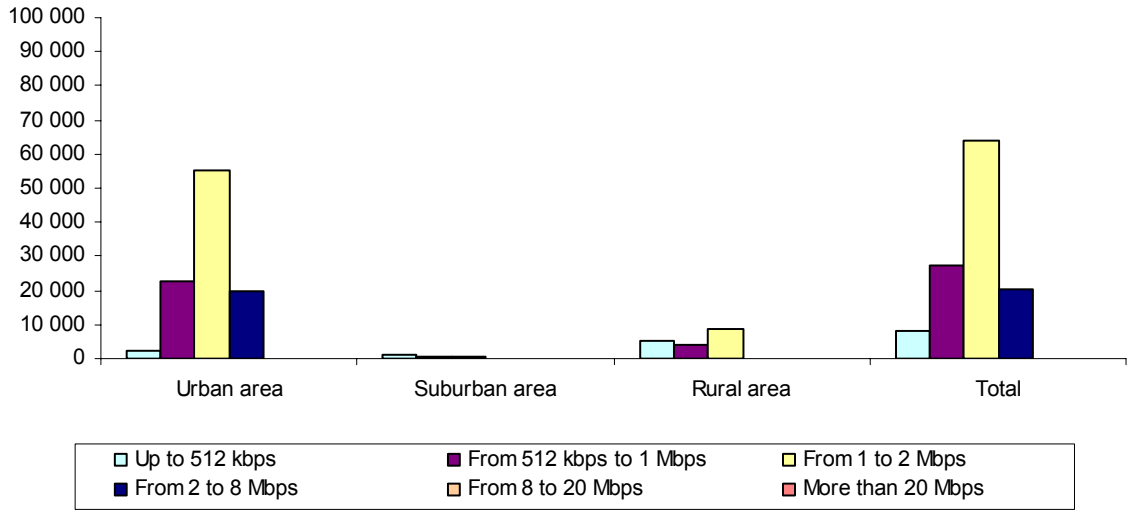
4.15.3. DSL coverage and take-up

Coverage and penetration



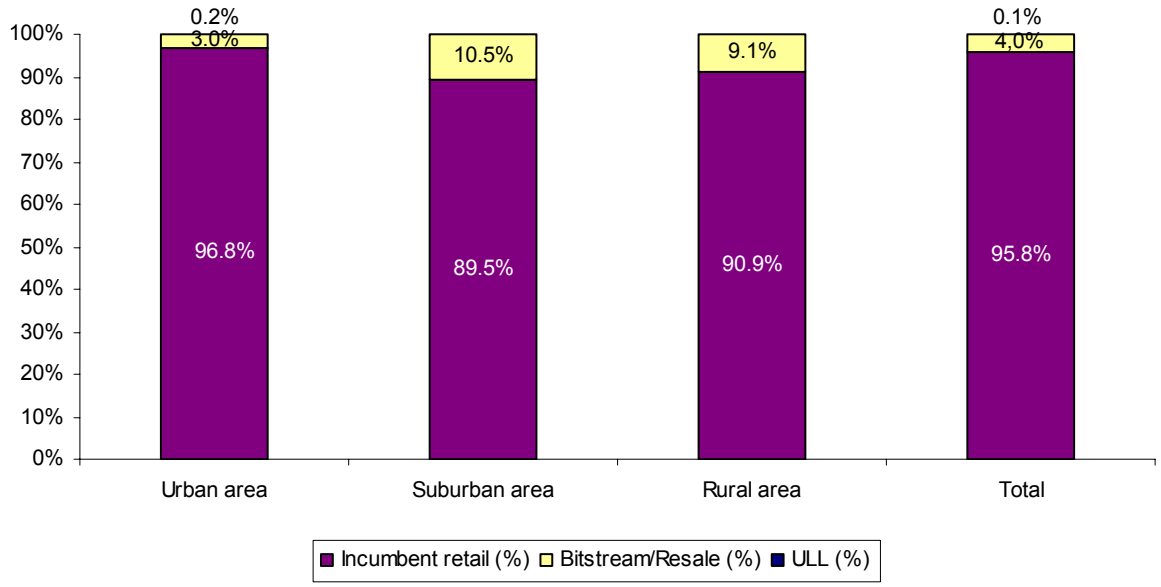
DSL coverage in Latvia is somewhat low compared to the European average, and even when compared to other Baltic countries (83% of the population is covered in Lithuania and over 90% in Estonia).

Number of DSL connections by download rate



DSL solutions have been substantially upgraded, and two out of three subscribers have connections over 1 Mbps.

Percentage of DSL connections by type of provider

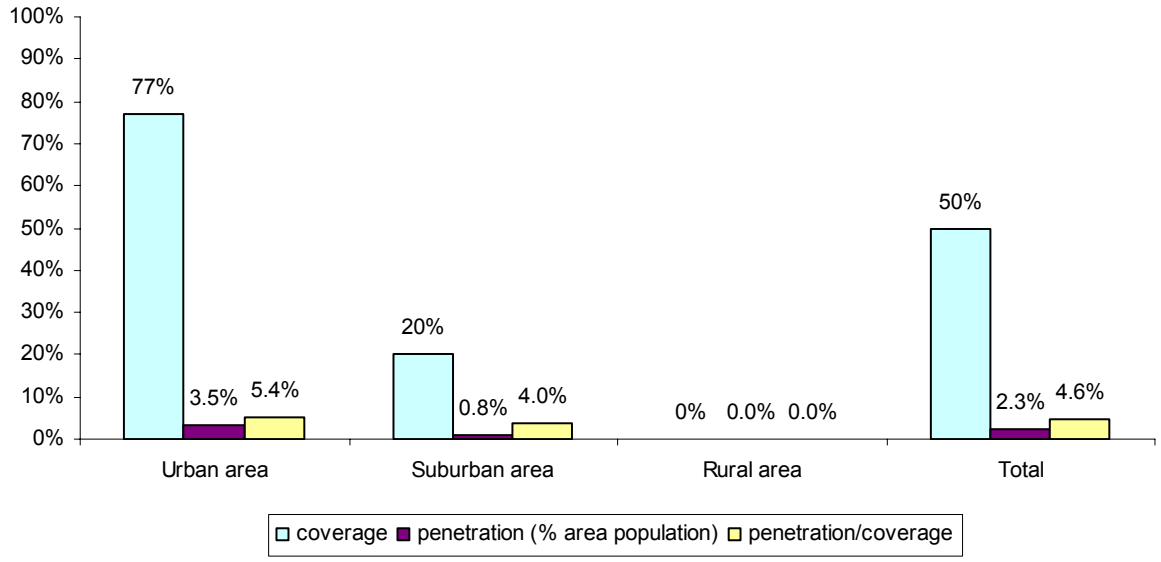


Alternative DSL providers' market share is very small, with incumbent Lattelekom still boasting a 96% share of retail DSL.

One specificity of the Latvian market is that competition is more advanced in suburban and in rural areas, due to the fact that, in those areas, a significant number of broadband subscribers are new telecommunications customers, i.e. a portion of them had no previous ties to the incumbent carrier.

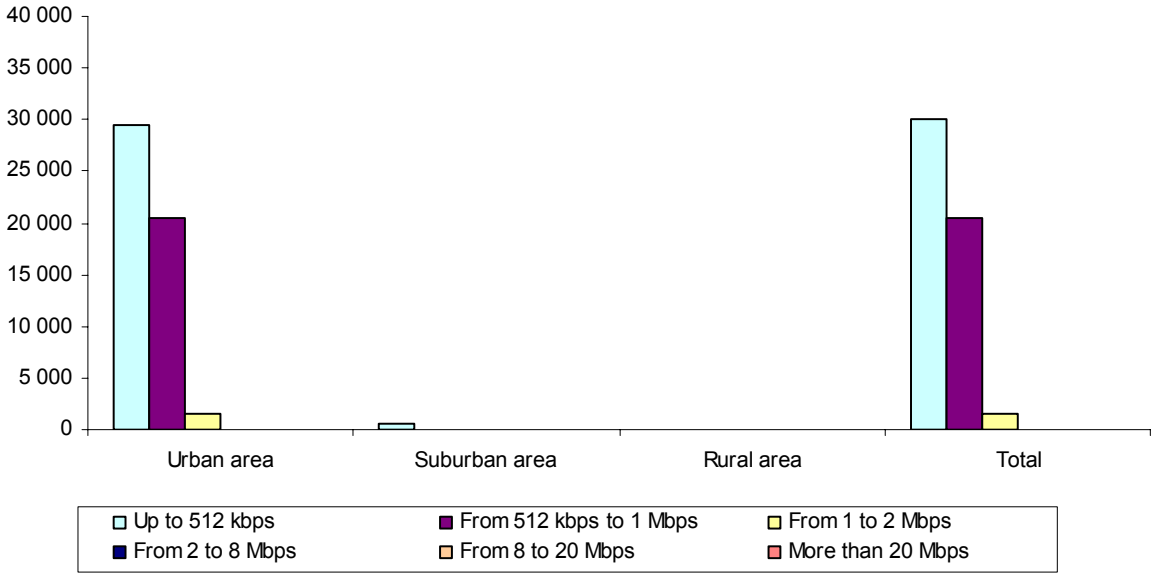
4.15.4. Cable modem coverage and take-up

Coverage and penetration



There were 52,000 cable modem subscribers in Latvia at the end of 2006, which represents an only 2.3% penetration rate, following a strong increase of 16,000 new customers the year before.

Number of cable modem connections by download rate



97% of cable modem customers subscribe to offers with download rates of up to 1 Mbps.

4.15.5. Other broadband access technologies

Wi-Fi

Public Wi-Fi hotspots in Latvia are provided by the country's largest telecom carrier, Lattelekom. In 2006, traffic over Wi-Fi increased by 15%.

Hotspots numbers in Latvian cities

City	Number of hotspots
Riga	**210**
Jurmala	**42**
Daugavpils	**35**
Liepaja	**23**
Ventspils	**40**
Total	**350**

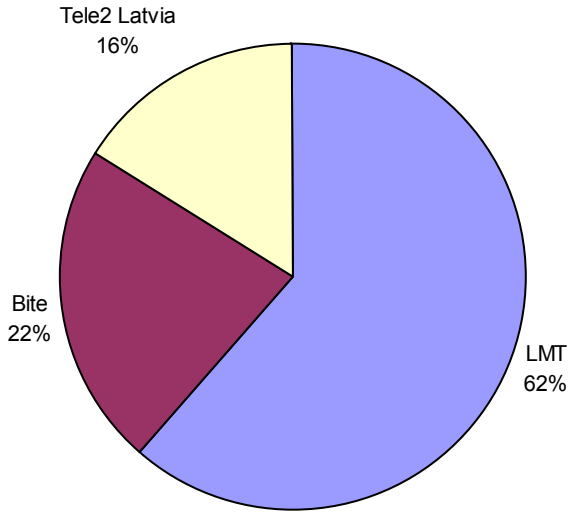
Map of Wi-Fi in Latvia

Cellular

3G developments in Latvia are still at the early stages but, thanks to Triatel's success at marketing a fixed-wireless hybrid product over its 450MHz network, Bite Mobile is expected to leverage its 3G network to provide home broadband services at speeds of up to 3.6Mbps, competing directly with traditional ISPs.

The number of 3G subscribers at the end of 2006 was 15,700.

Breakdown of the 3G subscriber base* by operator (December 2006)



* Users with 3G handsets

4.16. Lithuania

4.16.1. Population

	Urban area	Suburban area	Rural area	National
Inhabitants	1,876,222	225,297	1,283,562	3,385,081
Share of total population	55.4%	6.7%	37.9%	100.0%

4.16.2. General broadband data

	12/02	12/03	12/04	12/05	12/06
DSL coverage (% of population)	0%	0%	-	82%	83%
DSL subscribers	0	0	*50 ,074*	104 ,798	178 ,302
DSL penetration (% of population)	0.0%	0.0%	1.5%	3.1%	5.3%
Cable modem coverage (% population)	0%	0%	-	-	52%
Cable modem subscribers	0	19 ,983	32 ,227	49 ,631	65 ,758
Cable modem penetration (% population)	0.0%	0.0%	0.9%	1.4%	1.9%
FTTx subscribers	0	13 ,881	35 ,748	60 ,260	98,298*
PLC subscribers	0	0	0	0	0
WLL subscribers	0	4 ,753	9 ,019	17 ,937	24,491
Satellite subscribers	0	0	0	0	0
Total	0	65 ,863	127 ,682	232 ,626	366 ,849
Total penetration (% population)	0.0%	0.0%	3.7%	6.8%	10.8%

* including 45,654 LAN subscribers

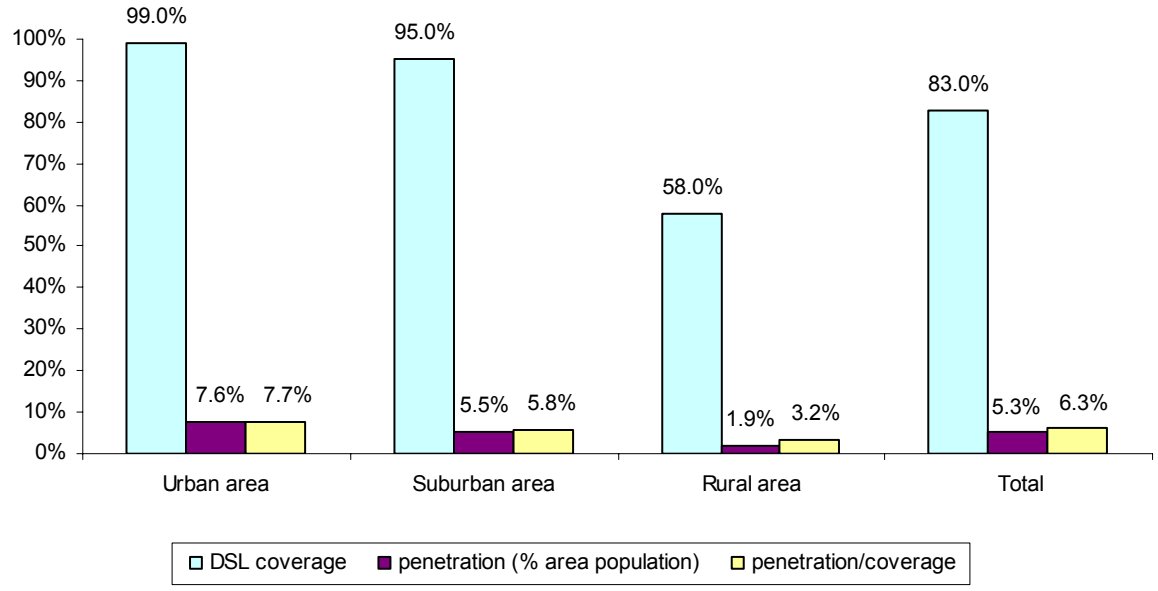
At the end of 2006, there were 115 Internet providers in Lithuania and broadband penetration totalled 10.8%.

The broadband subscriber base grew by more than 50% in 2006, with ADSL being the most dynamic segment (+70%); this access technology accounted for nearly half of all broadband connections at the end of 2006. Increasingly affordable ADSL offerings have been launched in conjunction with IPTV offerings, helping stimulate broadband market growth.

LAN access is a very popular connection mode in apartment buildings, where end users are connected via copper cables. In 2006, the regulator reported a base of 45,600 LAN subscribers, i.e. 12.5% of all broadband users.

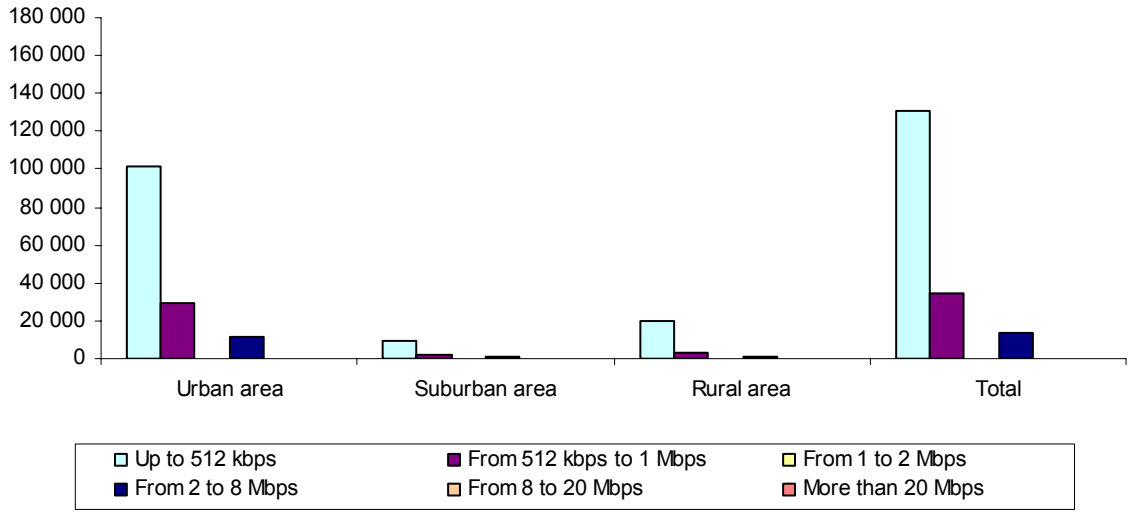
4.16.3. DSL coverage and take-up

Coverage and penetration



In Lithuania, most local exchanges are equipped with DSL, which accounts for the relatively high rate of DSL coverage in the country. In 2006, incumbent carrier, AB “TEO”, launched new ADSL Internet services in suburban and rural areas. ADSL coverage in Lithuanian cities totals 99%, while 58% of the country’s rural population have access to the Net over ADSL (in 2006, AB "TEO“ launched ADSL services at 296 new points located in villages and small towns).

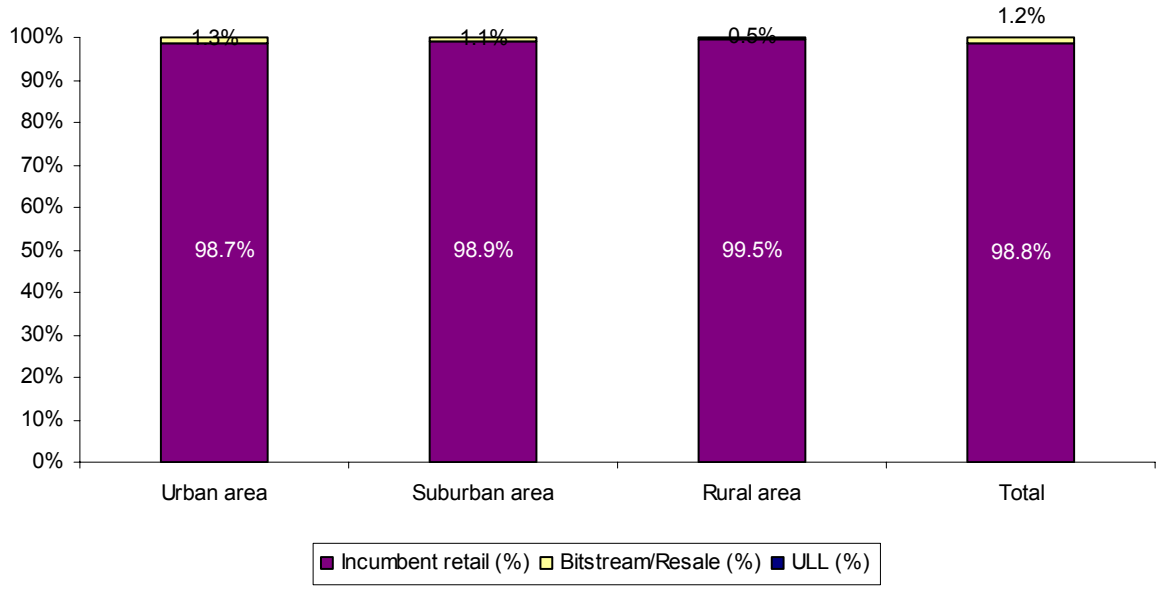
Number of DSL connections by download rate



Over the course of 2006, the incumbent carrier increased the bitrates delivered by all its ASDL plans without increasing the price. In the first quarter of 2006, new plans were introduced, with connections at a speed of up to 4 Mbps. These new offers altered the customer segmentation by bitrate: there has been a notable increase (from 6.1% to 30%) since 2005 in subscribers to services running at 512

Kbps to 1 Mbps, while the percentage subscribing to services operating at 512 kbps has decreased by 22.7% since the end of 2005.

Percentage of DSL connections by type of provider

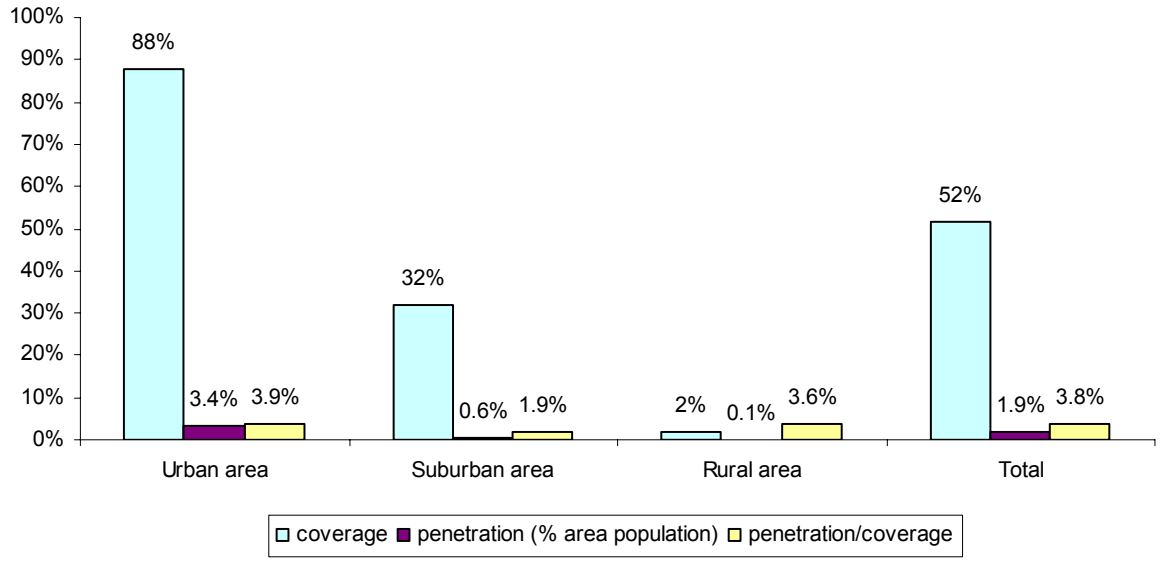


The incumbent carrier is the dominant DSL market player. AB “TEO” is the leading provider of broadband Internet access in Lithuania, with 176,160 xDSL subscribers at the end of 2006 – 1.8 times more than in 2005. Only 1.2% of xDSL (2,155 lines) are delivered via bitstream by nine other providers. Bitstream appears to be viable only for non residential users in Lithuania. The incumbent also reports that 2,500 ADSL were delivered to LAN users.

In 2006, the first 296 fully unbundled connections began operating in Lithuania, although alternative operators have not sought to expand their base of LLU lines.

4.16.4. Cable modem coverage and take-up

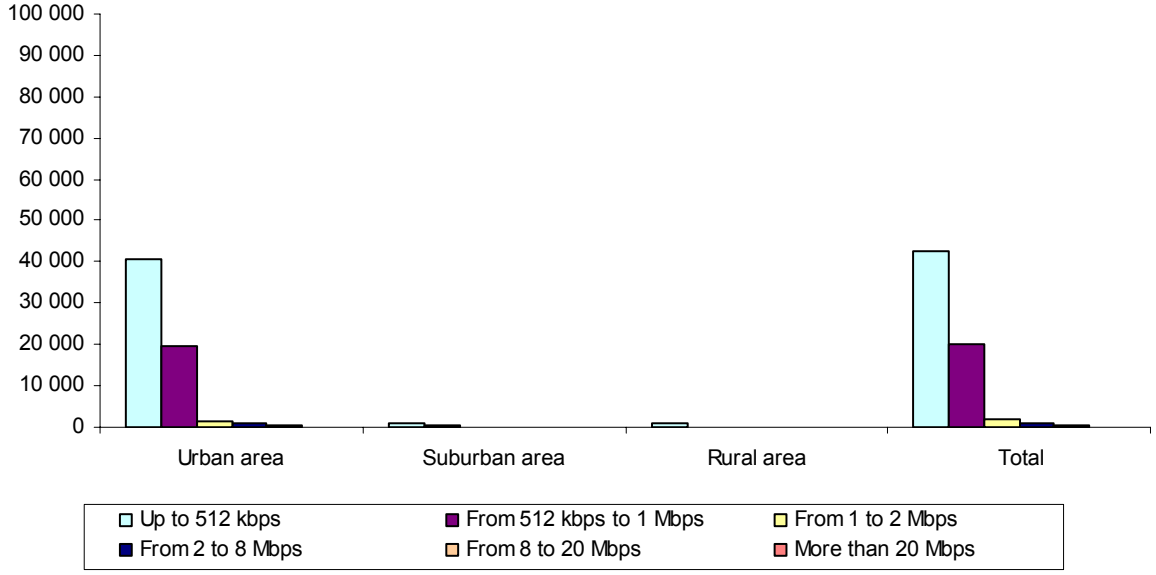
Coverage and penetration



There are 38 broadband cable providers in the country, with some of them using MDTV networks. Lithuanian cable providers report a base of 65,760 subscribers in 2006, with Balticum TV, Init and Vinita, being among the cable market leaders – the majority of them devoted to serving a single city.

Cable TV networks are located chiefly in urban areas and cover large groups of households, which account for a sizeable portion of the population: close to 87% of urban and only 2% of rural areas are covered with cable TV networks.

Number of cable modem connections by download rate



Broadband running at 512 Kbps is the most popular connection speed on cable networks, due to the fact that 512 Kbps and 1Mbps solutions are the most affordable for customers. Consumers living in

rural areas are less concerned with speed, with only 144 rural subscribers connected to the Internet at a bitrate of over 512 Kbps.

4.16.5. Other broadband access technologies

FTTx

The need for increased bitrates has spurred Fibre-to-the-Cub (FTTC) efforts. At the end of 2006, there were 98,298 FTTx subscribers, of which 52,644 FTTH subscribers..

Optical fibre connections are available only in urban and some suburban areas. In 2006, FTTx networks covered 18 cities in Lithuania: Vilnius, Kaunas, Klaipėda, Panevėžys, Šiauliai, Gargždai, Prienai, Joniškis, Marijampolė, Telšiai, Alytus, Kėdainiai, Mažeikiai and Jonava – connecting 30% to 45% of the urban population.

FTTx networks are expanding rapidly thanks to investments by ISPs. The top players in this market are:

- Meganet,
- 5 - continents,
- KIS,
- TEO.

At the end 2006, TEO announced the Fibre-to-the-Home Project, one of its largest ever network modernisation programmes, with plans to invest over 100 million LTL in the new optical access network over three years.

Most of the suppliers provide connections in FTTC or FTTB mode in Lithuania. 41% of end users connect via copper cable, while the backbone network is optical. Some non-residential subscribers are connected via 1 Gbps optical cable.

In 2006, providers offered a connection rate of up to 30 Mbps on Lithuanian networks, and from 512 Kbps to 8192 kbps on networks abroad.

Satellite & PLC

There are no satellite or PLC offerings in Lithuania.

Wi-Fi

At the end of 2006, there were roughly 993 hotspots in Lithuania. The largest WLAN operator is AB “TEO” with more than 804 hotspot zones in hotels, restaurants, airports and other public places. Other Wi-Fi providers are:

- Baltneta’s Communications,
- Omnitel,
- Bite Lietuva,
- 5 - Continents.

Compared to December 2005, the number of hotspots had increased more than 2.4 times. In the summer of 2006, AB “TEO” increased hotspots connection speed to 5 Mbps. Official figures on user numbers are not available but AB “TEO” reports 4,000 regular users. Up until March of 2007, Wi-Fi usage was free.

WLL/WiMAX

There are four frequency bands allocated for broadband access using WLL technology: 3.4-3.6 GHz, 10.15-10.3/10.5-10.65 GHz, 24.5-26.5 GHz and 27.5-29.5 GHz.

The main WLL access provider is Lithuanian Radio and Television Centre (LRTC) with 14,000 Internet subscribers, located chiefly in rural areas. LRTC is currently offering a pre-WiMAX solution in the 3.5 GHz frequency range. RRT has already issued two WLL pre-WiMAX rights of use for radio

frequencies. A tender is planned for WiMAX rights of use: two national and one regional, should frequencies remain available after the granting of national rights.

There are also several providers marketing WLL access to the web in unlicensed frequencies. There were 24,491 WLL subscribers in 2006.

	12/06
WLL coverage	70%
WLL subscribers	24,491

Cellular

There are three mobile operators in Lithuania, all of which provide mobile Internet access: UAB “Omnitel”, UAB “Bite” and UAB “Tele2”. In February of 2006, the national regulatory authority awarded 3G (UMTS) licenses to all three operators, which launched commercial services during the year: UAB “Omnitel” – in February, UAB “Bite Lietuva” in April, UAB Tele2” in December.

3G services are available in Lithuania’s 19 largest towns and cities: Alytus, Druskininkai, Jonava, Kaunas, Kedainiai, Klaipeda, Marijampole, Mazeikiai, Nida, Palanga, Panevezys, Siauliai Taurage, Vilnius. At the end of 2006, there were 83 base stations equipped with UMTS.

Total UMTS coverage in Lithuania is 56%, with coverage in urban, suburban and rural areas at 89.6%, 40.7% and 8.5%, respectively.

Most UMTS services deliver speeds of up to 384 Kbps. UAB “Bite Lietuva“ and UAB "Omnitel“ have been operating their network with HSDPA at up to 3.6 Mbps since 7 June 2006.

Mobile data services are available, including UMTS TDD-based mobile broadband services. In 2006, "Neltes tinklas" launched a next generation wireless broadband access network (3.5 G) in Lithuania, operating in the licensed 3.5 GHz frequency band, over infrastructure based on the UMTS TDD 3G standard with technology developed by IPWireless. Service is available in the city of Klaipėda and supports speeds up to 3 Mbps.

4.17. Luxembourg

4.17.1. Population

	Urban area	Suburban area	Rural area	National
Inhabitants	196,590	170,465	76,995	444,050
Share of total population	44.3%	38.4%	17.3%	100.0%

4.17.2. General broadband data

	12/02	12/03	12/04	12/05	12/06
DSL coverage (% of population)	100%	100%	100%	100%	100%
DSL subscribers	6 ,822	13 ,097	31 ,243	63 ,132	87 ,275
DSL penetration (% of population)	1.5%	2.9%	7.0%	14.2%	19.7%
Cable modem coverage (% population)	na	21%	34%	*50%*	*70%*
Cable modem subscribers	600	2 ,000	4 ,081	6 ,877	*9 ,566*
Cable modem penetration (% population)	0.1%	0.5%	0.9%	1.5%	2.2%
FTTx subscribers	-	-	-	150	*300*
PLC subscribers	0	0	0	0	0
WLL subscribers	-	-	-	69	*120*
Satellite subscribers	0	0	0	0	0
Total	7 ,422	15 ,097	35 ,324	70 ,228	97 ,261
Total penetration (% population)	1.7%	3.4%	8.0%	15.8%	21.9%

Nota: figures in *italics* are estimates

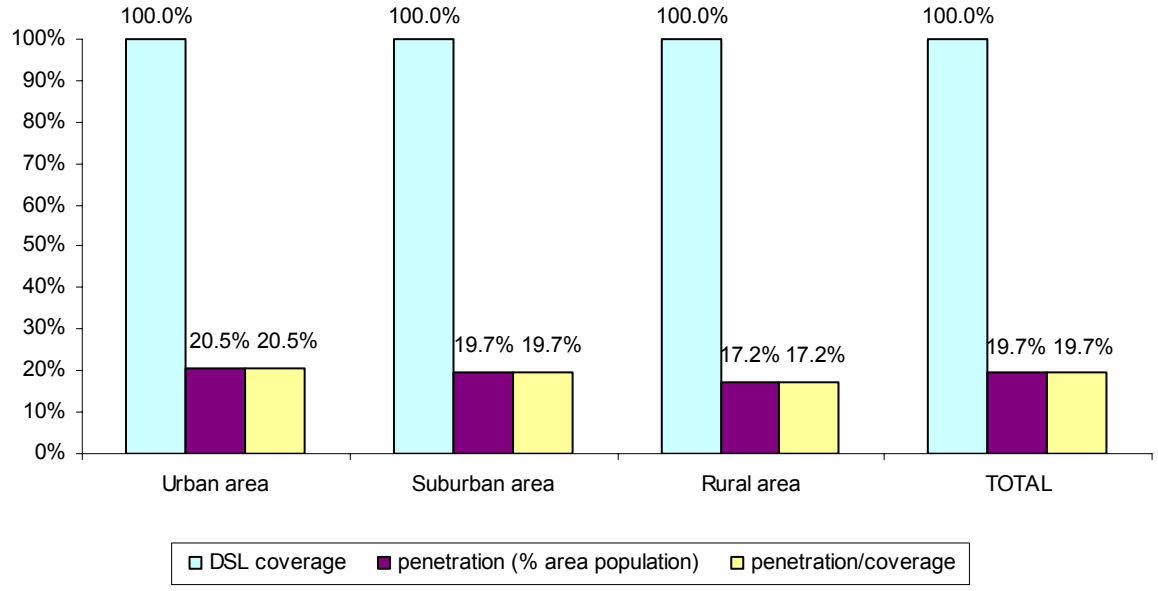
With close to 100,000 broadband subscribers at the end of 2006, penetration reached 21.9% – just ahead of France and the UK but below the other two Benelux countries and Scandinavia.

DSL is dominant (90% of all broadband connections) and 80% of retail lines are provided by the incumbent operator, PT Luxembourg. All local exchanges are DSL equipped; however due to technical constraints, effective eligibility is only 95%.

Although cable modem coverage stands at 70%, the subscriber base has remained relatively small, in particular compared with the situation in Belgium and the Netherlands. Cable operators were slow to upgrade their networks, which gave DSL the chance to take a strong lead.

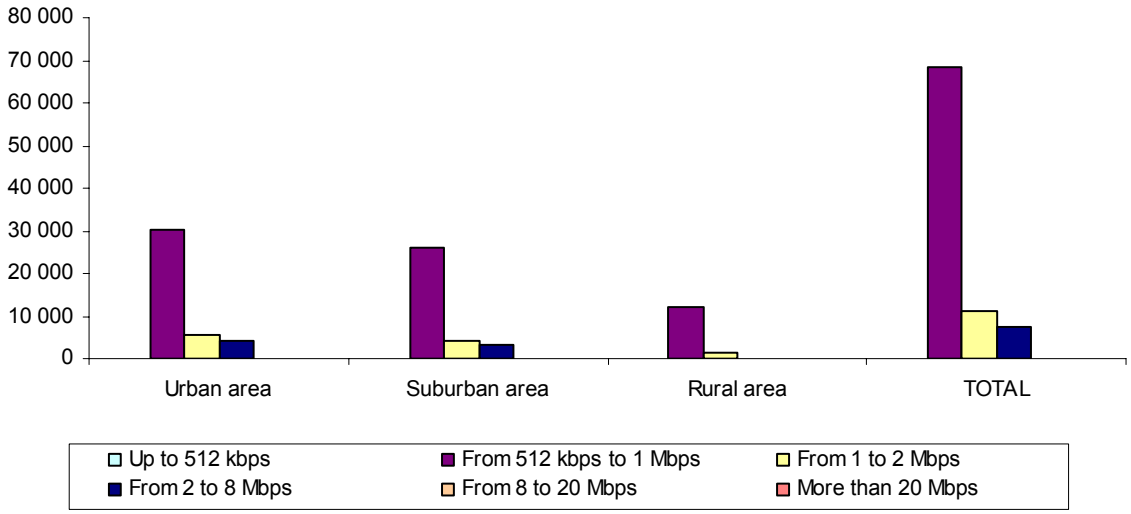
4.17.3. DSL coverage and take-up

Coverage and penetration



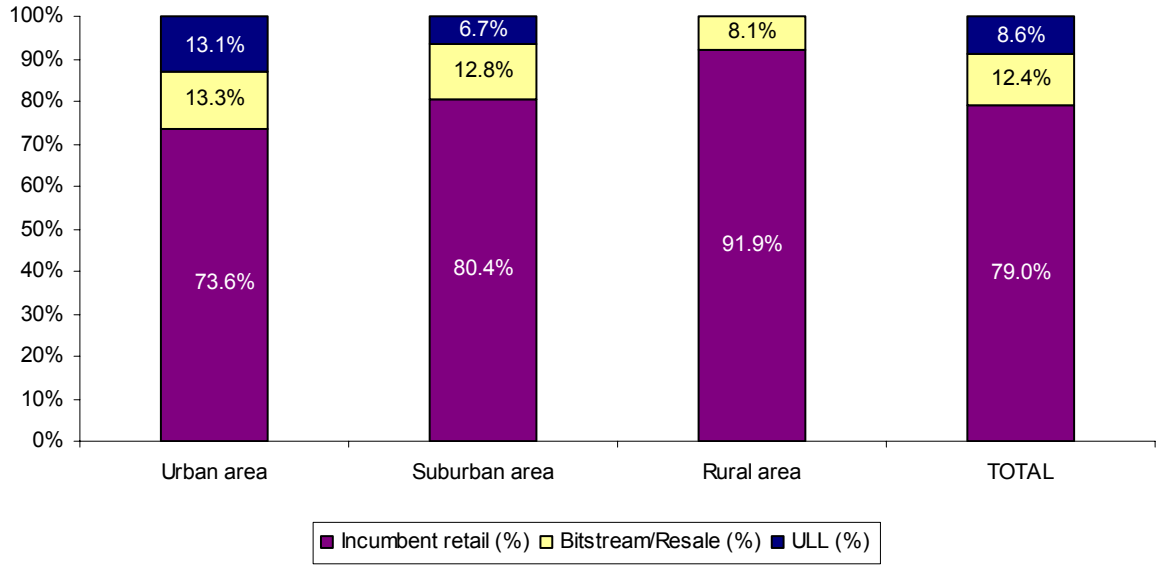
The number of DSL subscribers increased by 38% in 2006 to 87,275 and penetration was close to 20% at the end of the year.

Number of DSL connections by download rate



ADSL operators provide services with download speeds of 1, 2 and 3 Mbps. Up to 1 Mbps is the predominant speed.

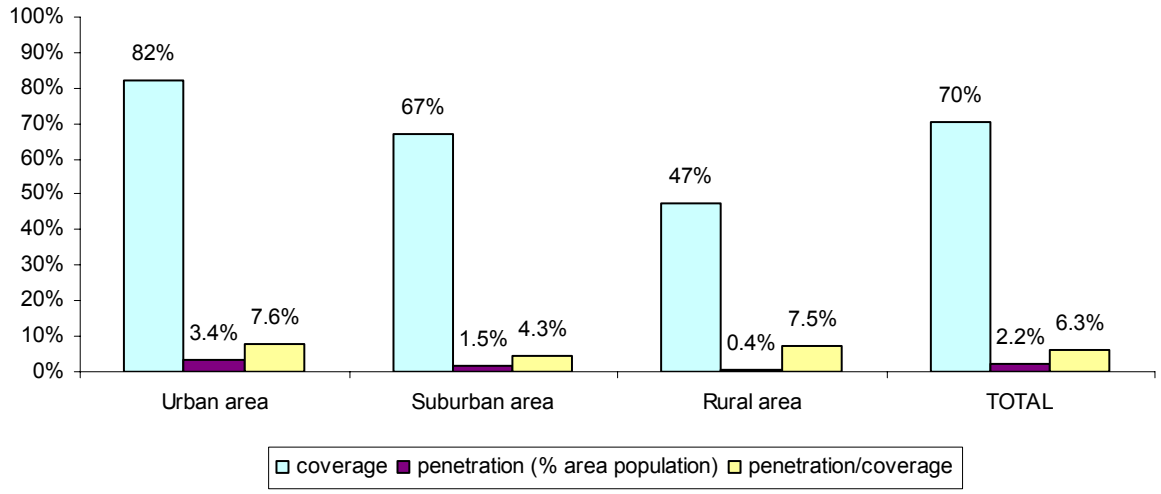
Percentage of DSL connections by type of provider



Although unbundling increased significantly in 2006 (from 3,200 to more than 7,500 lines), it still accounted only for 8.6% of the ADSL subscriber base at the end of the year. PT Luxembourg still holds a 79% share of the retail market (down from 83% at the beginning of 2006).

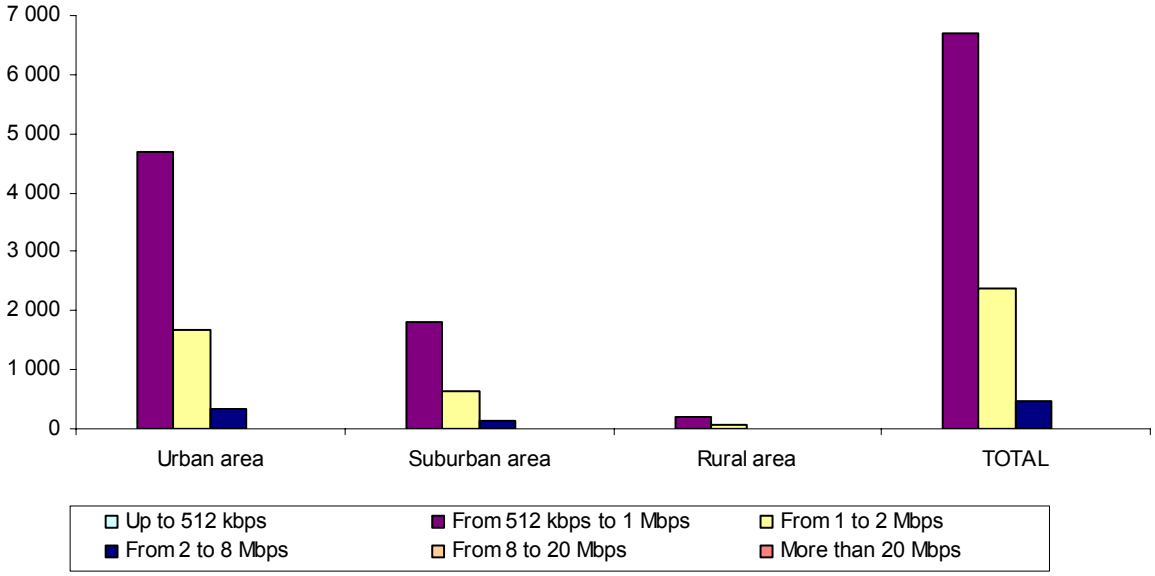
4.17.4. Cable modem coverage and take-up

Coverage and penetration



Cable modem take-up in Luxembourg remains low, despite the fact that coverage has expanded significantly over the past two years.

Number of cable modem connections by download rate



4.17.5. Other broadband access technologies

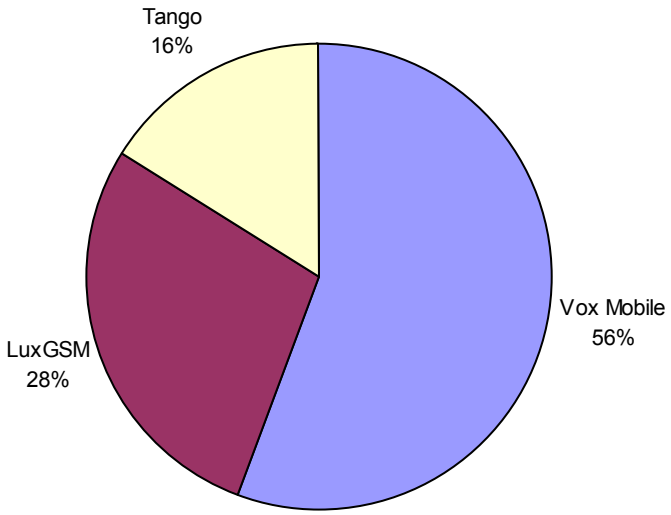
A few FTTH (300) and WLL (120) subscribers were registered in Luxembourg at the end of 2006.

Cellular

The three GSM operators (LuxGSM, Tele2 Luxembourg and LuXcommunications) were awarded UMTS licences in 2002 and 2003. LuxGSM, a subsidiary of P&T Luxembourg, was first to launch a 3G commercial service in the country in mid-2003.

At the end of 2006, UMTS coverage was close to 100% of population and there were 136,600 subscribers.

Breakdown of the 3G subscriber base* by operator (December 2006)



* Users with 3G handsets

4.18. Malta

4.18.1. Population

	Urban area	Suburban area	Rural area	National
Inhabitants	402,668	not relevant	not relevant	402,668
Share of total population	100.0%	not relevant	not relevant	100.0%

4.18.2. General broadband data

	12/02	12/03	12/04	12/05	12/06
DSL coverage (% of population)	95%	95%	95%	99%	99%
DSL subscribers	10 ,000	12 ,000	21 ,000	30 ,000	35 ,704
DSL penetration (% of population)	2.5%	3.0%	5.2%	7.5%	8.8%
Cable modem coverage (% population)	81%	81%	81%	95%	96%
Cable modem subscribers	8 ,000	10 ,000	16 ,000	21 ,000	30 ,629
Cable modem penetration (% population)	2.0%	2.5%	4.0%	5.2%	7.6%
FTTx subscribers	0	0	0	0	0
PLC subscribers	0	0	0	0	0
WLL subscribers	0	0	50	100*	-
Satellite subscribers	12	12	12	12	15
Total	18 ,012	22 ,012	37 ,062	51 ,112	66 ,348
Total penetration (% population)	4.5%	5.4%	9.2%	12.7%	16.4%

* Wi-Fi subscribers

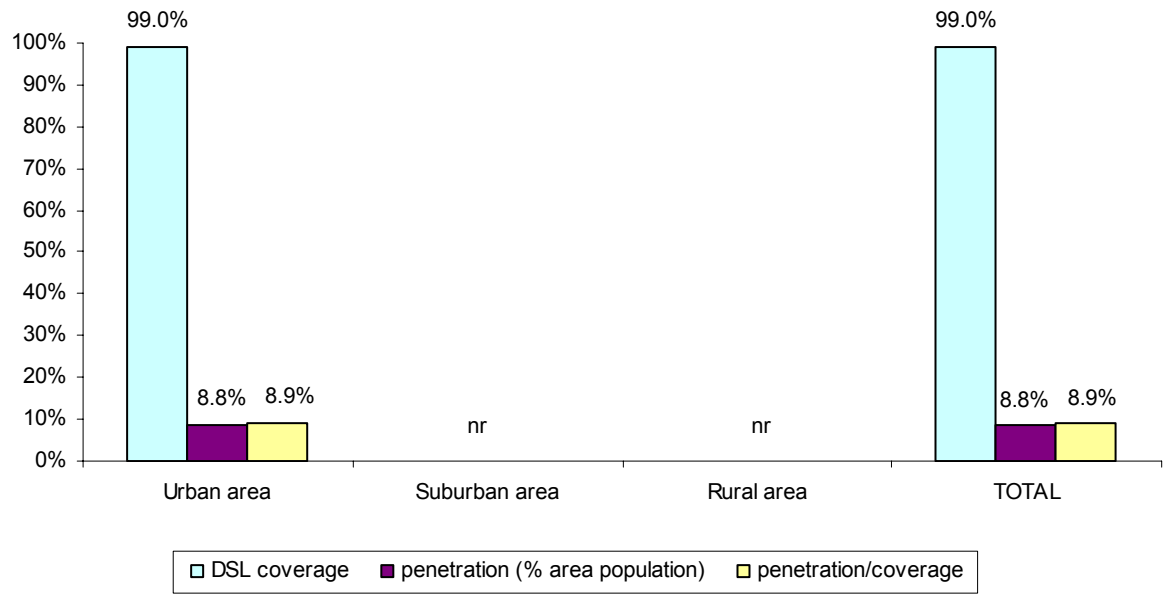
With a broadband penetration rate at 16.4% at the end of 2006, Malta stands just below the European average but ranks first among the new Member States.

DSL and cable modem are the dominant access technologies (53.8% of broadband subscribers had DSL connections and 46.2% had cable modem connections). One connection out of four provides a download rate of only 128 kbps.

Access to broadband Internet is also made available by local councils throughout the Maltese islands.

4.18.3. DSL coverage and take-up

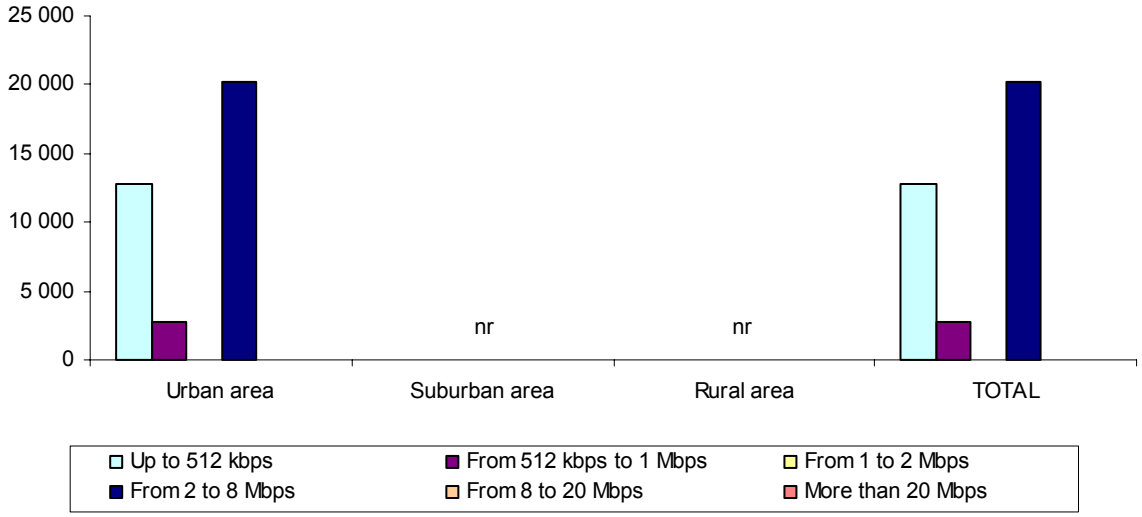
Coverage and penetration



Nota : data for suburban areas and rural areas are not relevant as the whole Maltese territory was considered as a urban area

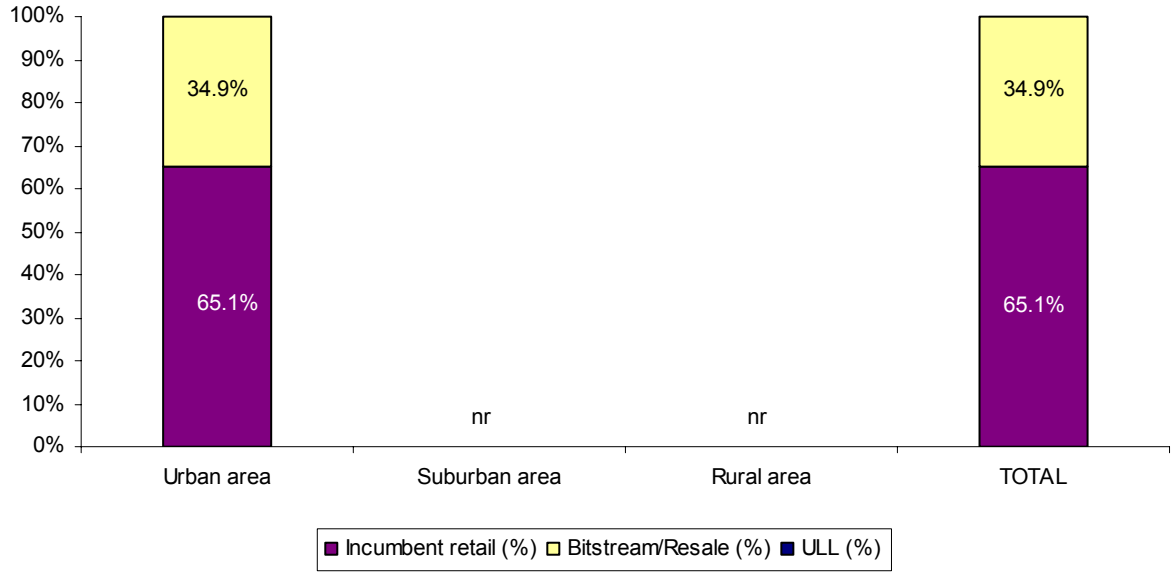
In 2006, broadband subscriptions continued to experience an increase, with 8.8% of the population now equipped. As it was in 2005, the increase continued to be spurred by products aimed at low-end users. In particular this growth seems to have been fuelled by the introduction of a popular 128 kbps cable Internet product launched in May 2006 by Onvol Ltd., the incumbent cable operator's ISP, and by a similar DSL product introduced by Maltanet, the incumbent carrier's ISP, in September 2006.

Number of DSL connections by download rate



In May 2006, the speed of DSL services running at 2 Mbps downstream and 256 kbps upstream were doubled, with no increase in price. At the same time, the 1 Mbps and 2 Mbps products were removed from the market so that the only available DSL services are one running at 4 Mbps downstream/256 Mbps upstream and one running at 128 Kbps downstream/128 kbps upstream, with both carrying a range of download volume limits (1, 8, 12, 20 Gb).

Percentage of DSL connections by type of provider

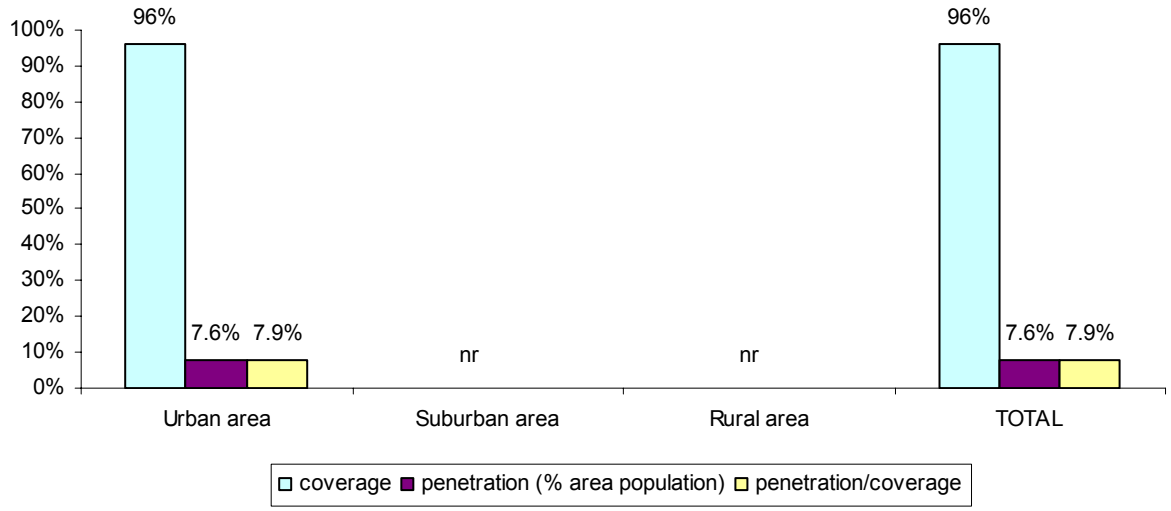


As at the end of 2006, DSL in Malta was being supplied by 14 ISPs, with a number of providers having withdrawn from the market over the course of the year. Mergers between two independent ISPs, as well as between Maltacom's wholly-owned subsidiaries, Datastream and Terranet, took place during the year, with the latter continuing to market retail broadband services under the Maltanet brand and reporting a 65.1% share of the ISP market. 13 ISPs share control of the remaining 34.9% of the market through resale offers.

There continues to be no take-up of Maltacom's reference unbundling offer, which was published in 2005, with cost cited as the chief impediment.

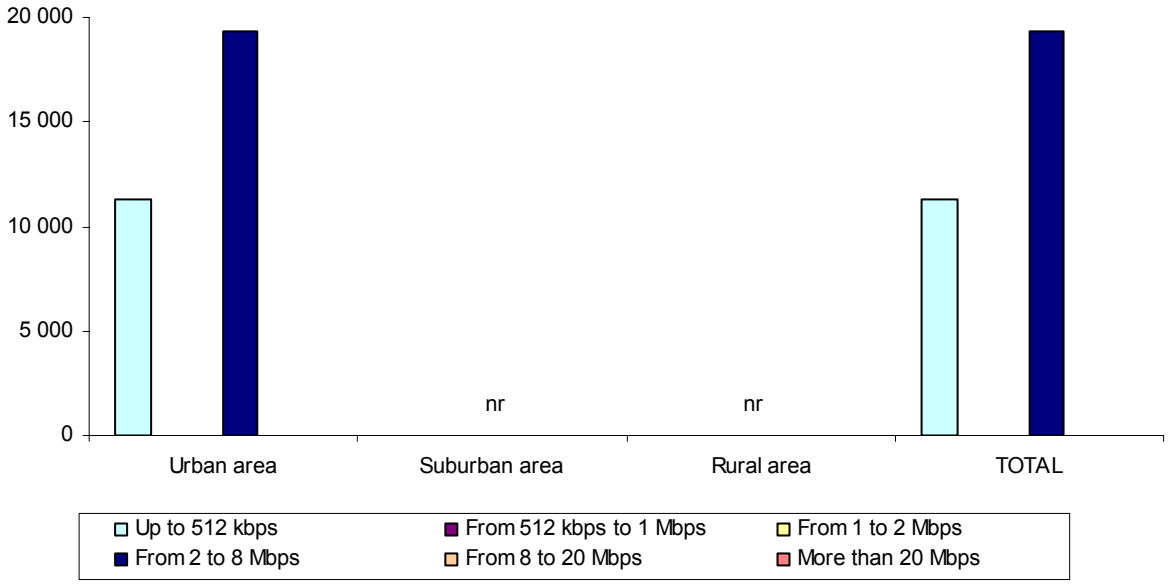
4.18.4. Cable modem coverage and take-up

Coverage and penetration



Broadband cable in Malta is supplied only by Video Online (Onvol), which is a subsidiary of the cable and digital TV provider, Melita Cable plc. Cable network coverage in the country totals 96%, but only 7.6% of the population have signed on for cable modem broadband.

Number of cable modem connections by download rate



There are 30,629 cable Internet subscribers in the country, accounting for 46.1% of the total Internet subscriber base. Of these, 37% (11,333 subscribers) access the Internet at a downstream speed up to 512 Kbps, while the remaining 63% (19,296 subscribers) have connections capable of a 2 to 8 Mbps downstream bandwidth.

4.18.5. Other broadband access technologies

Other fixed access technologies

Up until 2006, there were no FTTH, PLC or WLL subscribers in Malta. Broadband access is supplied primarily through a Fibre-to-the-Curb (FTTC) infrastructure, but direct fibre connections are available to the island's largest businesses and institutions.

Enemalta Corporation, the incumbent energy company, has expressed interest in powerline communications (PLC) as a means of implementing automated meter reading and to set up a broadband delivery platform, but PLC has not yet gone beyond the planning stage.

Wi-Fi

Wireless LAN technology is becoming increasingly popular, thanks to its ability to serve roaming users. Both public and private entities have adopted the technology to provide access in a number of buildings around Malta. Wi-Fi is being installed by a number of operators in public access points (hotspots), providing high-speed access to the Internet. Go Mobile operates 26 hotspots while Vodafone operates 18. Pre-paid and post-paid packages are gaining in popularity, but the market is still in its infancy and precise subscriber figures are not yet available. An estimate on independent Wi-Fi users would be around 100 subscribers, plus some 1,000 users in private corporate buildings and government offices.

WLL/WiMAX

Maltacom does offer WLL access, but with no subscribers reported as yet.

In October 2005, the Malta Communications Authority assigned frequencies for setting up nationwide BWA networks in the 3.5GHz band. Licences were awarded to Cellcom Ltd, Vodafone and Go Mobile. The operators will adopt WiMAX as their BWA technology. Rollout extensions were awarded to all operators in June 2006. The first rollout deadline is now set for April 2007, at which point Malta should have 50% coverage. Malta is expected to be equipped with three additional nationwide broadband-capable infrastructures, covering 99% of the country's territory by the end of 2009.

Satellite

Satellite access is used by large commercial institutions for backup interconnectivity and data transfer.

Cellular

In the second quarter of 2005, the MCA issued a call for applications from entities interested in obtaining rights of use to radio frequencies in the IMT-2000 band, for the development and implementation of third generation (3G) mobile telephony networks in Malta. Vodafone and Go Mobile were allocated 3G frequencies in August 2005, and both have started their network rollout. Vodafone launched commercial services in August 2006, reporting 316 subscribers at the end of 2006.

4.19. The Netherlands

4.19.1. Population

	Urban area	Suburban area	Rural area	National
Inhabitants	10,729,646	5,212,094	363,786	16,305,526
Share of total population	65.8%	32.0%	2.2%	100.0%

4.19.2. General broadband data

	12/02	12/03	12/04	12/05	12/06
DSL coverage (% of population)	85%	94%	99%	99%	99%
DSL subscribers	340 ,000	944 ,000	1 ,841 ,333	2 ,551 ,052	*3 ,028 ,000*
DSL penetration (% of population)	2.1%	5.8%	11.3%	15.6%	18.5%
Cable modem coverage (% population)	-	82%	82%	82%	90%
Cable modem subscribers	795 ,926	969 ,000	1 ,297 ,303	1 ,562 ,521	*1 ,970 ,000*
Cable modem penetration (% population)	4.9%	5.9%	8.0%	9.6%	12.1%
FTTx subscribers*	-	-	50 ,000	60 ,000	*111 ,000*
PLC subscribers	-	-	-	-	-
WLL subscribers	-	-	-	-	-
Satellite subscribers	-	1 ,000	1 ,000	1 ,000	*1000*
Total	1 ,135 ,926	1 ,914 ,000	3 ,139 ,636	4 ,173 ,573	5 ,110 ,000
Total penetration (% population)	7.0%	11.7%	19.3%	25.6%	31.3%

* Fibre to the Dormitory (connecting students rooms) also included

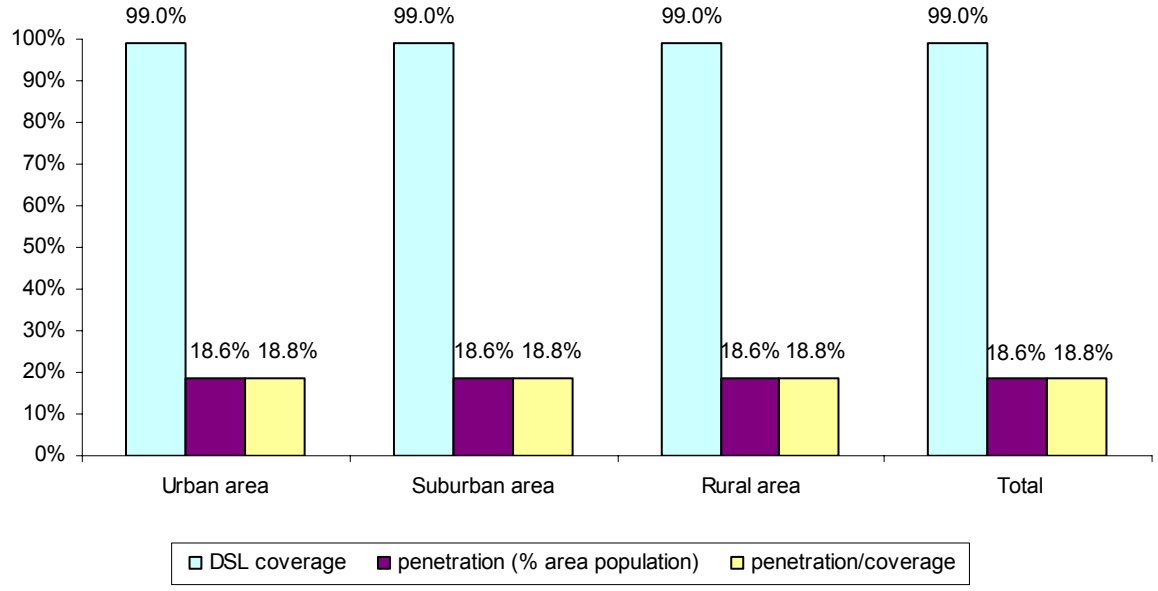
Overall broadband penetration in the Netherlands is one of the highest in the world: totalling 31.3% at the end of 2006, it ranks second in Europe, neck and neck with Denmark (31.4%).

DSL coverage in the Netherlands totalled approximately 99% at the end of 2006 and remains the dominant access technology (60% of all broadband connections) despite strong pressure from cable. In 2006, the relative growth of the cable modem subscriber base (+26%) was higher than growth of DSL connections (+19%), although in absolute terms growth of DSL was bigger. Competitive pressure is also coming from unbundling, which has gained momentum (30% of DSL connections are supplied by alternative operators through unbundled lines).

In addition, a number of municipalities have set up programmes to deploy FTTH networks.

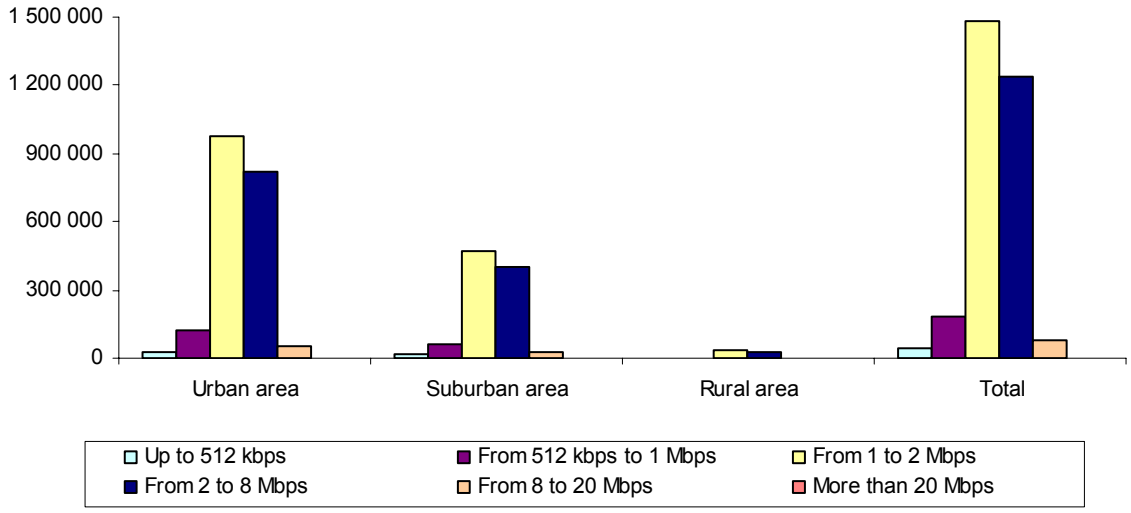
4.19.3. DSL coverage and take-up

Coverage and penetration



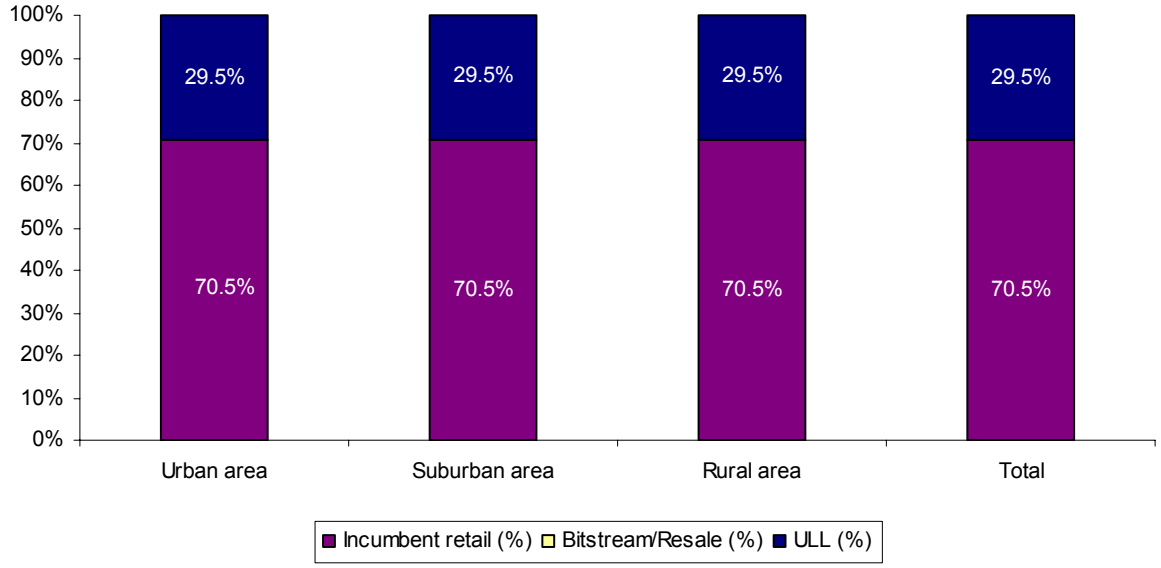
DSL coverage is very high in the Netherlands, while the average penetration rate at the end of 2006 reached 18.6% (+20% compared to the end of 2005), with a presumption that rates are the same in all parts of the country (due to the geographical organisation of the country).

Number of DSL connections by download rate



Most DSL subscriptions still offer download rates of between 1 and 2 Mbps. However, at the end of 2006, nearly 44% (up from 30%) of connections were supplying speeds of over 2 Mbps (including 2.5% with more than 8 Mbps, and corresponding to ADSL2+ offers), which means that average DSL download rates have increased since the previous year.

Percentage of DSL connections by type of provider

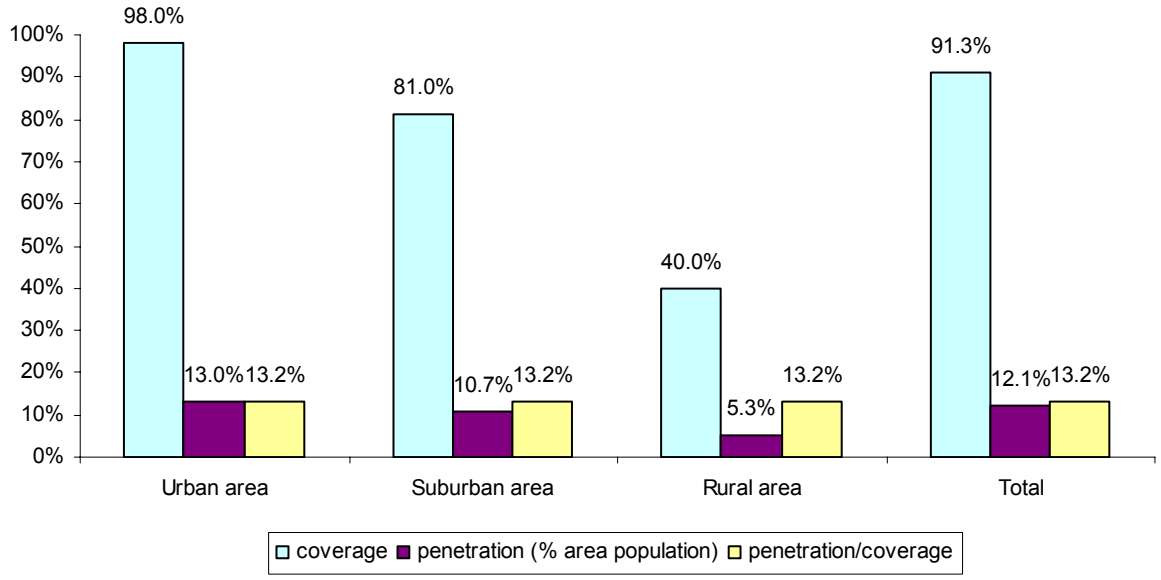


At the end of 2006, KPN was still retailing 70.5% of DSL directly (KPN Direct) or through its ISP subsidiaries (Planet Internet, XS4ALL, Het Net), compared to 72% one year before and 75% two years before.

ULL now accounts for nearly 30% of DSL connections, with most unbundled lines being shared access lines.

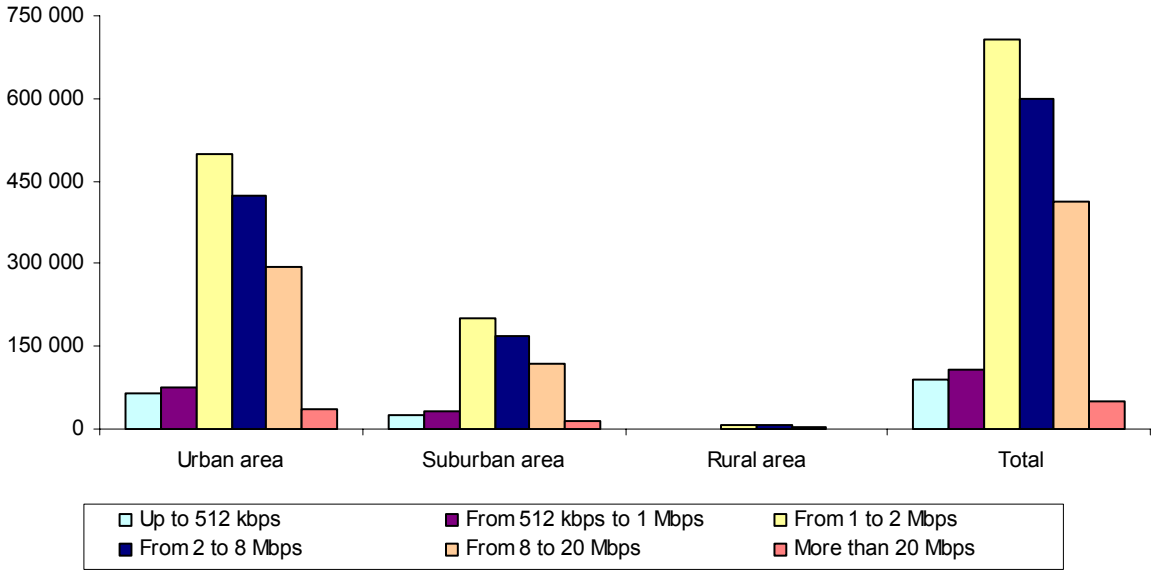
4.19.4. Cable modem coverage and take-up

Coverage and penetration



Broadband cable coverage is well above 90% and still rising. Most of the areas not covered are rural. Though already high, cable modem penetration grew from 9.6% to 12.1% (+26%).

Number of cable modem connections by download rate



On average, cable modem connections in the Netherlands are faster than DSL solutions, with most ranging from 1 to 2 Mbps, although services running at 8 and 20 Mbps already account for more than 20% of cable connections (compared to 2.5% of DSL connections).

4.19.5. Other broadband access technologies

FTTH

FTTH in the Netherlands began being deployed in 2004. At the end of 2006, approximately 111,000 customers used FTTx technologies to access the Internet, nearly doubling from the 60,000 subscribers the year before.

Wi-Fi

Wi-Fi services are available in some urban areas, mostly in cafés, hotels and airports and, in most cases, are used on an *ad hoc* basis as complement to fixed access technologies.

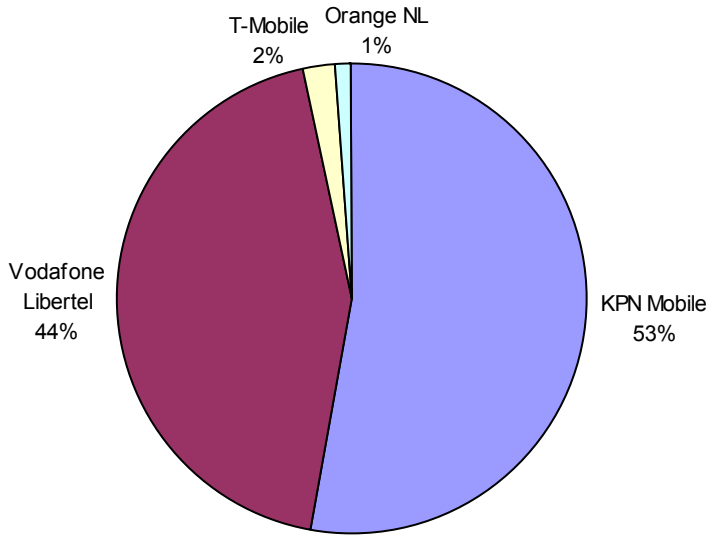
Satellite

Broadband satellite Internet access is not widely used in the Netherlands, accounting for roughly 1,000 subscribers in 2006. The subscriber base has been stagnating since 2003.

Cellular

The 3G subscriber base in the Netherlands grew significantly in 2006. Subscribers more than tripled to over 800,000 by the end of the year (2005: 230,000). UMTS coverage in this densely populated country was roughly 90%. HSDPA was first introduced by T-Mobile in April 2006, with Vodafone following suit in October 2006 and KPN in December 2006. Both KPN and Vodafone plan to offer 90% HSDPA coverage by the end of 2007.

Breakdown of the 3G subscriber base* by operator (December 2006)



* Users with 3G handsets

4.20. Norway

4.20.1. Population

	Urban area	Suburban area	Rural area	National
Inhabitants	1,121,300	1,154,349	2,330,714	4,606,363
Share of total population	24.3%	25.1%	50.6%	100.0%

4.20.2. General broadband data

	12/02	12/03	12/04	12/05	12/06
DSL coverage (% of population)	-	68%	82%	88%	91%
DSL subscribers	145 ,418	310 ,499	548 ,125	801 ,988	997 ,140
DSL penetration (% of population)	3.1%	6.6%	11.7%	17.1%	21.3%
Cable modem coverage (% population)	-	20%	20%	20%	*20%*
Cable modem subscribers	52 ,066	69 ,587	91 ,833	136 ,706	177 ,104
Cable modem penetration (% population)	1.1%	1.5%	2.0%	2.9%	3.8%
FTTx subscribers	649	9 ,157	17 ,875	38 ,823	70 ,303
PLC subscribers	0	0	0	0	0
WLL subscribers	3 ,347	6 ,683	12 ,859	13 ,215	26 ,900
Satellite subscribers	0	0	0	0	0
Total	201 ,480	395 ,926	670 ,692	990 ,732	1 ,271 ,447
Total penetration (% population)	4.3%	8.5%	14.3%	21.2%	27.2%

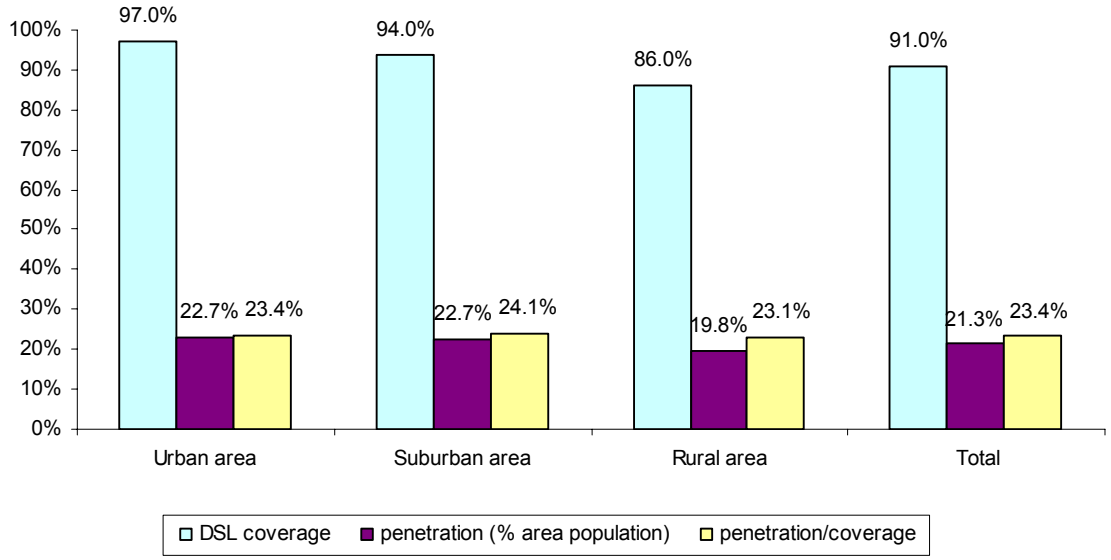
With a penetration rate of 27.2%, Norway ranks among the most advanced countries in terms of broadband.

78% of broadband subscribers are connected through DSL. The incumbent operator, Telenor, is active both in DSL (with 56% market share) and in cable. It still retains more than half of the broadband subscriber base despite strong pressure from competition, especially through unbundling.

NB: Time series for most data have been revised, based on the latest reports from the Norwegian authority. The number for 2006 is based on the figure given by Telenor.

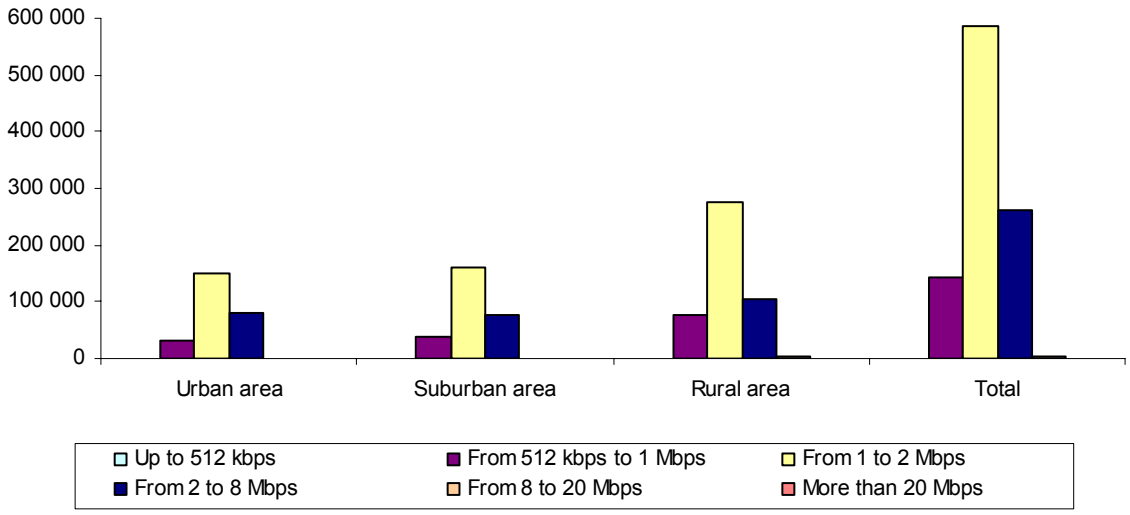
4.20.3. DSL coverage and take-up

Coverage and penetration



Coverage improved in both urban and rural areas in 2006, totalling 97% and 86%, respectively, at year end, both a rise of 3 percentage points from the year before. The relative coverage in suburban areas fell by one percentage point to 94%, due to an increase in the suburban population. The absolute coverage actually increased by roughly 50,000.

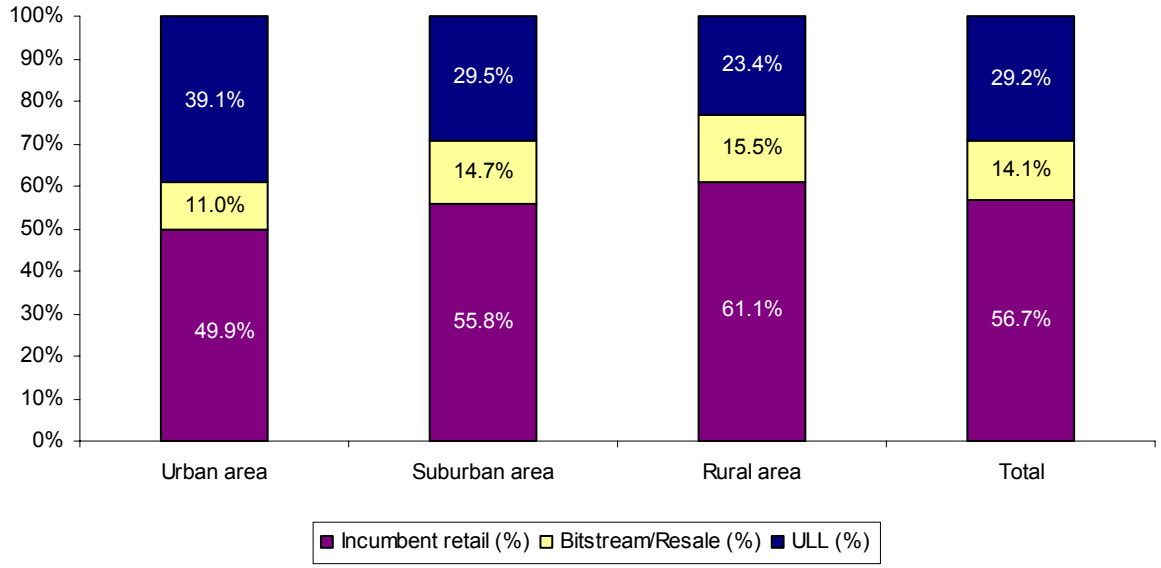
Number of DSL connections by download rate



The number of DSL subscriptions grew by 27% in 2006. Download speeds of 512 kbps are now virtually non-existent, with only roughly 1,000 subscriptions remaining nationwide. The bulk of the growth took place in the 1–2 Mbps range, where the number of subscriptions grew by more than 40%. This range now accounts for nearly 60% of all DSL connections, up nearly 10 percentage points from last year.

The number of very high speed connections, i.e. higher than 8 Mbps, grew by a factor of 44 in 2006. The total number of subscriptions remains relatively low, however: only around 5,000 subscriptions, or 0.5% of the total market.

Number of DSL connections by type of provider

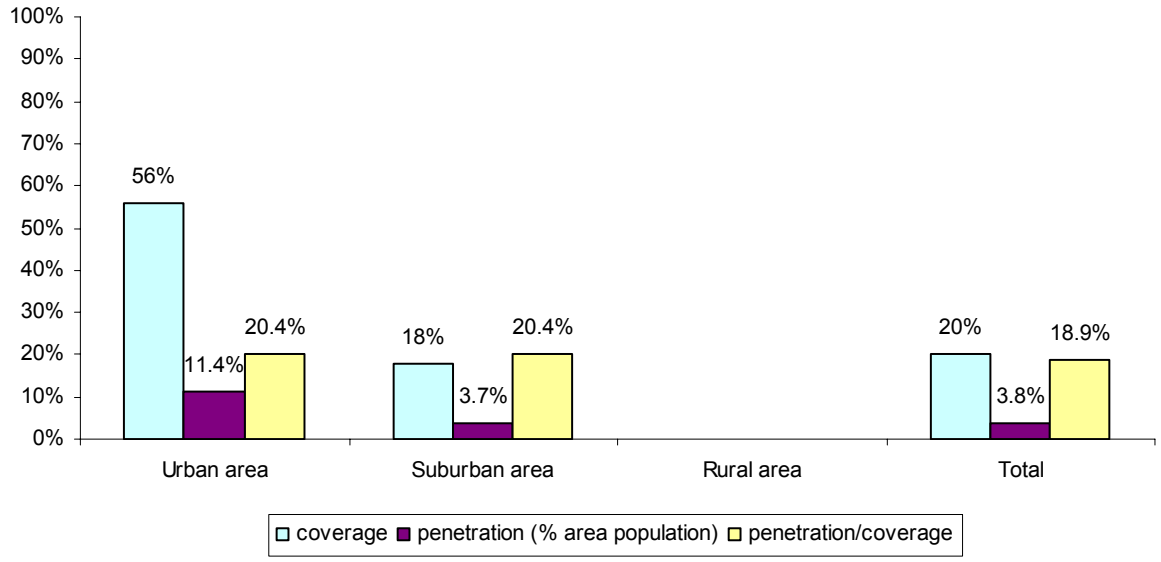


These numbers changed only modestly in 2006, but the trend is relatively clear. The incumbent lost approximately two percentage points across the board, whereas the two other categories gained one each.

All categories grew in absolute terms in 2006. The largest relative growth was in unbundled lines in rural areas (35%), while the lowest was incumbent lines in urban areas (10%).

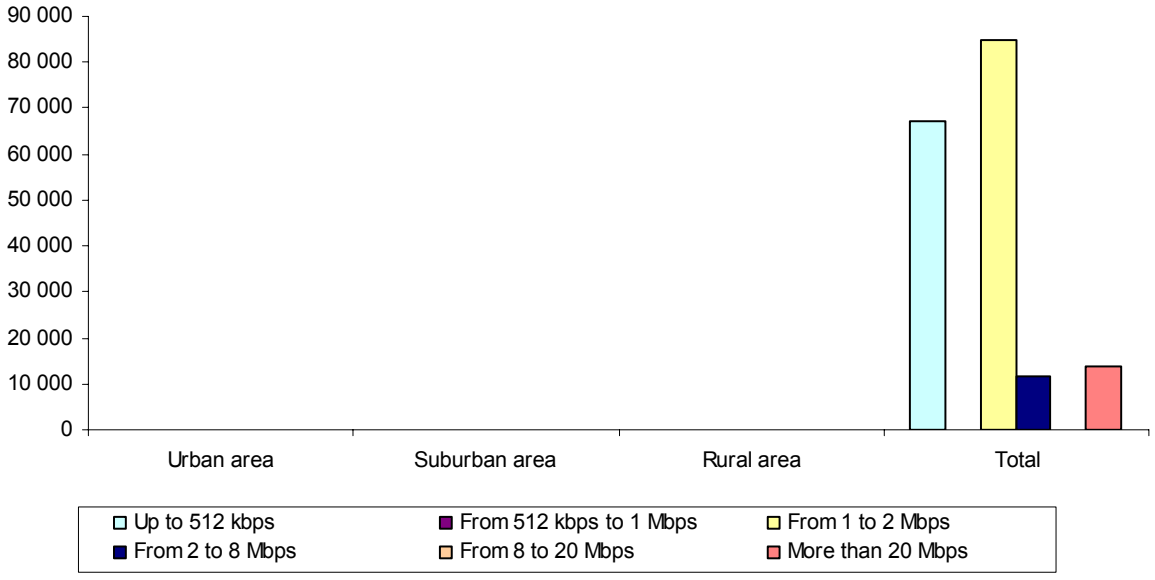
4.20.4. Cable modem coverage and take-up

Coverage and penetration



Cable modem coverage remained unchanged in 2006, while penetration increased from 3.0% to 3.8%.

Number of cable modem connections by download rate



Average download rates have increased, with the majority (57.7%), now being in the range from 2 to 8 Mbps. Less than 15% of subscriptions have download rates below 2 Mbps.

4.20.5. Other broadband access technologies

Wi-Fi

Telenor is by far the largest Wi-Fi operator in Norway, with 400–500 hotspots in hotels, restaurants, airports, Statoil petrol stations and other public places.

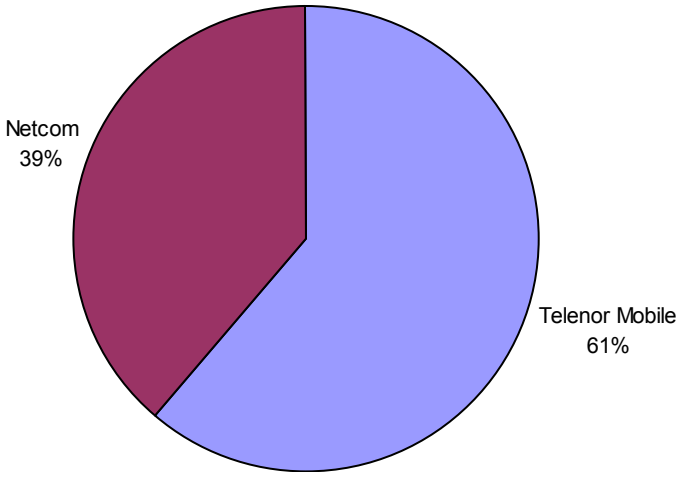
Cellular

Telenor was the first to introduce commercial UMTS services in December 2004, with NetCom following suit in late February 2005. Both initially launched data card services for laptop users, with 3G handsets following shortly afterwards.

By the end of 2006, 83% of the population and 15% of the area was covered by UMTS. Combined with EDGE (high-speed GSM), 99.85% of the population (85% of the country) is now covered. An estimated 40% of all handsets in use have 3G capabilities.

The number of UMTS subscribers reached 590,000.

Breakdown of the 3G subscriber base* by operator (December 2006)



* Users with 3G handsets

4.21. Poland

4.21.1. Population

	Urban area	Suburban area	Rural area	National
Inhabitants	18,650,194	7,150,661	12,391,046	38,191,901
Share of total population	48.8%	18.7%	32.4%	100.0%

4.21.2. General broadband data

	12/02	12/03	12/04	12/05	12/06
DSL coverage (% of population)	-	-	55%*	62%*	67%
DSL subscribers	133 ,892	270 ,332	668 ,000	1 ,254 ,029	1 ,855 ,000
DSL penetration (% of population)	0.4%	0.4%	1.7%	3.3%	4.9%
Cable modem coverage (% of population)	-	-	-	12%	18%
Cable modem subscribers	63 ,008	85 ,368	202 ,000	371 ,000	721 ,000
Cable modem penetration (% of population)	0.2%	0.2%	0.5%	1.0%	1.9%
FTTx subscribers	-	-	4 ,000	4 ,500	*5 ,500*
PLC subscribers	-	-	-	0	0
WLL subscribers	-	-	-	7 ,486	*14 ,500*
Satellite subscribers	-	-	-	93	*100*
Total	196 ,900	355 ,700	874 ,000	,1 ,637 ,108	2 ,596 ,100
Total penetration (% of population)	0.5%	0.4%	2.3%	4.3%	6.8%

Nota: figures in *italics* are estimates

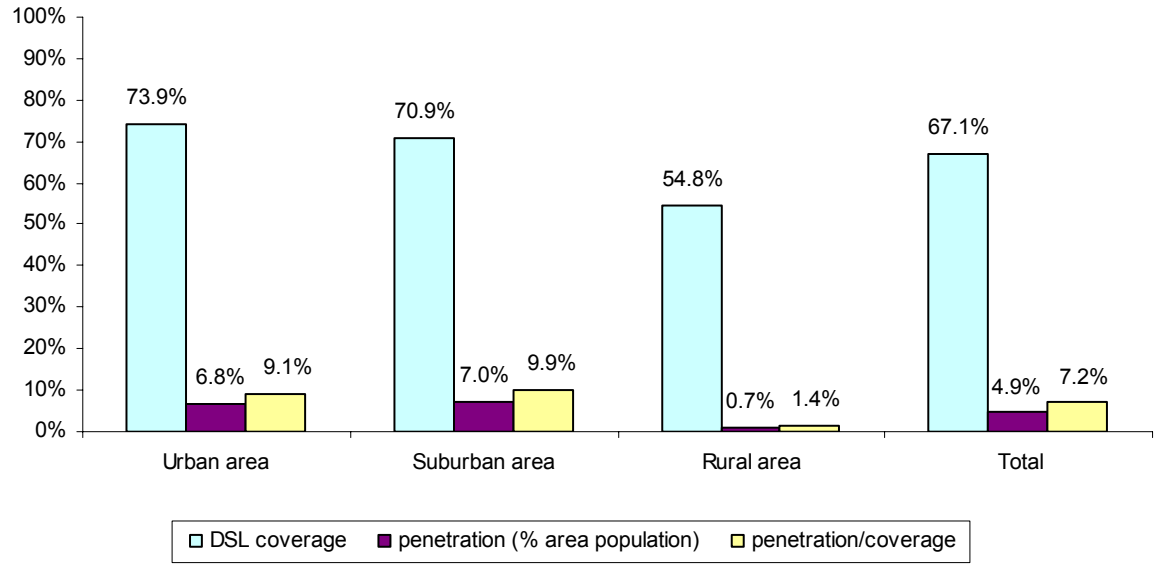
Broadband developments in Poland are still limited: with a 6.8% penetration rate at the end of 2006, it fares better than Greece and Slovakia only. Furthermore, a large part of the subscriber base (600,000 out of the 2.6 million broadband customers) have connections with download speeds of only 128 kbps.

In the DSL segment, which accounts for over 70% of broadband connections, the incumbent operator, TP S.A., still dominates, as competition until the beginning of 2007 was restricted to operators with their own local loop network.

But competition also comes from cable operators which are very aggressive on tariffs, and more recently from WiMAX operators opening services in big cities where the potential market is still large.

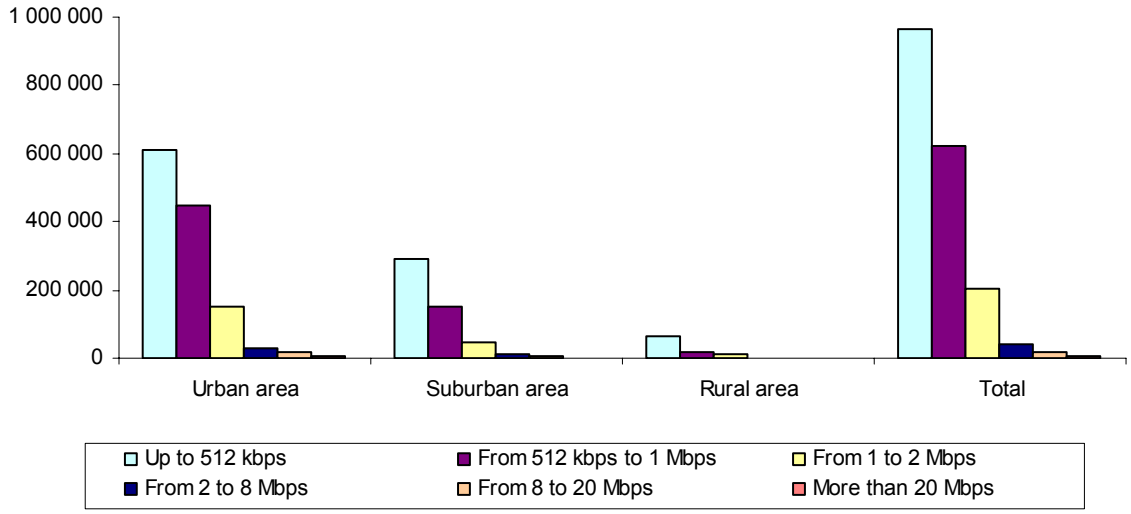
4.21.3. DSL coverage and take-up

Coverage and penetration



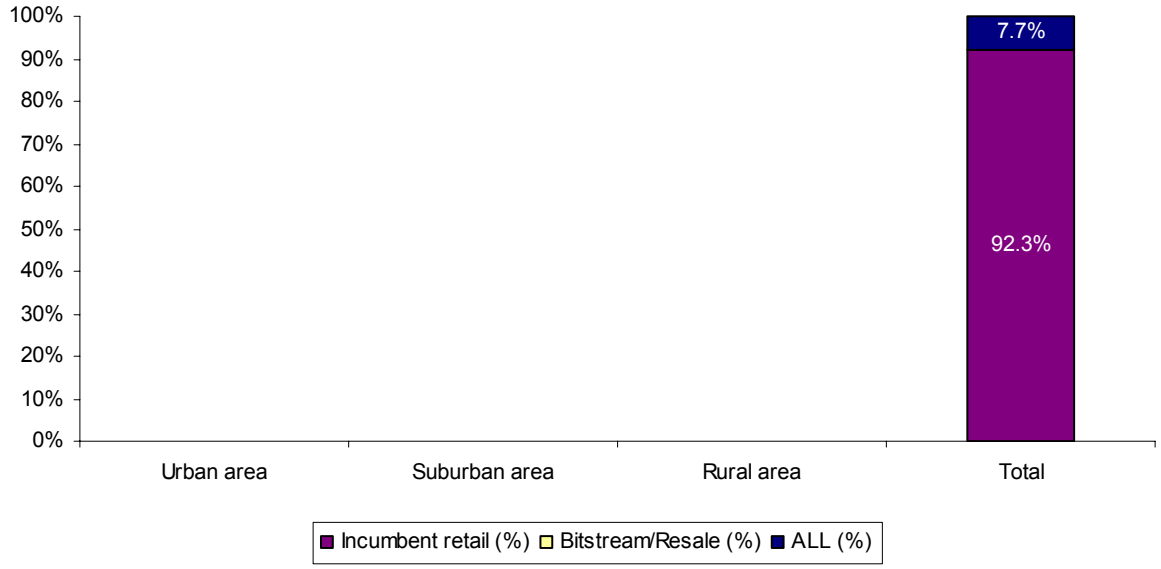
At the end of 2006, 97% of fixed lines were DSL-enabled, according to the incumbent operator TPSA, but the PSTN covers only 68%-69% of the population. TPSA is, however, building new lines for people with no previous landline access (reporting 200,000 new fixed lines in 2006).

Number of DSL connections by download rate



TP S.A. launched more advanced ADSL products (Neostrada) in 2005, and new DSL connections were mainly to Neostrada 512 in 2005 and in most of 2006. In late 2006, TP S.A launched a campaign to promote 1 Mbps connections, and most new customers are now subscribing to those solutions.

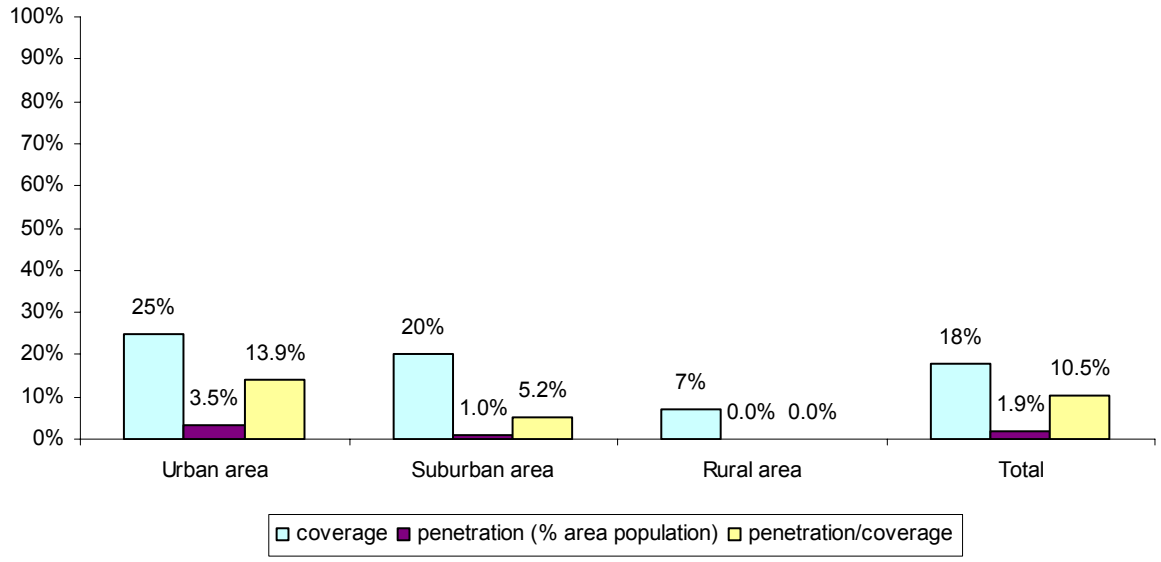
Percentage of DSL connections by type of provider



Poland's incumbent carrier, TP S.A., still has a 92% share of the DSL retail market. There is no unbundling (the first line was unbundled in 2007) but some competitors have built their own local access network (referred to in the graph as "ALL", for alternative local loop).

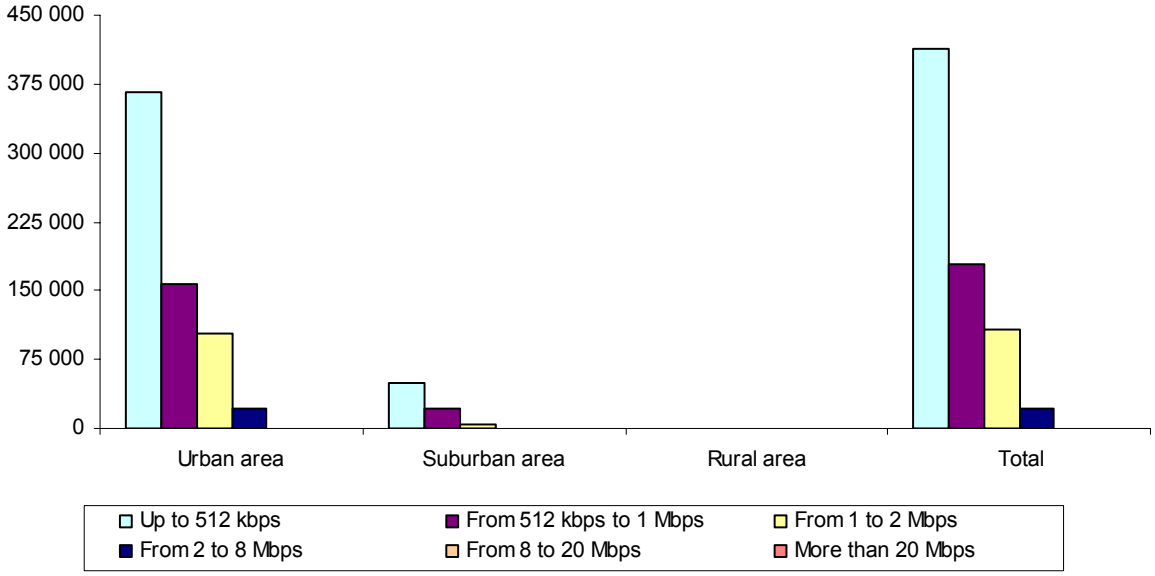
4.21.4. Cable modem coverage and take-up

Coverage and penetration



Cable is widely deployed in Poland (30% of households receive TV via cable) but a significant part of cable networks are still analogue and so not capable of delivering broadband Internet services.

Number of cable modem connections by download rate



Cable modem connections up to 512 kbps (download rate) still accounted for close to half of total at the end of 2006.

4.21.5. Other broadband access technologies

PLC

Only two companies in Poland provide PLC services. Ascom Poland, which makes use of its own technology and targets local authorities and public services (e.g. the police). The infrastructure for educational institutions, financed by local authorities, can also be used for administrative purposes.

Polish-American Pattern Communications, the other company to introduce PLC technology in Poland (using an Israeli technology, Main.net), recently launched the "Internet from an electrical socket" service in Krakow, in cooperation with Krakow's power company. The monthly fee is 80–120 PLN (20–30 EUR), depending on the volume of sent data. The company expects to have 3,000–5,000 subscribers by the end of 2007.

WLL/WiMAX

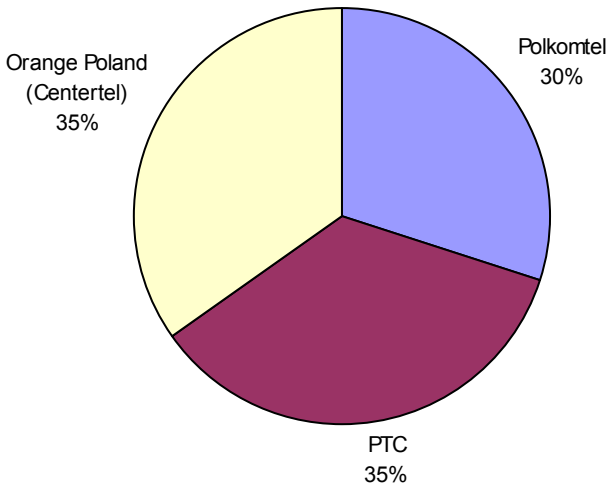
Netia S.A. launched its commercial offers for WiMAX broadband radio access in Q4 2006 with only some 1,200 subscribers. The Office of Electronic Communications announced in September 2006 a call for over 317 tender procedures (for each county) for frequency reservations in the 3,600–3,800 GHz band designated for local digital radio broadband Internet (Wi-max); over 1,201 offers were registered, but due to formal reasons the tender was cancelled (OEC).

Cellular

In 2006 there were three mobile network operators (MNOs) active in Poland, i.e.:
- Polkomtel S.A. (PLUS GSM, Simplus Team, Sami Swoi),
- Polska Telefonia Komórkowa Centertel Sp. z o.o. (Orange, Orange Go),
- Polska Telefonia Cyfrowa Sp. z o.o. (Era, Era TAK TAK and Era BIZNES, Heyah),
and one virtual operator (MVNO),
- emFinanse Sp. z o.o. with its registered office in Łódź and owned by the BRE Bank S.A. Group, which also owns mBank (offering mobile telephony services under the mBank mobile brand.

The three MNOs were awarded 3G licences. At the end of 2006, 3G coverage reached 20% of the Polish population and 328,300 customers were using third generation mobile services.

Breakdown of the 3G subscriber base* by operator (December 2006)



* Users with 3G handsets

4.22. Portugal

4.22.1. Population

	Urban area	Suburban area	Rural area	National
Inhabitants	3,153,583	4,552,882	2,649,652	10,356,117
Share of total population	30.5%	44.0%	25.6%	100.0%

4.22.2. General broadband data

	12/02	12/03	12/04	12/05	12/06
DSL coverage (% of population)	-	84%	92%	93%	94%
DSL subscribers	52 ,005	186 ,244	429 ,431	708 ,553	945 ,194
DSL penetration (% of population)	0.5%	1.8%	4.1%	6.8%	9.1%
Cable modem coverage (% population)	-	*65%*	71%	75%	80%
Cable modem subscribers	207 ,486	315 ,577	434 ,958	490 ,132	537 ,650
Cable modem penetration (% population)	2.0%	3.0%	4.2%	4.7%	5.2%
FTTx subscribers	3 ,636	3 ,530	3 ,282	3 ,218	4 ,180
PLC subscribers	0	0	0	1 ,600	0
WLL/WiMAX subscribers	0	-	-	1 ,700	3 ,000
Satellite subscribers	-	-	-	-	-
Total	263 ,127	505 ,351	867 ,671	1 ,205 ,203	1 ,490 ,024
Total penetration (% population)	2.5%	4.9%	8.4%	11.6%	14.4%

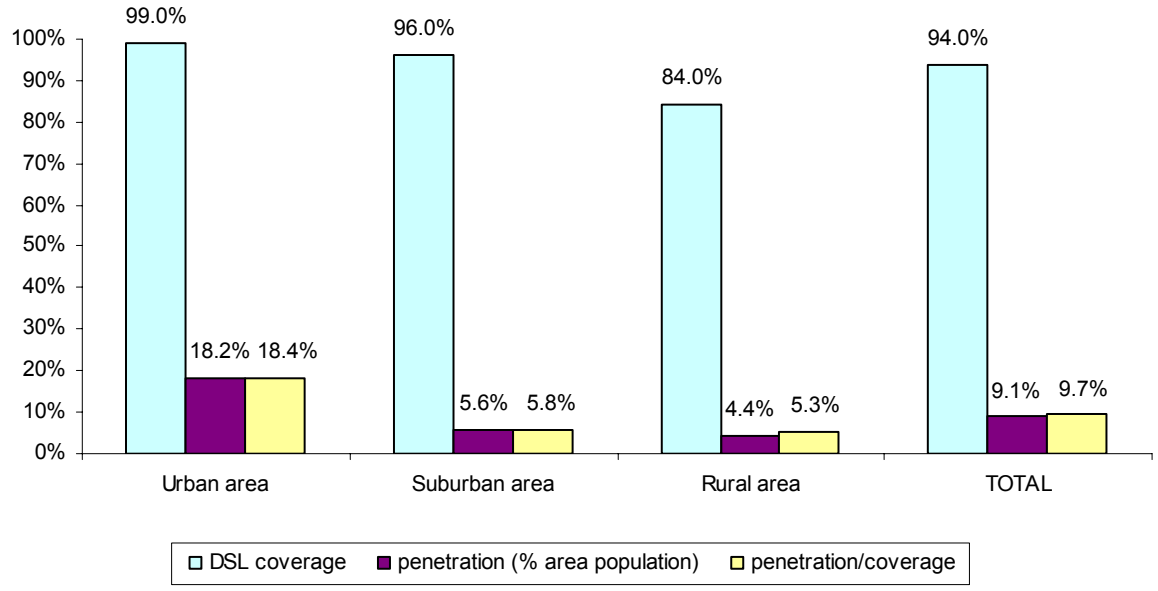
At the end of 2006 the rate of broadband penetration stood at 14.4% of the population (compared to 11.6% at the end of 2005).

The market dynamic was driven by ADSL; 236,500 new broadband connections out of the total 285,000 were ADSL, of which more than half were supplied through unbundling. This has led to a shift in the balance between ADSL and cable modem subscribers over the past three years from 1/3-2/3 at the end of 2003 to 2/3-1/3 at the end of 2006.

Portugal Telecom, the incumbent operator, is active in DSL but also in the cable market, through its subsidiary TV Cabo, which was expected to be sold in 2007.

4.22.3. DSL coverage and take-up

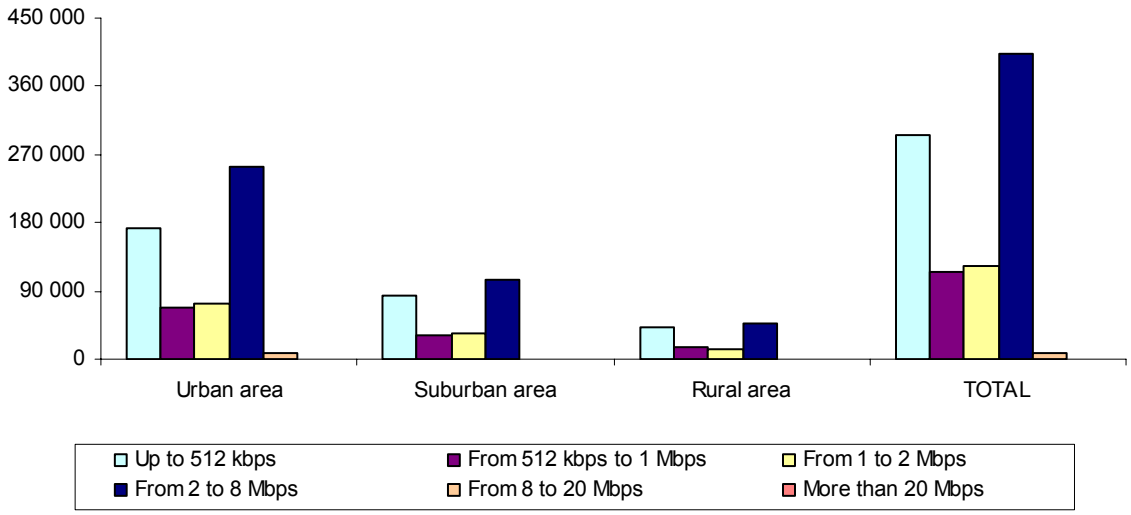
Coverage and penetration



In urban areas, DSL coverage is close to 100%, while it is only 84% in rural areas.

The rate of DSL penetration, in terms of total number of customers per population, rose to 9.1% in 2006, from 6.8% in 2005.

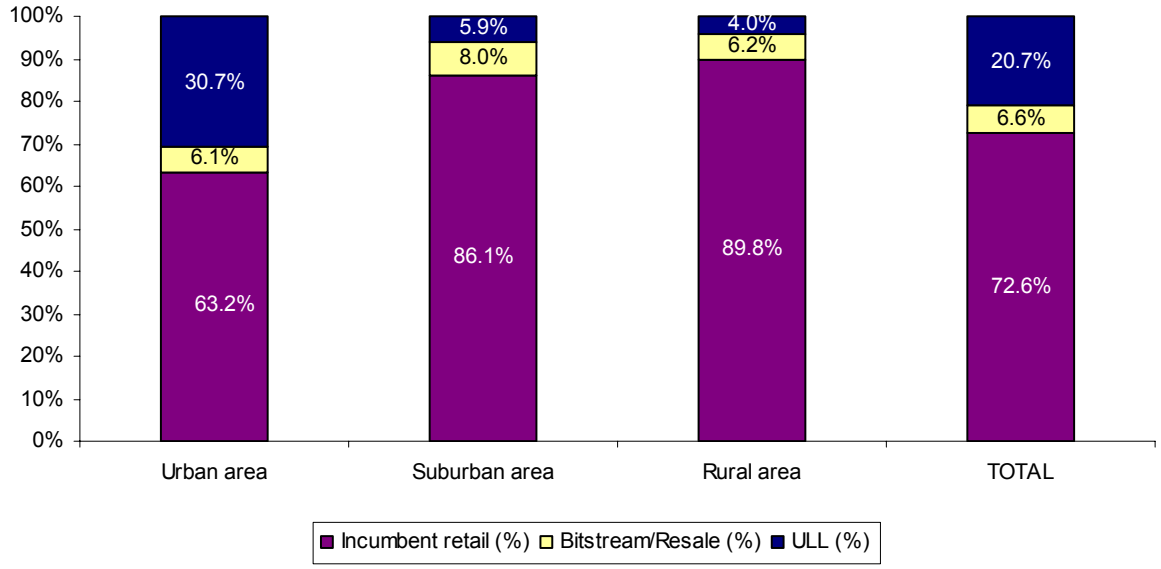
Number of DSL connections by download rate



New entrants have been able to launch competitive offers, based on local loop unbundling. At the same time, data speeds have increased rather significantly, and, although 512kbps connections still account for a sizeable portion of the base, services running at between 2 Mbps and 8 Mbps are the most common connection used in Portugal.

Faster services are more commonly used in urban areas than in suburban and rural ones.

Percentage of DSL connections by type of provider



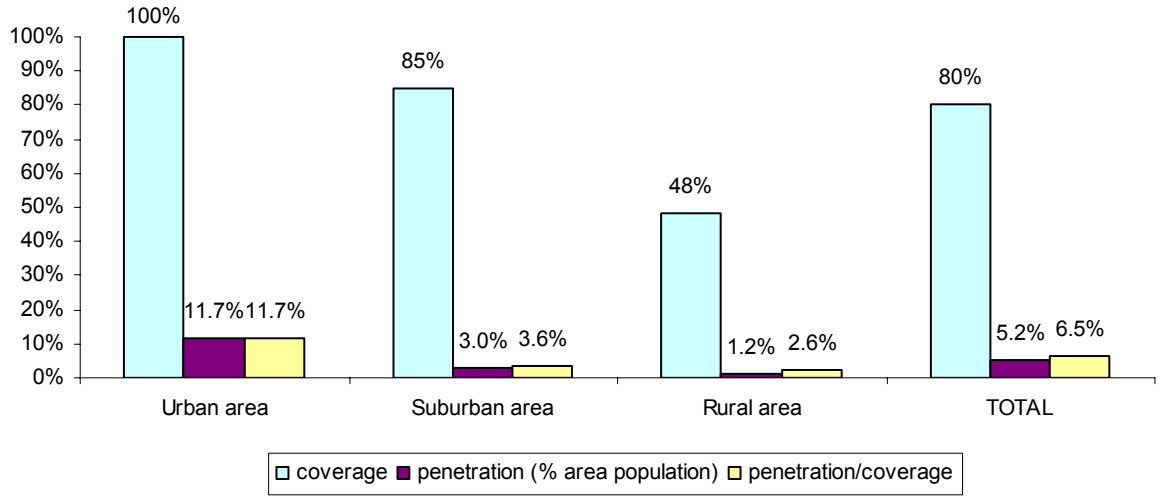
PT Group's share of broadband customers in the last quarter of 2006 stood at 73%, down 7 percentage points compared to the same quarter of the previous year and down 1% on the previous quarter.

The rise of alternative operators' share of broadband customers is due to ULL lines, and reflect the best conditions of the new Reference Unbundling Offer (RUO). Up until 2004, the number of unbundled lines in Portugal was insignificant, but in 2006 a large number of local loop were unbundled (+123,741), thanks to considerable investments by alternative operators seeking to gain more direct access to end users, and more flexible retail offers.

By the end of December, there were 195,754 unbundled lines in the country.

4.22.4. Cable modem coverage and take-up

Coverage and penetration

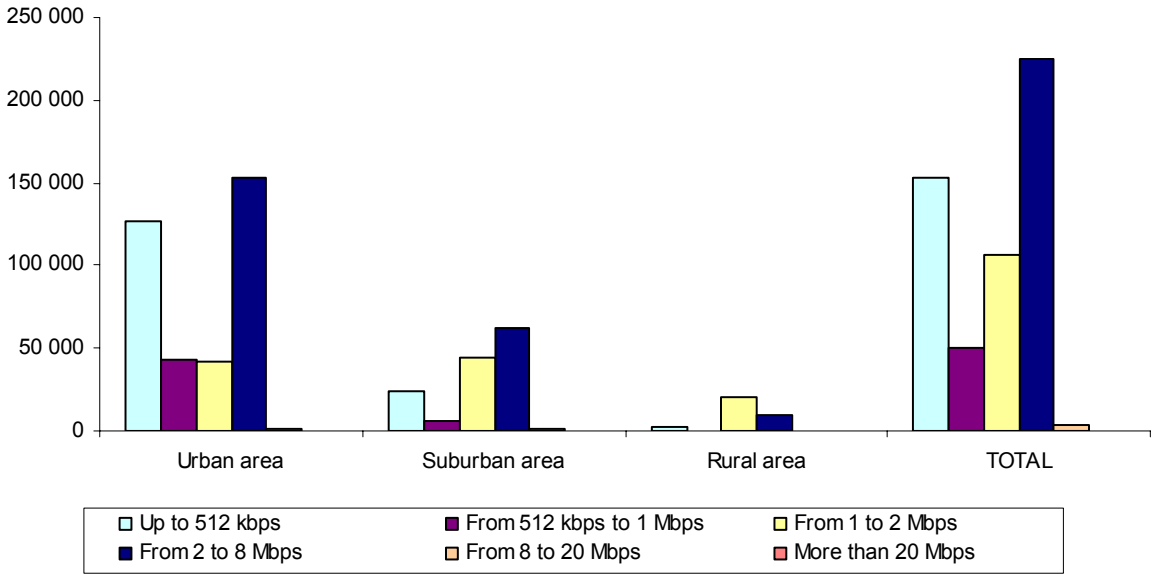


More than four million households (80%) were passed for cable at the end of 2006 (all cable modem capable), up 5 percentage points compared to the previous year. Cable modem is available primarily in urban areas where there is full coverage.

Lisbon remains the region with the most cabled households (44% of the total), followed by the north (29%) and the centre (14%) of the country.

The rate of cable penetration rose to 5.2% in 2006, up from 4.9% the previous year.

Number of cable modem connections by download rate



Internet services with a download rate between 2 and 8 Mbps are dominant in the cable modem market (42% of the total).

4.22.5. Other broadband access technologies

PLC

Oni and EDP performed PLC trials in the first part of 2006, but did not carry through, and there were no PLC customers by the end of the year.

On the island of Madeira, EEM (Empresa de Electricidade da Madeira) ran trials in 2006 as well, providing service to some 20 customers, but a lack of funding caused the project to close down.

Wi-Fi

There are around 1,400 hotspots in Portugal, most of them belonging to PT.

The government's campaign to deploy hotspots around the country, particularly in public areas and educational centres, has contributed to this increase. Nevertheless, the main users are the country's hotels and airports.

WiMAX

This technology is being testing in Portugal, with three trials performed by Portugal Telecom in different environments in 2006.

These trials were considered technical, not being part of any commercial undertaking, and ran for close to six month, testing a variety of bandwidths and coverage radii.

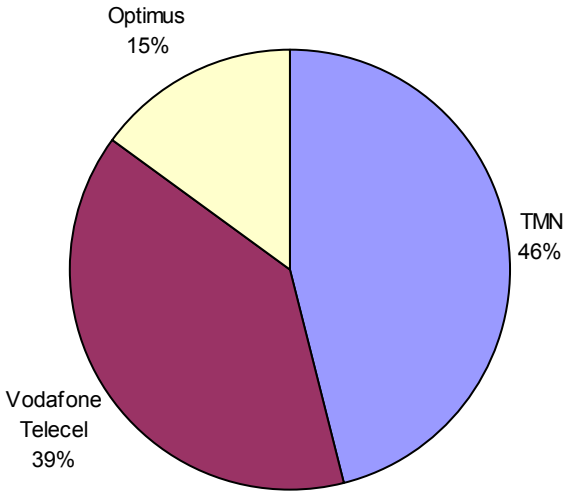
Cellular

In 2005, the three mobile operators launched several broadband Internet access offers based on 3G and GPRS technologies. These offers typically include mobile connect cards with specific tariffs, which enable laptops to connect to Internet.

In December of 2006, there were around 2.2 million 3G subscribers in Portugal, a 137% increase over the previous year's 930,000 subscribers.

More than 80% of the population is covered by UMTS.

Breakdown of the 3G subscriber base by operator (December 2006)



* Users with 3G handsets

4.23. Slovakia

4.23.1. Population

	Urban area	Suburban area	Rural area	National
Inhabitants	1,876,514	1,904,054	1,613,069	5,393,637
Share of total population	34.8%	35.3%	29.9%	100.0%

4.23.2. General broadband data

	12/02	12/03	12/04	12/05	12/06
DSL coverage (% of population)	*0%*	*18%*	*44%*	61%	66%
DSL subscribers	*0*	*4 ,210*	*38 ,334*	104 ,899	182 ,391
DSL penetration (% of population)	0.0%	*0.1%*	*0.7%*	1.9%	3.4%
Cable modem coverage (% population)	*0%*	*2%*	*4%*	8%	15%
Cable modem subscribers	0	3 ,498	10 ,854	26 ,083	36 ,701
Cable modem penetration (% population)	0.0%	*0.1%*	*0.2%*	0.5%	0.7%
FTTx subscribers	100	400	2 ,000	17 ,819	30 ,875
PLC subscribers	0	0	0	0	0
WLL subscribers	1 ,150	3 ,300	11 ,000	24 ,518	69 ,629*
Satellite subscribers	50	150	400	420	317
Total	1 ,300	11 ,558	62 ,588	173 ,739	319 ,913
Total penetration (% population)	0.0%	*0.2%*	*1.2%*	3.2%	5.9%

* of which 46,962 Wi-Fi subscribers, 15,563 WiMAX subscribers and 7,204 WLL subscribers

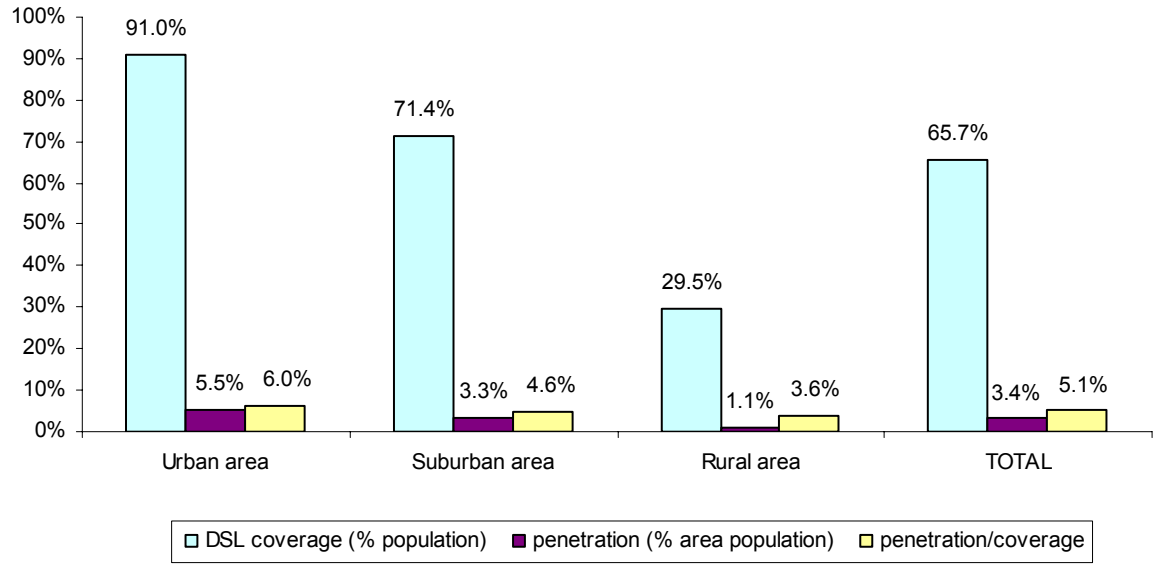
Broadband Internet connections in the Slovakian market total 320,000 lines, with an estimated net gain of around 144,000 connections in the year (+84%).

In the DSL segment, Slovak Telekom still retains a very strong position as bitstream/resale offers only account for 5% of connections and, unbundling is virtually non-existent. Cable modem penetration is still low, due chiefly to coverage constraints.

On the other hand, Wi-Fi and WiMAX networks are developing rapidly while FTTB/FTTH connections are also enjoy strong growth.

4.23.3. DSL coverage and take-up

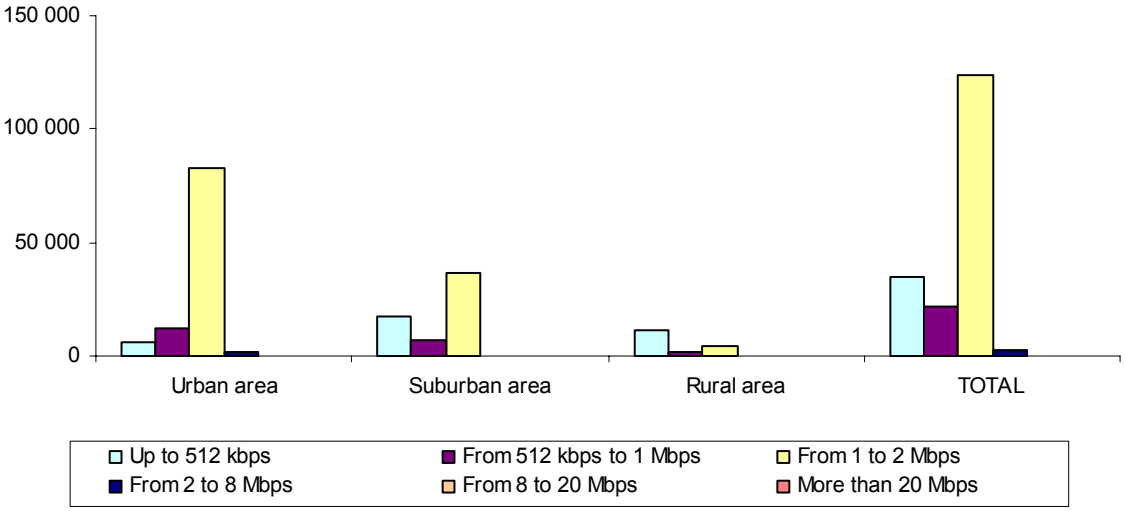
Coverage and penetration



In 2006, ADSL services were available in roughly 797 municipalities (including 17 municipalities within Bratislava-City and 22 municipalities within Kosice-City), which represents 27.2% of 2,928 total national municipalities and 66% of total population.

Total coverage (announced by the incumbent) is higher (70% of total population) but not all PSTN lines are capable of delivering ADSL, mainly due to distance constraints.

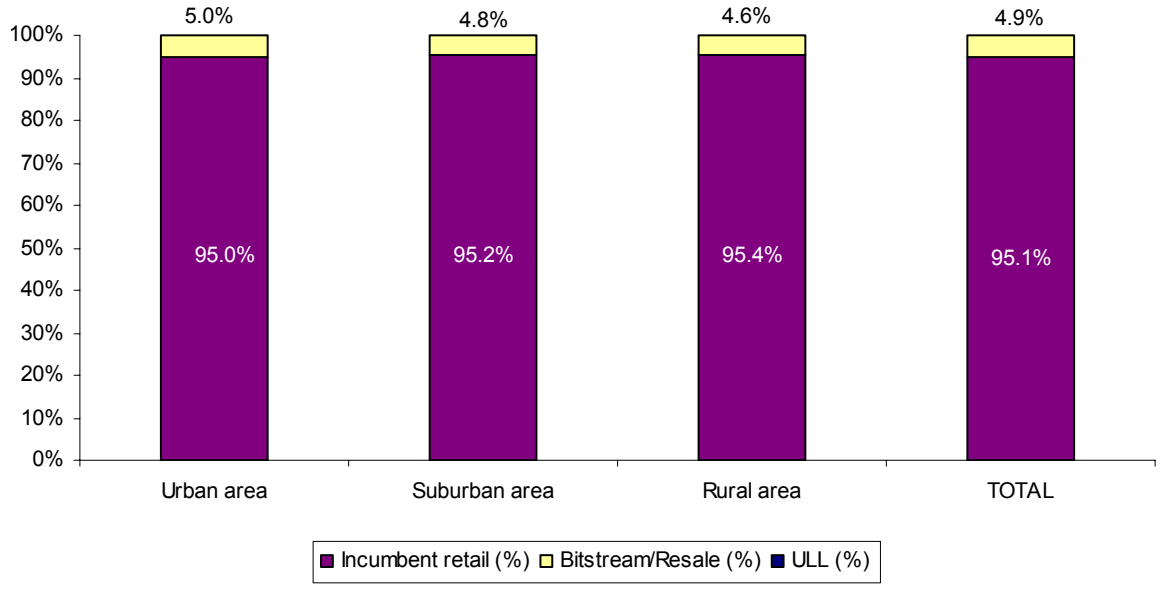
Number of DSL connections by download rate



ADSL2+ services were introduced recently. However, most ADSL services (67.9%) were provided at a speed of 1.5 Mbps downstream/384 Kbps upstream. Less than 1.5% of customers used the highest available rate of 2.5 Mbps, while the slowest download rate of 512 Kbps (384 Kbps upstream) was

used by 19% of ADSL customers, some of whom enjoyed a special discount rate under a government programme dedicated to increasing broadband access amongst the country's youth (aged 15 to 25).

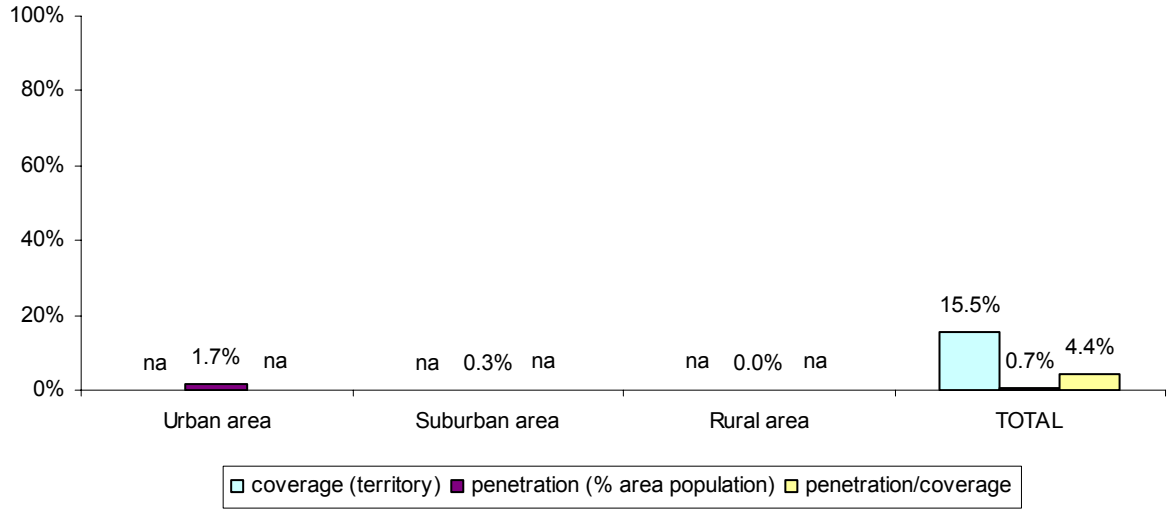
Percentage of DSL connections by type of provider



With 173,391 lines, Slovak Telekom delivers 95.1% of all ADSL lines directly. The remaining 4.9% cover bitstream/resale offers, as unbundling tariffs are too high to attract competitors.

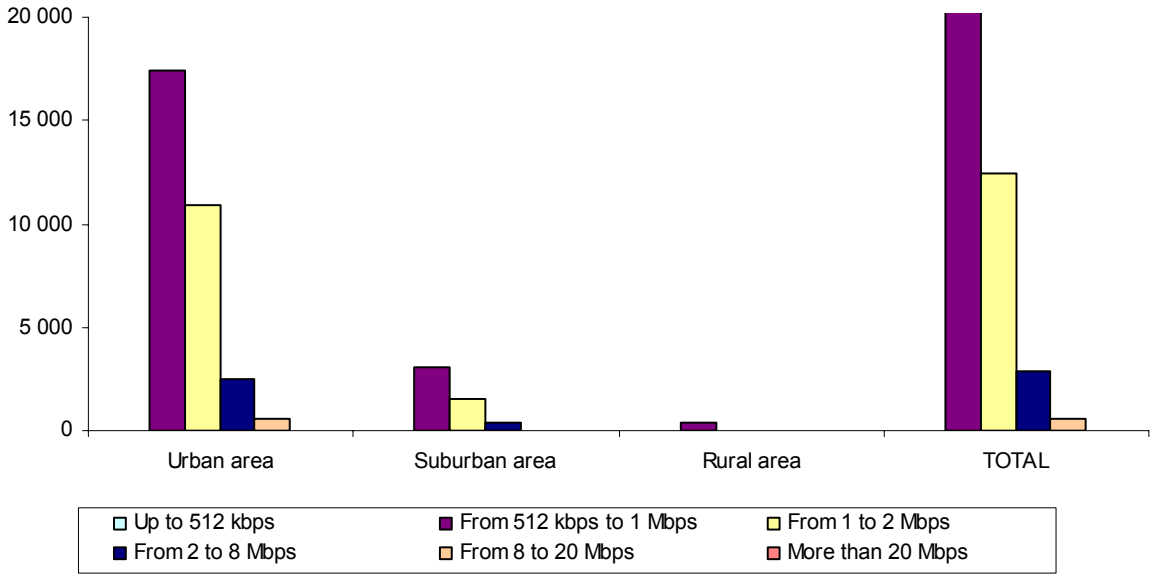
4.23.4. Cable modem coverage and take-up

Coverage and penetration



Although cable modem is available in some sections of urban areas, penetration remains very low.

Number of cable modem connections by download rate



4.23.5. Other broadband access technologies

FTTH

FTTH services (fibre to the home, then coax connection to the PC) were provided by several local alternative operators in limited areas of Bratislava, Kosice, Martin, Zilina, Trnava, Nitra, Presov, Liptovsky Mikulas and Topolcany. The total number of FTTH customers reached 29,926, with services available in urban areas only.

The FTTB operators with largest customer bases are:

- Antik – 19,321 customers in Kosice,
- NITRANET – 5,104 customers in Nitra,
- Micronet – 2,684 customers in Bratislava,
- GAYA / W-COM – 1,580 customers in Martin, Vrutky and ZIlina,
- another 7 operators provided FTTH services for 1,237 customers in Trnava, Rimavska Sobota, Presov, Spisska Nova Ves and Liptovsky Mikulas.

FTTB services were provided by a few national alternative operators and one academic network operator (SANET), serving a total of 949 FTTB customers. The main FTTB providers are Energotel, Zeleznicne telekomunikacie/Railways Telecom, Orange and SANET at the national level, and Micronet and Antik at the local level. Commercial FTTB services were available chiefly in urban and suburban areas, and in a few rural zones located close to energy distribution installations and railways stations.

Main FTTB operators at the national level with higher level of customers:

- SANET - 118 university buildings, schools or local municipality offices located in regional centres,
- Zeleznicne telekomunikacie/Railways Telecom – 105 buildings near to railway lines,
- ENERGOTEL - 80 buildings at the national level.

Main FTTB operators at the local level with higher level of customers:

- Micronet – 240 buildings in Bratislava-City,
- Antik – 238 buildings in Kosice-City.

Internet services with a download rate between 2 and 8 Mbps are available only in the FTTH market. For FTTB services are available download rates between 2 and 100 Mbps.

PLC

In Slovakia, a few private companies have announced PLC trials, in cooperation with energy distribution companies.

Wi-Fi

The first pilot projects based on the Wi-Fi standard (802.11b) were launched in Slovakia in 2003.

The following wireless technologies can be used: RLAN (2,400–2,483.5 MHz), HIPERLAN (5,150–5,350 MHz only indoor) and HIPERLAN (5,470–5,725 MHz outdoor). The regulatory system is one of general authorisation and operator declaration, with 72 operators declared at the end of 2006.

The base of public Wi-Fi hotspots grew swiftly from 2003 to 2006 – with an estimated 3,000 deployed at the end of 2005. No data are available on private wireless LAN based on the Wi-Fi standard.

Slovak Telekom does not operate any Wi-Fi hotspots itself, but through its wholly-owned subsidiary, T-Mobile Slovakia, which operates 85 hotspots in 30 cities and villages. T-Mobile also allows its EDGE/UMTS/FLASH-OFDM customers to use the hotspots for free.

There are also a handful of free public hotspots, chiefly in Bratislava and Kosice.

At the end 2006, there were close to 47,000 Wi-Fi customers in the country, with Wi-Fi technology covering 1,068 municipalities (incl. municipalities in Bratislava and Kosice) with 181 Wi-Fi networks. Wi-Fi technology covers 57 municipalities in urban areas (87.7% of relevant municipalities), 381 municipalities in suburban areas (59% of relevant municipalities) and 630 municipalities in urban areas (28.5% of relevant municipalities) – in total, it covers 36.5% of municipalities, representing 3.8 million inhabitants (70.5% of total population).

WLL/WiMAX

WLL services operate in the 26 GHz frequency band, and are also known as FWA. A call for candidates for FWA licences in the 26 GHz range was issued in 2001 by the Telecommunication Office (national regulator). In July 2001 three licences were awarded (later one of them was withdrawn). The two remaining operators are Telenor Networks and SWAN.

In December 2006, there were 7,204 WLL customers in the country with WLL services provided primarily in eight regional centres. The leading operator was Telenor Networks (approx. 4,600 customers), relying chiefly on wholesale offers.

A call for FWA 3.5 GHz candidates was issued in August 2005, resulting in four licences being awarded to Amtel Slovensko, GlobalTel, Telenor Networks and WiMAX Telecom Slovakia. Three operators had launched commercial services by the end of 2005, with all operators are using WiMAX technology.

In December 2006, the total number of FWBA customers was 15,463. FWBA services are provided mainly in urban and suburban areas. In 2006, the leading operator was WiMAX Telecom Slovakia (6,107 customers) – covering roughly 300,000 inhabitants in suburban and rural areas.

Satellite

Two-way satellite Internet access is offered in Slovakia primarily by GiTy and Sitel VSAT, with a few other companies reselling foreign satellite Internet access services.

At end of December 2006, the total number of satellite Internet subscribers was 317 (decreasing by more than 100 over the course of the year). The main end-users are petrol stations, automobile concessions, OTB shops, banks (cash dispensers), gas distribution companies and infrastructure centres, mountain hotels, domestic companies with foreign investors, etc.

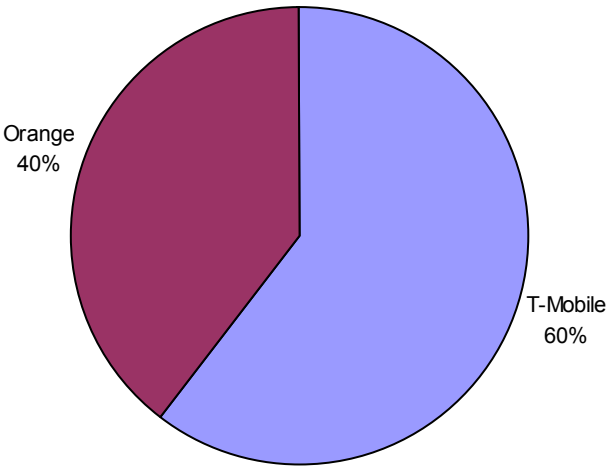
Cellular

In 2006, UMTS and 2.5G services (GPRS, EDGE), were offered by two existing mobile operators – Orange and T-Mobile. Commercial UMTS services were launched in March 2006.

In December 2006, there were 49,729 mobile broadband customers (excluding single EDGE customers) in the country, of which 30,000 were served by T-Mobile.

A call for candidates for a third mobile licence was issued in May 2006. The winner was Telefonica O_2, which did not begin offering 2G/3G services until February 2007.

Breakdown of the 3G subscriber base* by operator (December 2006)



* Users with 3G handsets

4.24. Slovenia

4.24.1. Population

	Urban area	Suburban area	Rural area	National
Inhabitants	442,269	766,381	802,964	2,003,358
Share of total population	22.0%	38.1%	39.9%	100.0%

4.24.2. General broadband data

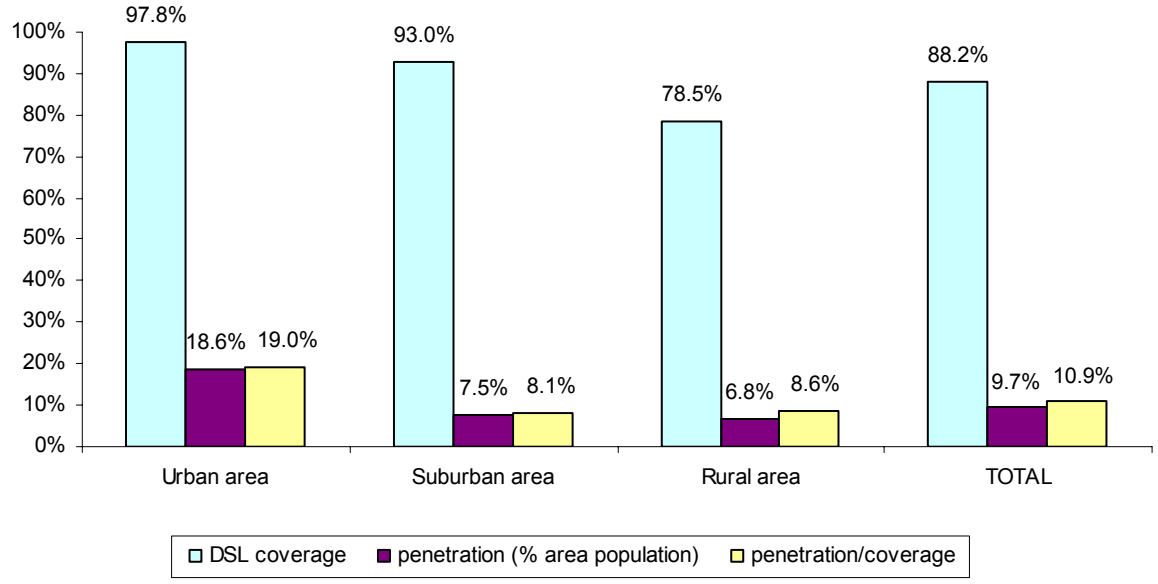
	12/02	12/03	12/04	12/05	12/06
DSL coverage (% of population)	-	-	-	55%	88%
DSL subscribers	16 ,735	36 ,960	73 ,730	130 ,602	194 ,250
DSL penetration (% of population)	0.8%	1.8%	3.7%	6.5%	9.7%
Cable modem coverage (% population)	-	-	-	-	-
Cable modem subscribers	8 ,000	28 ,698	38 ,836	46 ,822	81 ,446
Cable modem penetration (% population)	0.4%	1.4%	1.9%	2.3%	4.0%
FTTx subscribers	-	-	-	1 ,188	2 ,876
PLC subscribers	0	0	0	0	0
WLL subscribers	,	,	2 ,503	2 ,645	*3 ,273*
Satellite subscribers	-	-	-	15	0
Total	24 ,735	65 ,658	115 ,069	181 ,272	281 ,845
Total penetration (% population)	1.2%	3.3%	5.7%	9.0%	14.0%

DSL technology accounted for 69% of broadband connections in Slovenia at the end of 2006, with the incumbent operator retaining more than three quarters of retail subscribers in this segment (TeleKom Slovenije's market share has plummeted from 90% at the end of 2005). More than 20 service providers compete in this segment.

The cable segment is more fragmented, with 45 cable Internet operators competing for market share. 2006 was a year of healthy growth (+73%) for the sector, even if the subscriber base totalled only 81,446 at the end of the year, representing 29% of total broadband connections in the country.

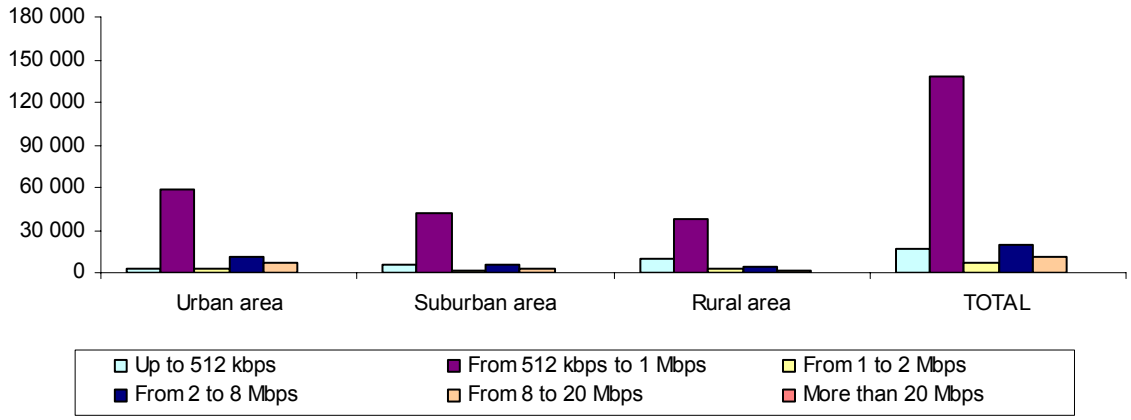
4.24.3. DSL coverage and take-up

Coverage and penetration



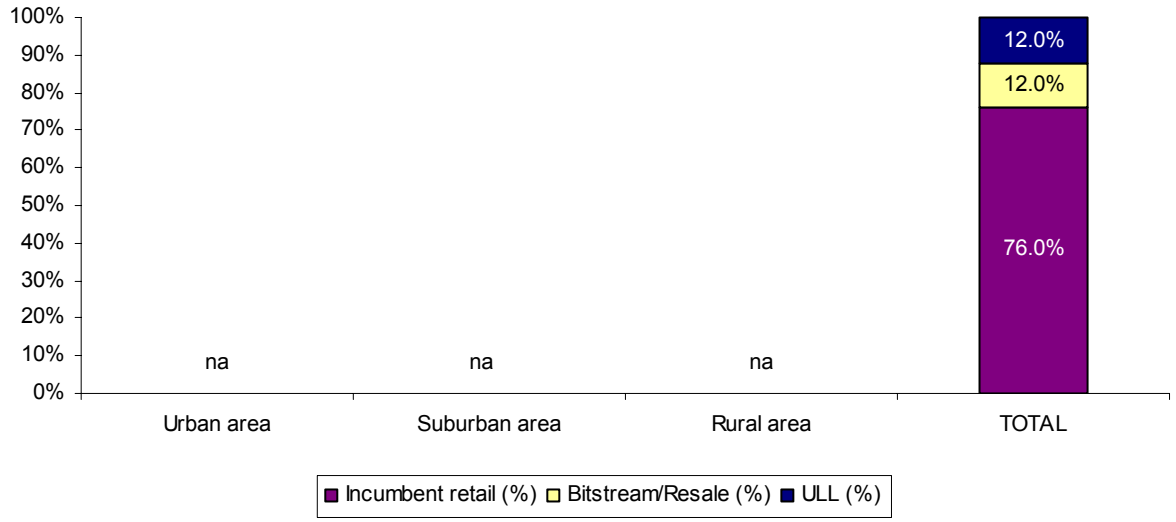
The above chart presents xDSL coverage in Slovenia, in all 193 national municipalities, which were divided into urban, suburban and rural areas based upon survey methodology. 88.2% of the Slovenian population resides in municipalities with xDSL coverage.

Number of DSL connections by download rate



The above chart illustrates national xDSL access segmentation by download rate for all DSL subscribers, of which 71.4% access services with downstream speeds of between 512 kbps and 1 Mbps. Compared to the previous year, the share of xDSL lines with download speeds from 512 kbps to 1 Mbps and from 1Mbps to 2 Mbps have declined, being replaced by connections running at 2 Mbps to 8 Mbps and at 8 Mbps to 20 Mbps. There has also been a sizeable increase in the use of slower xDSL connections, operating at up to 512 kbps, no doubt spurred by growing demand in suburban and rural areas where telecommunications operators can only offer more expensive xDSL lines delivered through wholesale access.

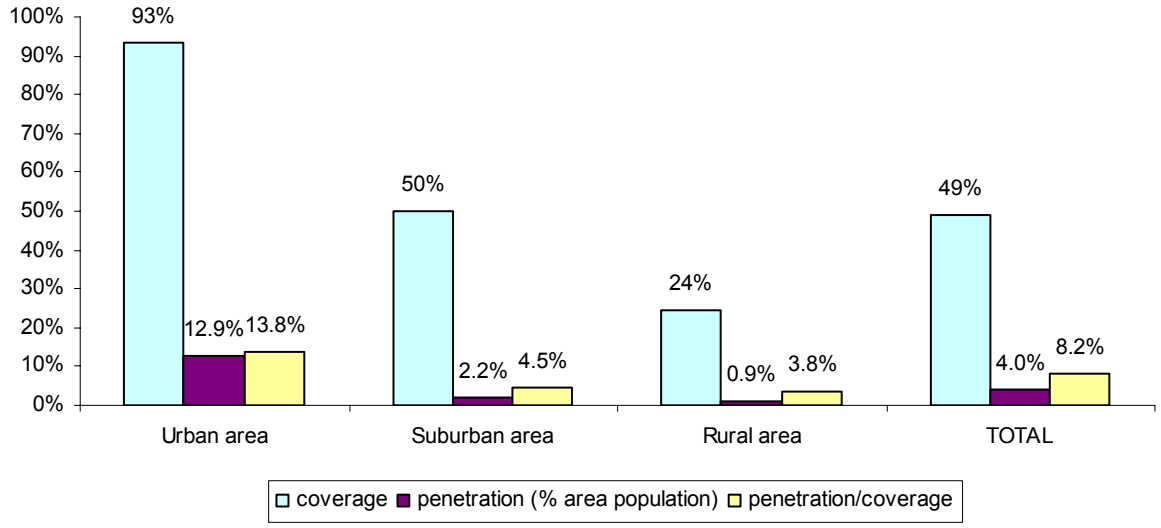
Percentage of DSL connections by type of provider



Telekom Slovenije still controls 76% of the DSL subscriber base, both directly and through its subsidiary, SiOL.

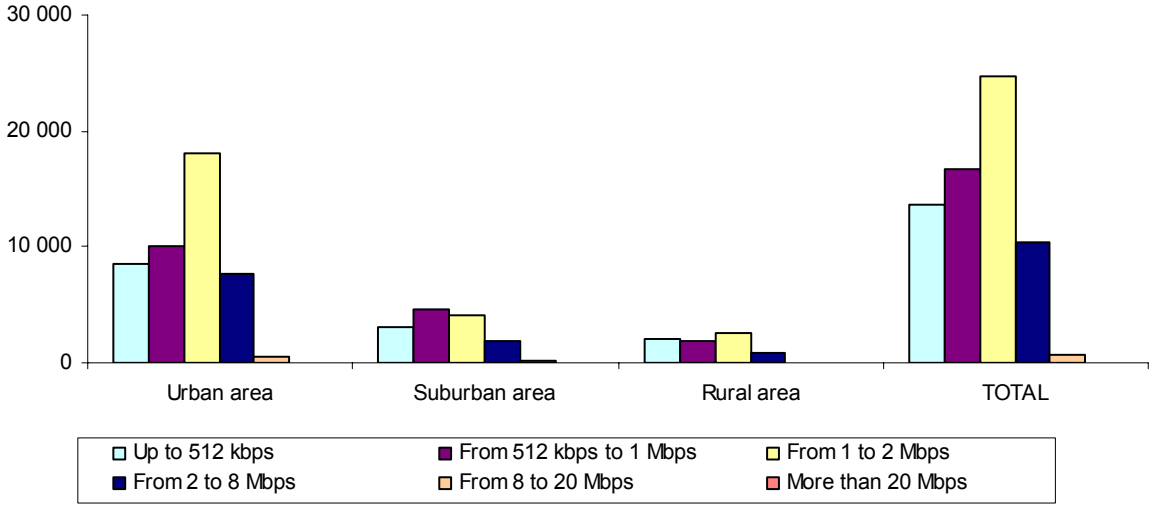
4.24.4. Cable modem coverage and take-up

Coverage and penetration



Cable modem access is available to 93% of the population in urban areas, to 50% of the population in suburban areas, and to 24% of the population in rural areas.

Number of cable modem connections by download rate



The majority of cable modem connections in urban (40.3%) and rural areas (34.4%) enable download speeds between 1 Mbps and 2 Mbps, while in suburban areas the majority (34.0%) of connections provide download speeds between 512 kbps and 1 Mbps.

4.24.5. Other broadband access technologies

Other broadband access technologies represent only 1.5% of all broadband connections. PLC does not exist in Slovenia. Satellite access to Internet is available in Slovenia, but has no subscribers[8]. In 2006 Telekom Slovenija and Tok Telekomunikacije acquired radio frequencies for WiMAX and the technology was first introduced on a trial basis in early 2007[9].

FTTx

According to APEK data, 90% of FTTx is provided by T2. T2 only provides FTTH, while the rest of the providers concentrate on FTTB. FTTH is available in Ljubljana (urban area) and in Kranj (suburban area), and is also being expanded in other urban (in Maribor) and suburban zones (in Murska Sobota, Koper, Novo mesto and Velenje). FTTB is available only in cities.

Cellular

At the national level, Mobitel's UMTS network covers 71.9% of the territory (55% of population), and was serving 65,100 3G subscribers at the end of 2006.

[8] According to APEK data.

[9] SloDivX (2007) : Telekom Slovenija connects the first subscriber to WIMAX network, http://www.slodivx.net/modules.php?name=News&file=article&sid=3553 (9.6.2007)

4.25. Spain

4.25.1. Population

	Urban area	Suburban area	Rural area	National
Inhabitants	23,924,832	10,046,059	9,787,409	43,758,300
Share of total population	54.7%	23.0%	22.4%	100.0%

4.25.2. General broadband data

	12/02	12/03	12/04	12/05	12/06
DSL coverage (% of population)	79%	85%	87%	89%	90%
DSL subscribers	960 ,329	1 ,676 ,466	2 ,604 ,067	3 ,876 ,360	5 ,243 ,094
DSL penetration (% of population)	2.3%	4.0%	6.1%	9.0%	12.0%
Cable modem coverage (% population)	-	38%	42%	42%	48%
Cable modem subscribers	366 ,177	593 ,745	839 ,635	1 ,176 ,064	1 ,417 ,340
Cable modem penetration (% population)	0.9%	1.4%	2.0%	2.7%	3.2%
FTTx subscribers	1 ,380	1 ,590	1 ,670	1 ,700	1 ,700
PLC subscribers	0	-	2 ,300	3 ,650	2 ,780
WLL/WiMAX subscribers	3 ,780	5 ,500	9 ,400	12 ,500	30 ,000
Satellite subscribers	325	850	1 ,850	4 ,450	7 ,000
Total	1 ,331 ,991	2 ,278 ,151	3 ,458 ,922	5 ,074 ,724	6 ,701 ,914
Total penetration (% population)	3.2%	5.5%	8.2%	11.8%	15.3%

There were a total of over 6.7 million broadband subscribers in Spain at the end of 2006, with a net gain of around 1.6 million connections during the year. The aggressive stance taken by the incumbent and the country's alternative operators was a decisive factor in this growth. Competition in the broadband market was reflected chiefly in: (1) increase in transmission speeds, (2) new rate-setting structures for the end customer, (3) bundling strategies (voice, broadband and in some cases TV) and (4) greater marketing efforts when launching new offers and promotions.

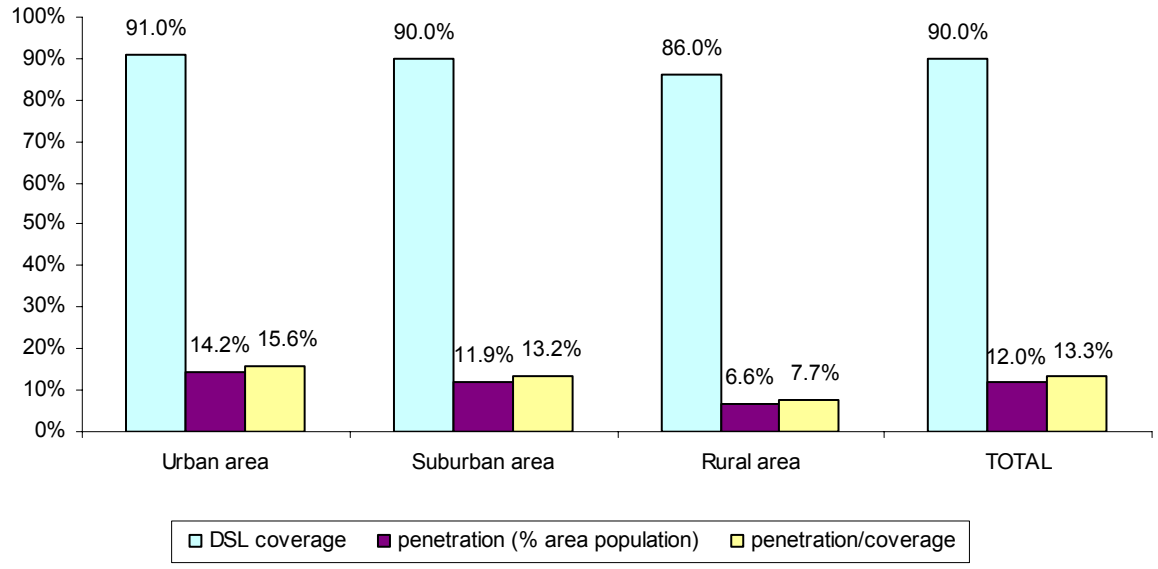
As in the majority of the EU countries, ADSL is the dominant broadband access mode in Spain (78%).

Broadband cable customers represented 21% of the total base, although this national total masks the fact that cablecos have not deployed their networks across the country, remaining confined to only certain cities. At the regional level then, in the cities where cable is deployed, its competitive impact is higher than that observed at the national level.

On the other hand, very few users access the Internet via alternative technologies (PLC, WLL, satellite, FTTH).

4.25.3. DSL coverage and take-up

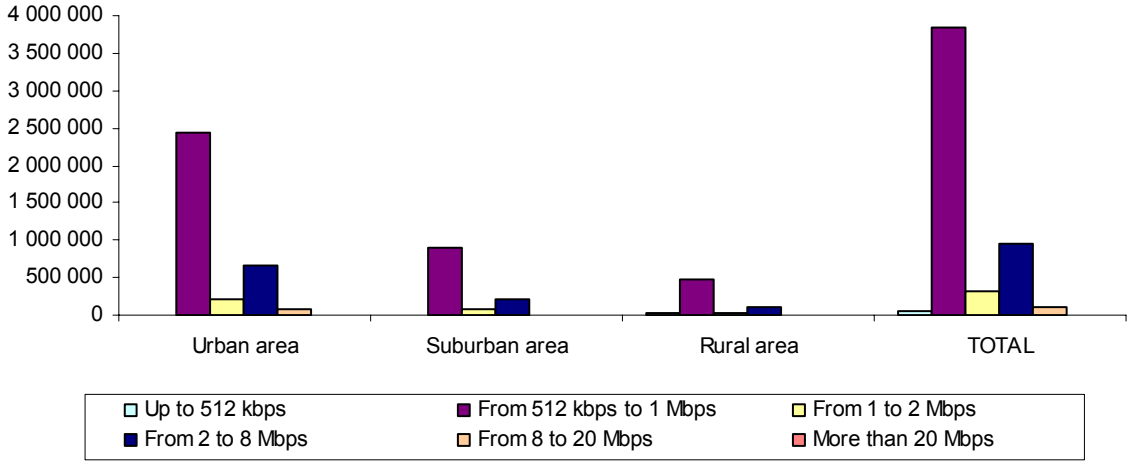
Coverage and penetration



There is ADSL coverage in 5,565 municipalities, which represent 68.6% of the 8,110 national municipalities and 98.6% of the total population.

However, total coverage stands at only 90% (one point more than at the end of 2005) since ADSL is not available to all inhabitants in these municipalities.

Number of DSL connections by download rate



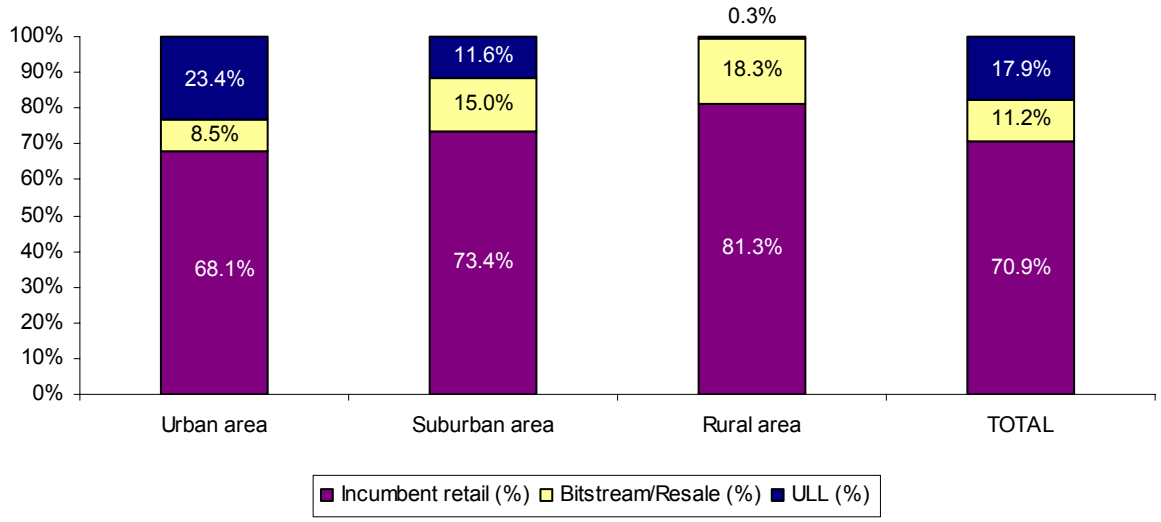
Telefónica de España provides the same DSL services nationwide, in terms of prices and bandwidth. Alternative operators' offerings differ given that unbundling is available only at certain local exchanges.

In the fourth quarter of 2006, incumbent Telefónica launched its ADSL 3 Mbps/320 kbps service. Telefónica's increase in bandwidth was soon mimicked by the competition, which either doubled their

bitrates or rolled out lower-price products with fewer features. This led to a sizeable implicit decrease in the actual price of services in Spain, which nonetheless remains high compared to many other countries.

1 Mbps access is becoming the lowest speed offered by the incumbent operator. In December 2006, only 0.9% of total DSL connections were running at a lower bit rate (up to 512 kbps in the chart, as the upper class covers only 1 Mbps connections).

Percentage of DSL connections by type of provider



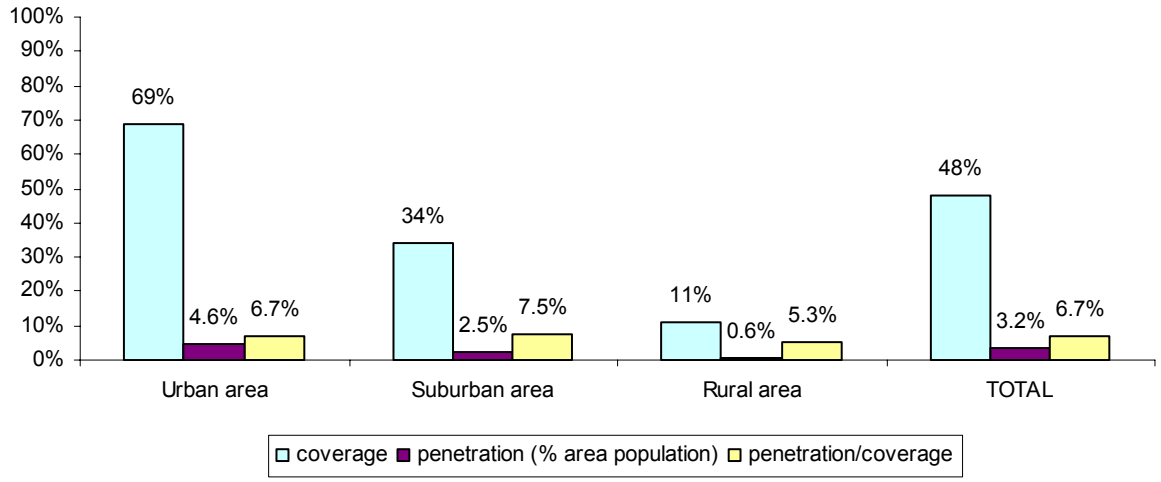
Telefónica de España is the market leader, with 3,717,667 lines, and direct control over 70.9% of all DSL – up from 70.2% at the end of 2005.

The bitstream/resale ADSL service is being affected by the migration to unbundled loops. Thus, a net decrease of 135,000 lines was registered at the end of the year, bringing the total number to 586,418.

The net gain of unbundled loops in 2006 was 504,000. By year end, the total number of unbundled loops stood at 939,009 (434,760 unbundled lines at 2005 year end), and representing around 14% of the total number of broadband Internet connections and 17.9% of total ADSL connections. Of these unbundled loops, 527,723, or 56.2%, were shared access loops.

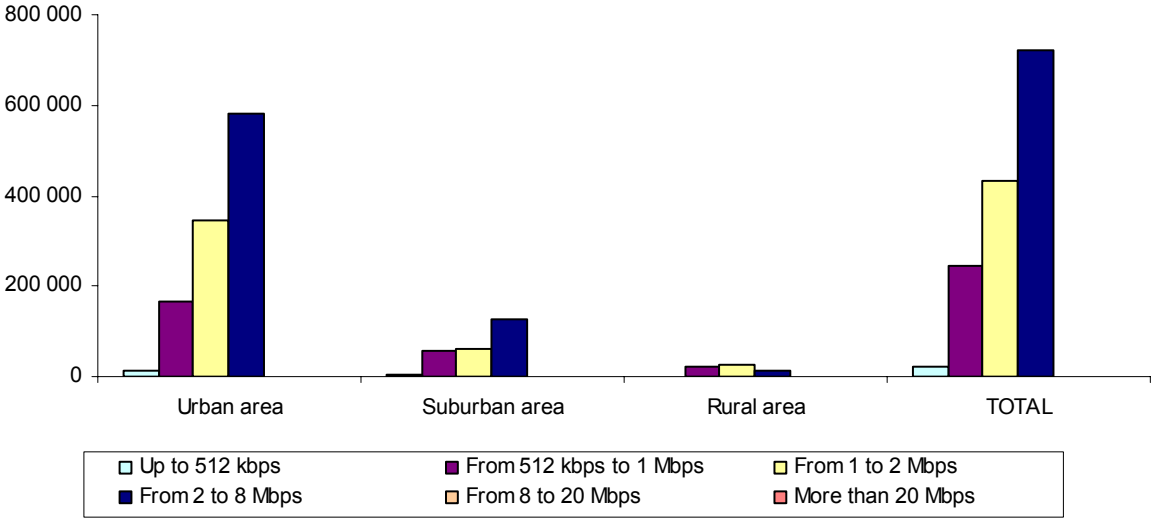
4.25.4. Cable modem coverage and take-up

Coverage and penetration



Total cable coverage rose to 48% in 2006 from 42% the previous year. Cable modem is available in every region except Extremadura.

Number of cable modem connections by download rate



Internet services with a download rate between 2 and 8 Mbps are dominant in the cable modem market.

4.25.5. Other broadband access technologies

PLC

Public utilities Endesa and Iberdrola began offering Power Line Telecommunications (PLC) services in October 2003. By December 2006 there were 2,780 PLC subscribers in Spain, with Iberdrola leading the market.

Wi-Fi

In December 2006, there were roughly 3,200 hotspots in Spain. Among others initiatives, in June Telefónica de España announced the signature of an agreement with T-Mobile and T-Com that will allow Telefónica de España to extend its Wi-Fi coverage in Europe and to offer its customers access to more than 10,000 hotspots in Austria, Germany, the Czech Republic, Holland and the United Kingdom

Private operators, Kubi Wireless, Swisscom and AWA are Telefónica de España´s main competitors in this market, all with hotspots in the country's major cities, chiefly Madrid and Barcelona.

WLL/WiMAX

Two companies currently operate in Spain's WLL market: Iberbanda and Neo-Sky. There were around 30,000 WLL customers in Spain in December 2006.

Satellite

The government's demand for Internet access points in rural areas was responsible for the substantial increase in two-way satellite Internet access in 2006.

At the end of this year there were around 7,000 dishes deployed in Spain (4,450 at the end of 2005).

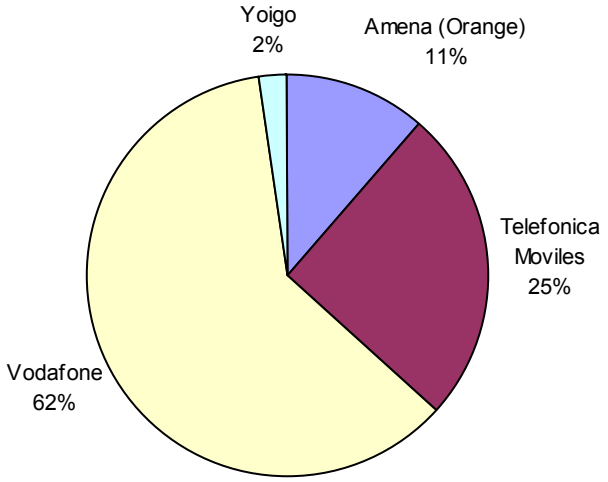
Telefónica de España and BT, both with government contracts, are the market's leaders, while Hispasat, Ya.com, Overon, Neo-Sky and Divona have a significant number of antennas.

Cellular

Operators continued to roll out their UMTS networks in 2006, and to invest in increasing their network capacities to meet the sharp increase in demand. Capex in 2006 totalled around 3.5 billion EUR.

There were a total 3.7 million 3G subscribers in December 2006, nearly 3 million more than the previous year (940,000).

Breakdown of the 3G subscriber base* by operator (December 2006



* Users with 3G handsets

4.26. Sweden

4.26.1. Population

	Urban area	Suburban area	Rural area	National
Inhabitants	3,613,771	3,911,907	1,508,749	9,034,427
Share of total population	40.0%	43.3%	16.7%	100.0%

4.26.2. General broadband data

	12/02	12/03	12/04	12/05	12/06
DSL coverage (% of population)	-	-	91%	93%	95%
DSL subscribers	421 ,444	581 ,194	845 ,939	1 ,207 ,146	1 ,531 ,277
DSL penetration (% of population)	4.6%	6.4%	9.3%	13.2%	16.8%
Cable modem coverage (% population)	38%	45%	45%	47%	48%
Cable modem subscribers	156 ,362	211 ,516	243 ,438	354 ,699	454 ,291
Cable modem penetration (% population)	1.7%	2.3%	2.7%	3.9%	5.0%
FTTx subscribers	133 ,777	194 ,321	241 ,089	289 ,199	356 ,558
PLC subscribers	385	410	100	100	0
WLL subscribers	2 ,900	3 ,400	3 ,400	3 ,400	6 ,578
Satellite subscribers	95	690	775	1 ,039	704
Total	714 ,963	991 ,531	1 ,334 ,741	1 ,855 ,583	2 ,349 ,408
Total penetration (% population)	7.8%	10.9%	14.6%	20.4%	25.8%

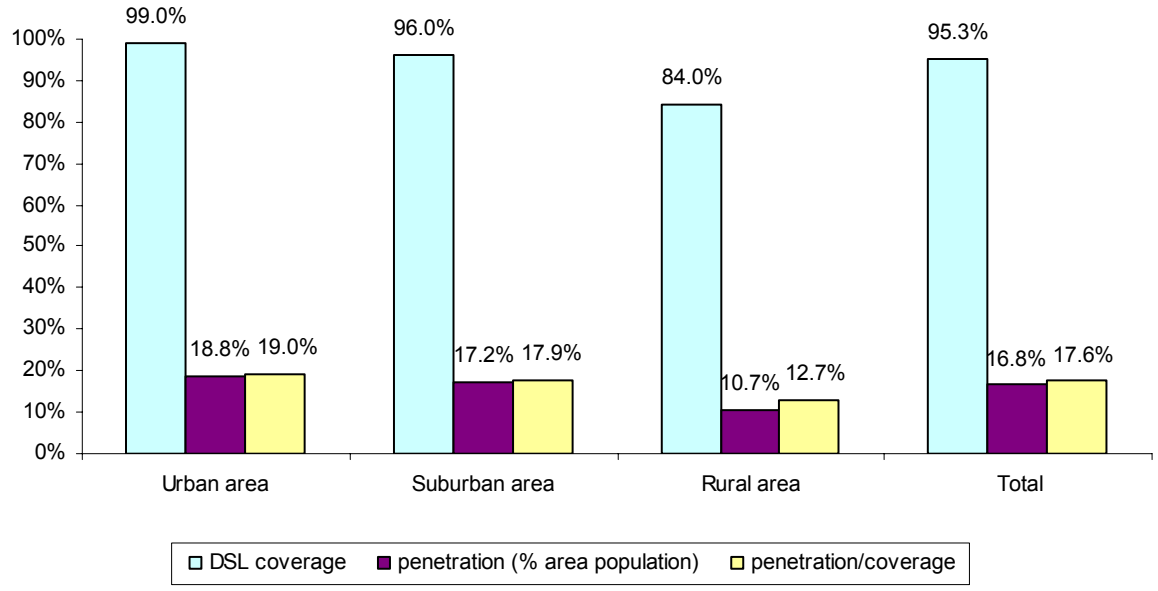
The Swedish broadband market is characterised by healthy facilities-based competition. In particular, the launch of FTTH services in 1999 by new entrant Bredbandsbolaget (B2) contributed to fuelling competition as it offered high bandwidth at low prices. At the end of 2006, broadband penetration rate in Sweden ranked among the highest in Europe: only other Scandinavian countries were ahead.

DSL continues to be the dominant technology, with cable and FTTH competing for second place. FTTH nearly eclipsed cable in 2004 and 2005 and has significant market share in Sweden. The technology experienced a lower relative growth (23%) than both DSL (27%) and cable (28%) in 2006, however; in fact, part of B2's strategy is now based on DSL offered through unbundling.

NB: Time series for most data have been revised, based on the latest reports from the Swedish regulatory authority.

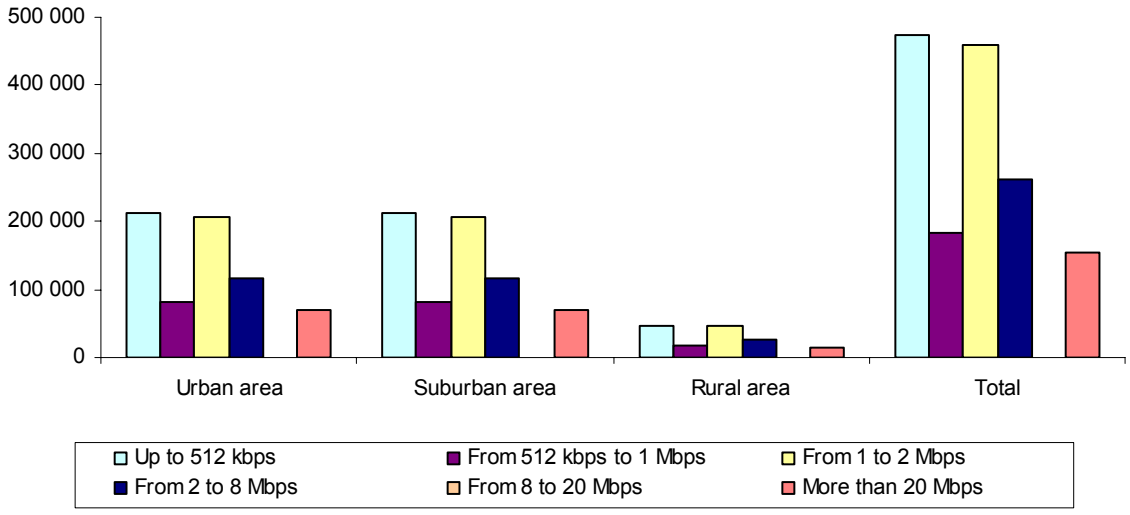
4.26.3. DSL coverage and take-up

Coverage and penetration



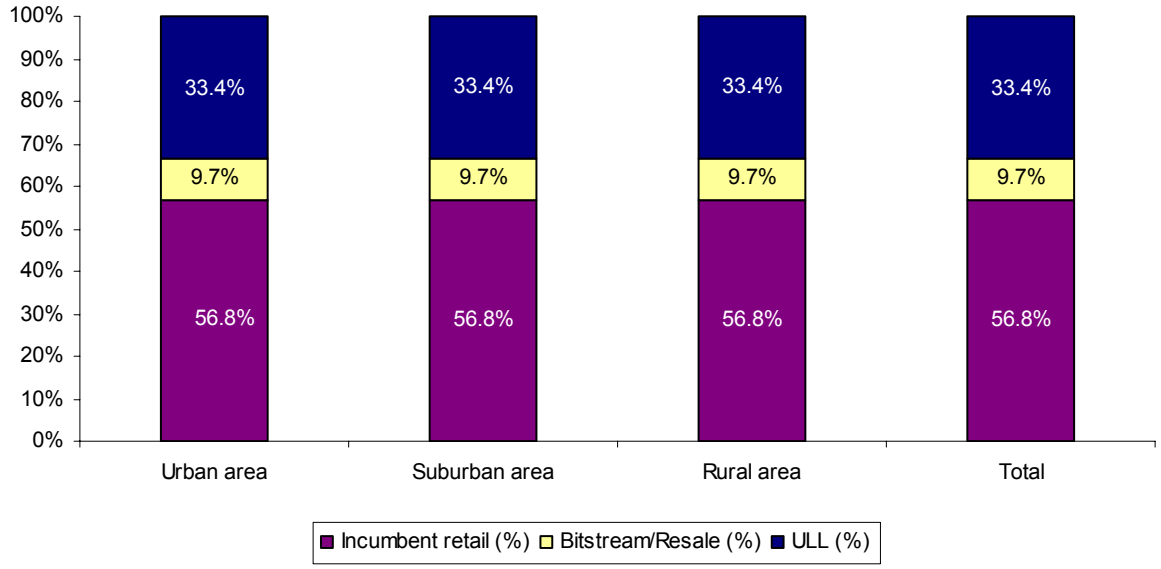
DSL leads the way in Sweden's broadband market, in terms of both coverage and penetration. At the end of 2006, close to 95% of the population was covered by the DSL network.

Number of DSL connections by download rate



A relatively large number of DSL subscriptions (31%) still have rates below 512 kbps. Nearly half of all subscriptions (47%) are in the range from 1 to 8 Mbps.

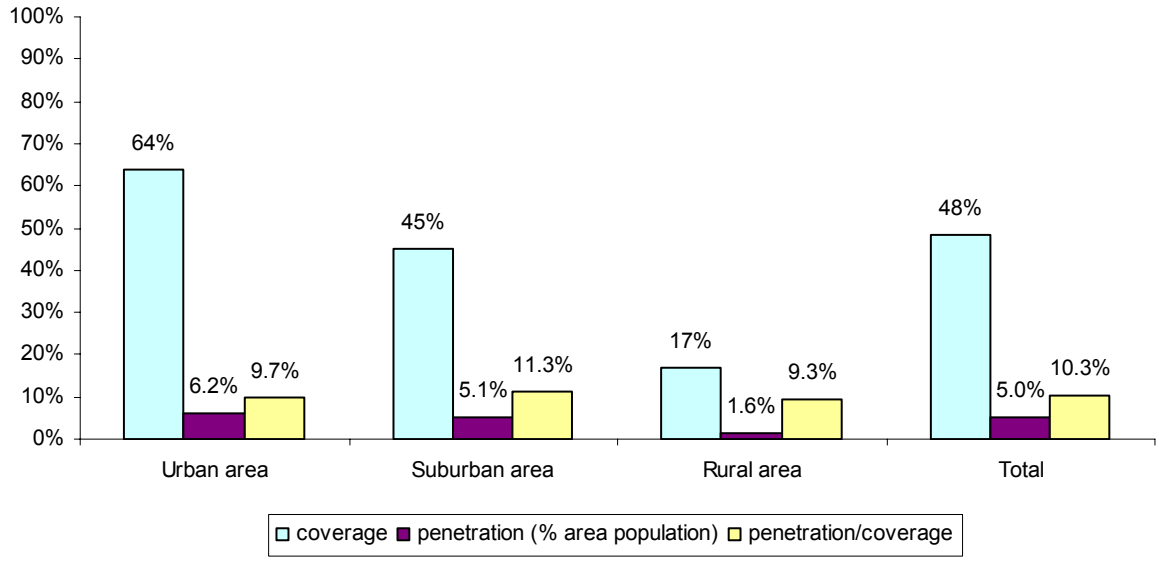
Percentage of DSL connections by type of provider



Local loop unbundling is being used more and more to provide competitive DSL services: at the national level, ULL's market share grew slightly from 30.5% at the end of 2005 to 33.4% at the end of 2006.

4.26.4. Cable modem coverage and take-up

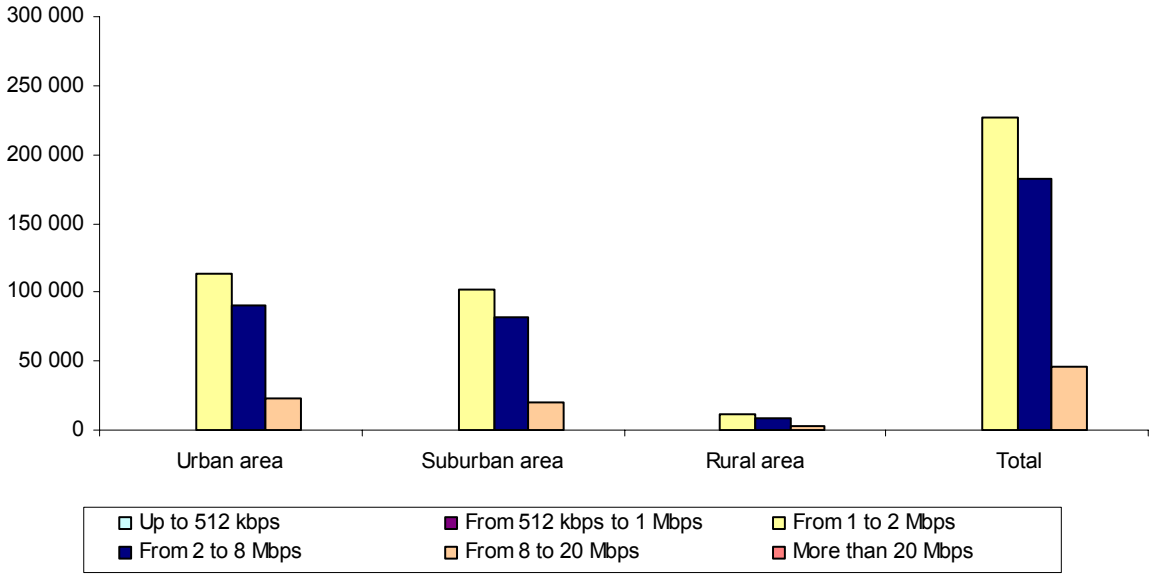
Coverage and penetration



Cable operators were comparatively late in upgrading their infrastructure for broadband Internet. Upgraded cable infrastructures now cover roughly 48% of the Swedish population, and are available to 64% of the inhabitants in urban areas.

Cable modem penetration reported the highest rate of growth in 2006, with the subscriber base increasing by 28%.

Number of cable modem connections by download rate



Because competition came from FTTx and DSL (in some areas, DSL connections can deliver download speeds of up to 24 Mbps), cablecos have been forced to upgrade their networks. A major upgrade was performed in the second half of 2004.

By the end of 2006, half of all the broadband cable subscribers had speeds above 2 Mbps.

4.26.5. Other broadband access technologies

FTTH

FTTH continues to play a major role in the Swedish broadband market. It is deployed primarily by Bredbandsbolaget. Also referred to as fibre LAN or Ethernet LAN, it targets chiefly large apartment buildings or multi-dwelling units.

Broadband Internet access via fibre offers download rates of well over 2 Mbps, and Bredbandsbolaget is continuously upgrading existing customers to 100 Mbps.

There were a total 348,000 "LAN subscriptions" in Sweden by the end of 2006. This marks an increase of 23% from the year before, somewhat behind the growth for both DSL (27%) and cable (28%). In 2004, FTTH had almost as many subscribers as cable, but the gap has widened since then.

Wi-Fi

There are no official numbers on the number of hotspots, but a compilation of figures from the major operators indicates a base of around 1,500–2,000 (source: PTS)

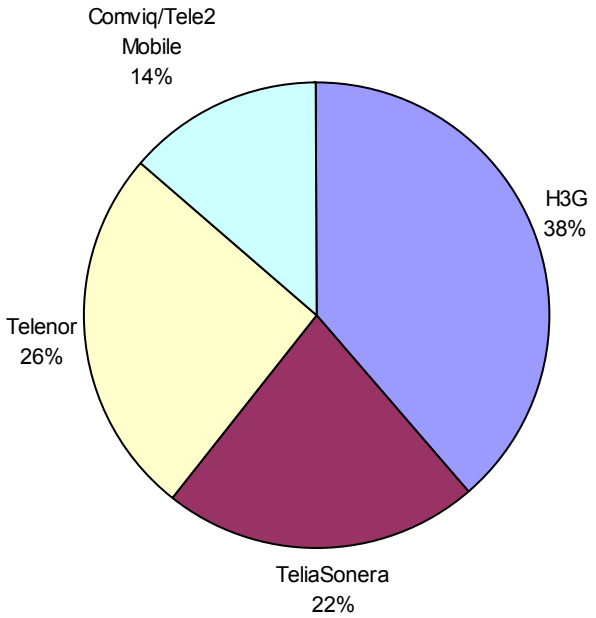
Cellular

In October 2003, new entrant Hi3G Access became the first player to market UMTS services, under the brand name 3. TeliaSonera began running 3G trials with 500 customers on 1 December 2003, then launched a 3G service in June 2004, covering 75% of the population and 96% of municipalities. Tele2 followed suit on 2 June 2004.

At the end of 2006, approximately 98% of the population was covered by UMTS (1.2 million subscriptions). All operators are expected to reach this figure (a cover of 8,860,000 inhabitants) by Q2 2007, thereby satisfying the terms of their licences.

The number of subscriptions has been calculated using the "3 month rule"; i.e. a subscription is classified as a UMTS subscription if it has used UMTS services within the last three months.

Breakdown of the 3G subscriber base* by operator (December 2006)



* Users with 3G handsets

4.27. The United Kingdom

4.27.1. Population

	Urban area	Suburban area	Rural area	National
Inhabitants	36,318,951	16,769,921	6,141,127	59,230,000
Share of total population	61.3%	28.3%	10.4%	100.0%

4.27.2. General broadband data

	12/02	12/03	12/04	12/05	12/06
DSL coverage (% of population)	63%	85%	95%	99%	99%
DSL subscribers	590 ,000	1 ,860 ,555	4 ,263 ,969	7 ,194 ,913	9 ,974 ,000
DSL penetration (% of population)	1.0%	3.1%	7.2%	12.1%	16.6%
Cable modem coverage (% population)	-	42%	50%	50%	*50%*
Cable modem subscribers	769 ,000	1 ,366 ,043	1 ,937 ,320	2 ,663 ,388	3 ,058 ,500
Cable modem penetration (% population)	1.3%	2.3%	3.3%	4.5%	5.1%
FTTx subscribers	0	0	0	0	0
PLC subscribers	-	-	-	-	-
WLL subscribers	-	2 ,500	2 ,500	2 ,500	2 ,500
Satellite subscribers	-	6 ,000	6 ,000	6 ,000	6 ,000
Total	1 ,359 ,000	3 ,226 ,598	6 ,201 ,289	9 ,866 ,801	13 ,041 ,000
Total penetration (% population)	2.3%	5.4%	10.5%	16.7%	21.7%

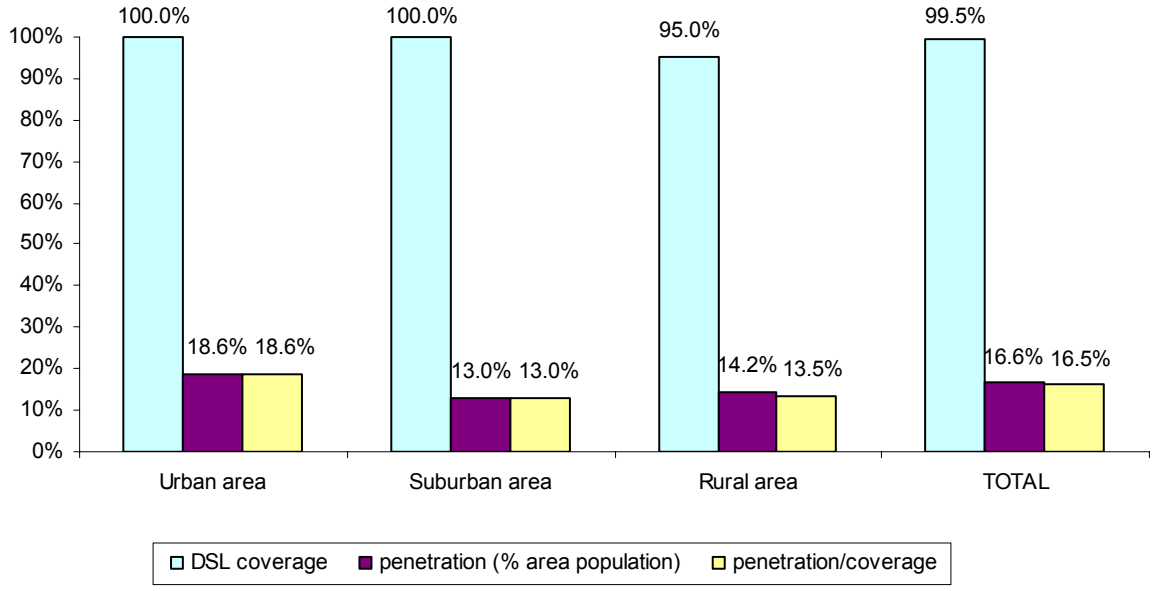
Overall, more than 21% of the population in the UK subscribed to a broadband service at the end of 2006. DSL has been the most dynamic segment over the past year.

Following substantial investment in upgrading its exchanges over the 2003-2005 period, the major event in the DSL market was the establishment by BT, at the beginning of 2006, of a separate division, Openreach, dedicated to ensuring fair and equal access to its local access and backhaul network for the UK's entire telecom industry. The purpose and objectives are described in the undertaking between Ofcom and BT. The performances of Openreach are monitored by the office of the Telecom Adjudicator.

On the cable front, NTL & Telewest have completed their merge into Virgin Media. Virgin Media, sole cable operator in the UK, and the incumbent are fighting for top spot.

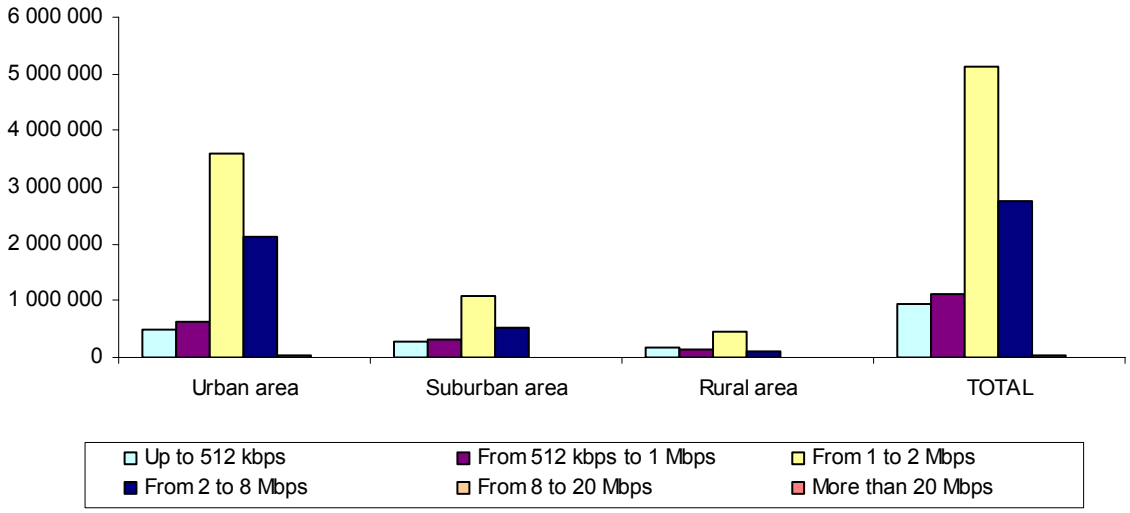
4.27.3. DSL coverage and take-up

Coverage and penetration



DSL coverage is now close to 100%. Penetration in 2006 increased from 12.2% to 16.5% with a higher take-up in urban areas, as in previous years. When compared to the previous year, growth has occurred chiefly in urban areas.

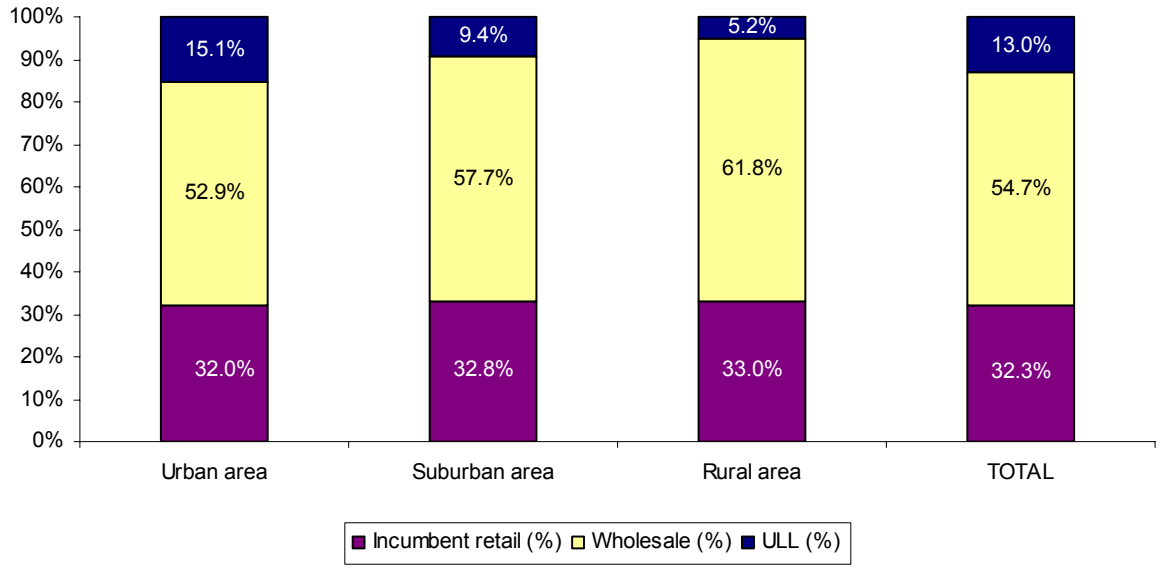
Number of DSL connections by download rate



The year 2006 saw a substantial increase in download rates, as providers engaged in a moderate “speed war” that picked up towards the end of the year. The entry level service now runs at 2 Mbps and several ISPs have increased the download rate of their installed based for either the same or a lower price to limit the churn.

A 8 Mbps service is now widely available, having been scarcely so in 2005. Rural areas are penalised and suffer from the structure of the distribution loop with very little access to higher speeds.

Percentage of DSL connections by type of provider



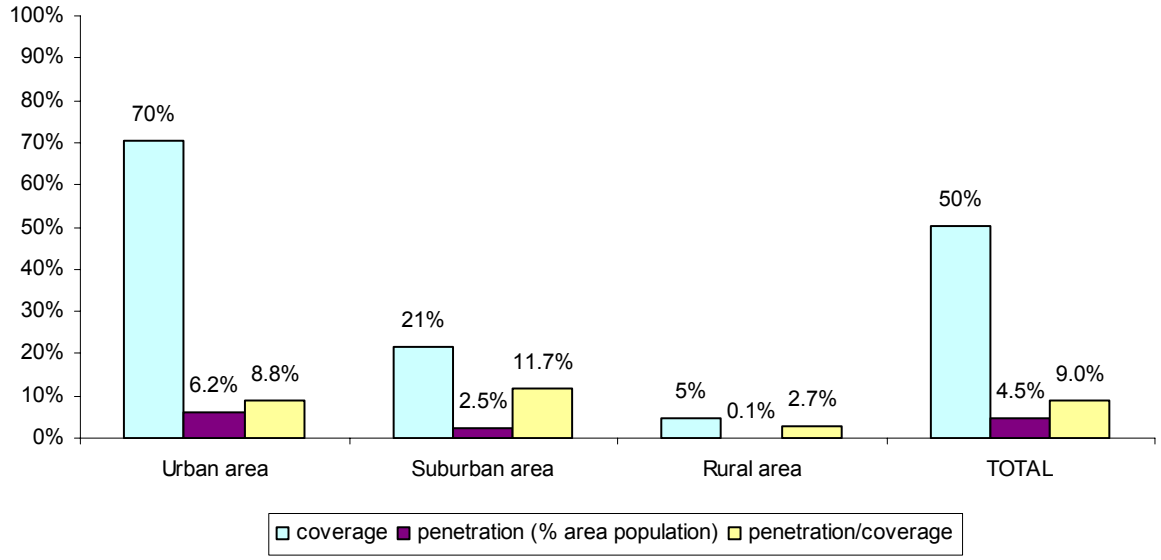
Local loop unbundling increased substantially in 2006, in terms of penetration. The creation of the adjudicator the previous year has had a real impact on access, with LLU increasing its market share from 2.7% in 2005 to 13% in 2006.

The incumbent's market share has grown nearly on a par with the market, and is holding steady. Alternatives have been opting more and more for LLU, at the expense of the wholesale offering which saw is share of business decrease from 64.3% in 2005 to 54.7% in 2006

Local loop unbundling is more prevalent in urban areas as companies tend to focus on local exchanges with the largest capacities.

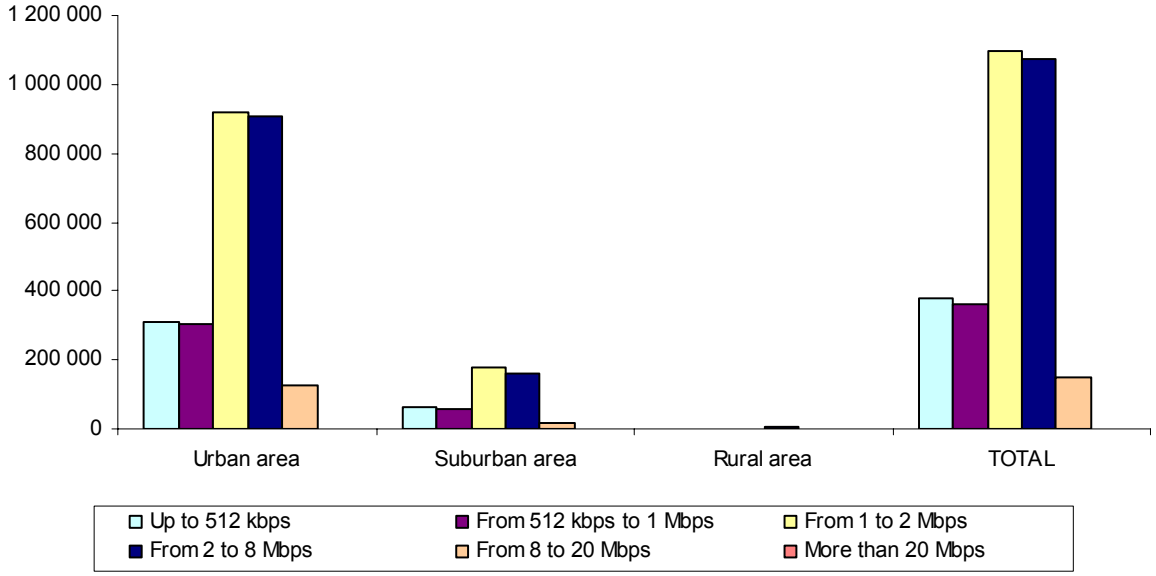
4.27.4. Cable modem coverage and take-up

Coverage and penetration



Broadband service is maintaining its foothold, but the installed base did not increase apace with the market in 2006, with only an meagre growth in subscribers. The focus of the sole cable provider, Virgin Media, has been on cross-selling its alternative packages, rather than increasing cable penetration.

Number of cable modem connections by download rate



The trend towards faster download rates has also affected the installed cable based. Access speeds were increased to allow cablecos to hold their own against ADSL, with the deployment of an offer at 8 Mbps becoming one of the most popular cable products. At one point Virgin Media was the leading broadband provider in the UK.

Other broadband access technologies

Wi-Fi

Fixed-mobile convergence is still in its infancy and very few dual-mode phones are available. The BT Fusion offer does not appear to have had much of an impact thus far.

Parallel to operators' home zone initiatives, the country's largest cities are gradually being covered by Wi-Fi hotspots.

The Cloud is leading the way with its rollout of a large Wi-Fi zone covering the whole London, starting with Canary Warf and service in the underground. Cloud has joined forces with other operators and service providers such as Vodafone, O2, Vonage, Skype…

There are a total of 10,000 hotspots in the UK, with nearly 70% operated by The Cloud and 23% by BT Openzone – the remainder being operated by Orange, T-Mobile and a few niche providers.

WLL/WiMAX

WiMAX is still fledgling, with no operators having committed to a large-scale deployment.

Satellite

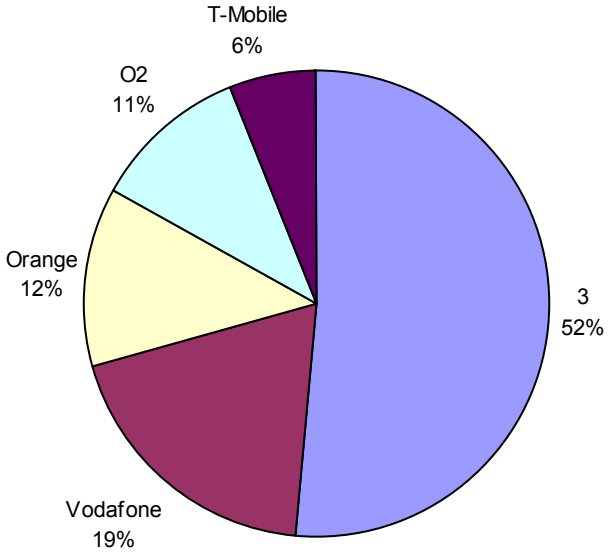
Satellite broadband usage remains marginal, and is typically positioned as a fallback in very remote areas where broadband via ASDL or cable is not available, with prices still much higher than the leading access technologies. The satellite broadband base is holding steady at around 6,000 subscribers.

Cellular

The United Kingdom boats one of the highest mobile penetration rates in Europe, totalling 114% at end of 2006. The market is fairly competitive with each of the four 2G operators holding roughly equal market share. 3G phones are generally not marketed as such by the operators and there is little if any premium for using a 3G phones. Incentives for adoption lie in the functions and services.

Hutchinson 3G reports 90% coverage, and is promoting data services marketed as mobile broadband along with a range of 3G data services such as Skype, video, texting, watching the home TV on the mobile….

Breakdown of the 3G subscriber base* by operator (December 2006)



* Users with 3G handsets