Commission for
Communications Regulation

Report

Residential and Business Internet Connectivity

Irish and European experience

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Contents

Table of Figures

1 Introduction

Since January 2003, ComReg has commissioned Amárach Consulting and latterly Millward Brown Lansdowne to carry out end-user surveys on a periodic basis for both the residential and business markets. The surveys are conducted to gain insight into the attitudes and perceptions of consumers in relation to a range of electronic communications services provided in Ireland, and to track these perceptions over time.

This report uses survey data generated over this series, supplemented by data which ComReg collects in its Quarterly Key Data questionnaire and also some external data on internet access, adoption and usage for Ireland and Europe. The primary aim of the report is to examine the narrowband (dial-up) internet market in Ireland, with additional evidence from Europe, paying specific regard to user experience and reasons for not using broadband.

A secondary aim of the report is to shed some light on reasons why some consumers and businesses don't access the internet at all. According to a recent report by the Swedish Communications Ministry, "…there will still be some who do not want to be part of the knowledge society. Addressing those who won't play as well as those who can't play will be just as necessary for an inclusive knowledge society…"[1] The final section of the report looks at the broadband experience in Ireland and Europe, focussing on the barriers that exist to broadband adoption but also the positive effect that broadband has had, particularly in a business context.

The residential surveys are based on face-to-face interviews carried out in respondents' own homes at a number of different locations nationally. The business surveys are based on telephone interviews conducted among a sample of approximately 500 SMEs and 50 Corporates. SMEs were defined for the purposes of ComReg's research as companies with less than 100 employees. A guide to the margin of error for the Trends series surveys is contained in the presentation of survey results by Amárach and MBIMS, but is typically +/-3% for questions where all respondents answered. In 2007 ComReg published two reports on the online experience for residential and business users[2].

This new report updates that research and ComReg hopes that this thematic approach adds additional insight into internet and narrowband usage behaviour among consumers and businesses in Ireland, as well as providing an insight into those cohorts that do not access the internet.

It should be noted that in some instances (particularly in the demographic analysis) there are low bases. When comparing ComReg survey results, over a number of years, there may be methodological differences which may produce some unexpected results. Similarly when comparing surveys and data from other sources, it should be noted that there may be a number of differences, in terms of base (i.e. composition and size of the population sampled) and methodology. It is hoped that this report will help provide an evidence base which policymakers can use when looking to

1 "A Green Knowledge Society", Sept. 2009:
http://www.se2009.eu/polopoly_fs/1.16246!menu/standard/file/A%20GREEN%20KNOWLEDGE%20SOCIETY_CREATIVE%20COMMONS_%20WEB1.pdfomReg

2 ComReg 07/12 & 07/23

pinpoint the reasons why particular consumers or businesses are disinclined, for one reason or another, to access the internet or use broadband.

1.1 Summary of key findings

Residential

- According to ComReg survey data, 66% of residential consumers use the internet in Ireland in 2009 compared to 45% in 2003.
- According to CSO data, 62.4% of all households in Ireland had internet access in 2008. Five years previously only one third of all households in the country had access. At a regional level, 65.8% of households in the South & East had internet access in 2008, compared to 36.2% in 2003. 53% had access in the BMW region in 2008 compared to 26.2% in 2003.
- Eurostat data indicates that household internet usage in Ireland in 2008 was 63% and was ahead of the European average (60%).
- In terms of percentage of households with narrowband internet access, the European average in 2008 was 11%. Ireland was ahead of this with 17%, although narrowband usage is declining rapidly. Germany (25%) had the highest level of households with narrowband usage.
- In Ireland, older consumers and/or those that do not engage with other technologies are less likely to use the internet. On average, in Europe, lack of interest and expense are the most common reasons given for not using the internet.
- Over one third of narrowband users in Ireland are aged 45 and over. Only one in five narrowband users are aged between 15 and 24.
- Almost half of narrowband users are educated only to secondary level while two thirds of narrowband users consider their connection too slow.
- In 2008, almost 40% of survey respondents in Ireland, using narrowband, said they wouldn't use the internet often enough when asked for a reason for not adopting broadband. Only 13% of EU27 respondents gave the same answer.
- 21% of Irish respondents said their current internet speed was sufficient compared with 30% of EU27 respondents and these respondents cited this factor as a reason for not adopting broadband.

Business

- According to ComReg survey data there is almost ubiquitous internet usage in Ireland. As of June 2009, 96% of corporates and 92% of SMEs have an internet connection.
- Eurostat data indicates that business usage of the internet in Ireland (96%) is ahead of the European average (93%) as well as Germany, France, the UK and Sweden.
- Between 2003 (average 92.5% of SMEs/Corporates had internet connection) and 2009 (average 94% of SMEs/Corporates have internet connection) there has not been a significant increase in businesses with an internet connection.
- A greater percentage of businesses in Munster are connected to the internet than in the country as a whole. Almost one in five businesses in rural areas is not connected to the internet.
- More than half of those companies with a narrowband connection have between one and nine employees and over three quarters of businesses with a narrowband connection are in a rural area or village.
- According to Eurostat, between 2004 and 2008, the percentage of enterprises with a narrowband connection in Ireland has declined by

thirty two percentage points. Ireland was level with the European average, while France had the highest percentage of enterprises using narrowband.

- Fewer Irish companies sampled in 2008 than in 2006 think that broadband has been beneficial in terms of productivity and time saving. However, a greater percentage of companies indicated that broadband has led to IT cost savings and has increased sales in 2008 than in 2006.

2 Residential Internet Usage

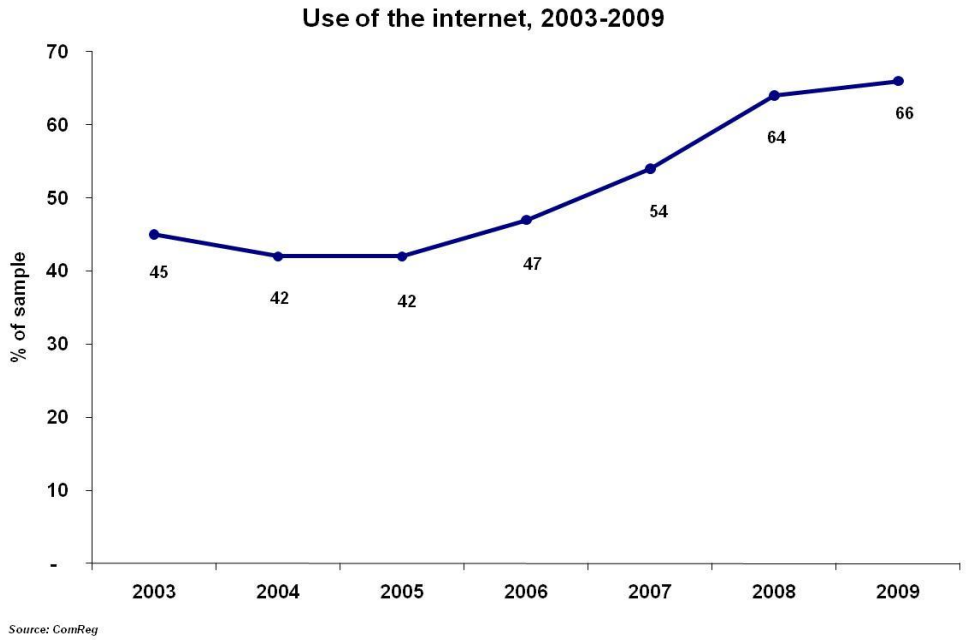
"There is huge focus in Ireland on the supply side of broadband but more needs to be done on the demand side so customers understand the benefits of broadband…"

The above quote was from ComReg Chairperson John Doherty in an interview with RTE News in 2005[3]. In a consultation response[4] the following year ComReg indicated that migration, particularly among SMEs, from narrowband to broadband should be encouraged, as well as stating the mass market benefits of broadband. Business usage and the broadband experience are discussed in later sections of this report. Although broadband take-up has grown over the last five years in Ireland and Europe, recent remarks[5] by Ed Richards, Ofcom Chief Executive that "more needs to be done to understand why millions of people [across the UK] still don't have basic internet access are a timely reminder that some consumers and businesses are continuing to shun the internet. This section of the report looks at levels of internet usage and non-usage.

2.1 Irish residential internet usage

Accessing and using the internet on a day-to-day basis is now, for many in Irish society, a necessity. In a recent focus group[6] conducted by MBIMS for ComReg, one interviewee said "When I come home from work the first thing I do is turn on the laptop then turn on the kettle; technology is just a part of who we are." Using consumer survey data collected between 2003 and 2009 Figure 2.1.1 shows that in 2003 less than half of those surveyed used the internet from any location.

Figure 2.1.1 – Internet usage, 2003-2009



Source: ComReg

3 http://www.rte.ie/business/2005/0622/businesstonight.html

4 http://www.comreg.ie/_fileupload/publications/ComReg0607.pdf

5 http://www.independent.co.uk/opinion/commentators/ed-richards-broadband-is-crucial-ndash-but-too-many-people-still-cant-get-online-1647373.html

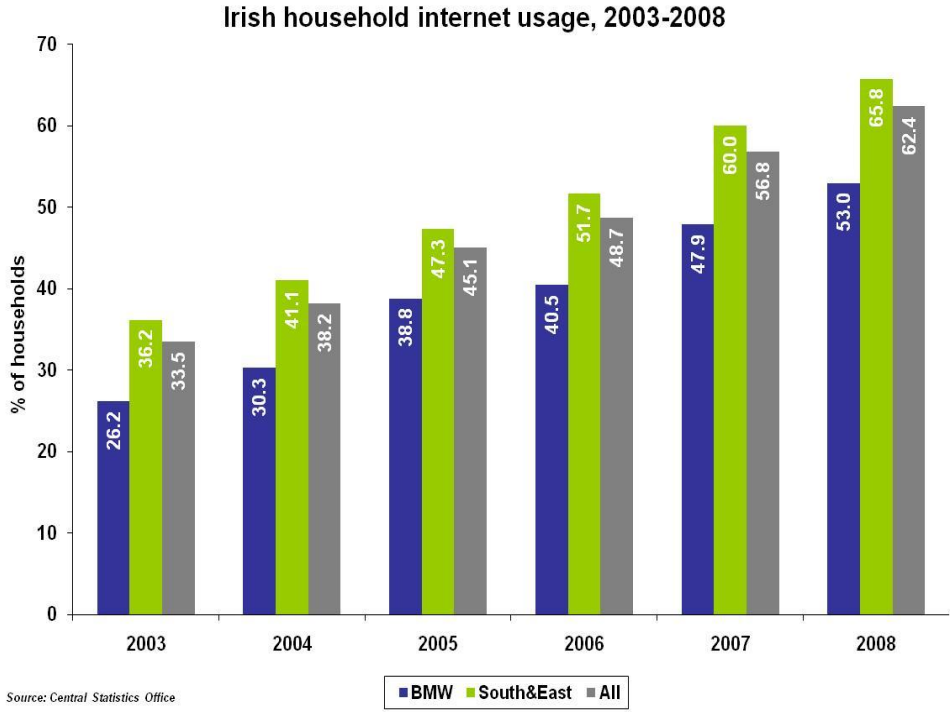
6 The Consumer Voice – ComReg, December 2008

Six years later this has increased by twenty one percentage points; two-thirds of consumers surveyed now use the internet from any location. But it is evident that some sectors in Irish society are not able, or prefer not, to access the internet. Who these people are will be discussed in section 2.4.

The Central Statistics Office (CSO) collects further data on a regular basis on internet usage in Ireland as part of its Information Society and Telecommunications report[7]. Figure 2.1.2 below presents a regional time-series analysis of the percentage of households which have access to the internet over the period 2003-2008. BMW[8] and South-East regional data is shown as well as overall data for Ireland.

While there are some differences between the survey data shown in Figure 2.1.1 and the CSO data in the chart below, the point is clear that in all regions of the country internet usage has increased significantly over the last six years.

Figure 2.1.2 – Regional internet usage, 2003-2008



The year-on-year growth in household take-up is plain to see but there is still a large gap between the BMW region and the South & East as well as the overall household penetration. The BMW region, compared to the South-East and Dublin, has the lowest household penetration in the country, while penetration in the South-East, although below that of Dublin, is ahead of the national household penetration rate.

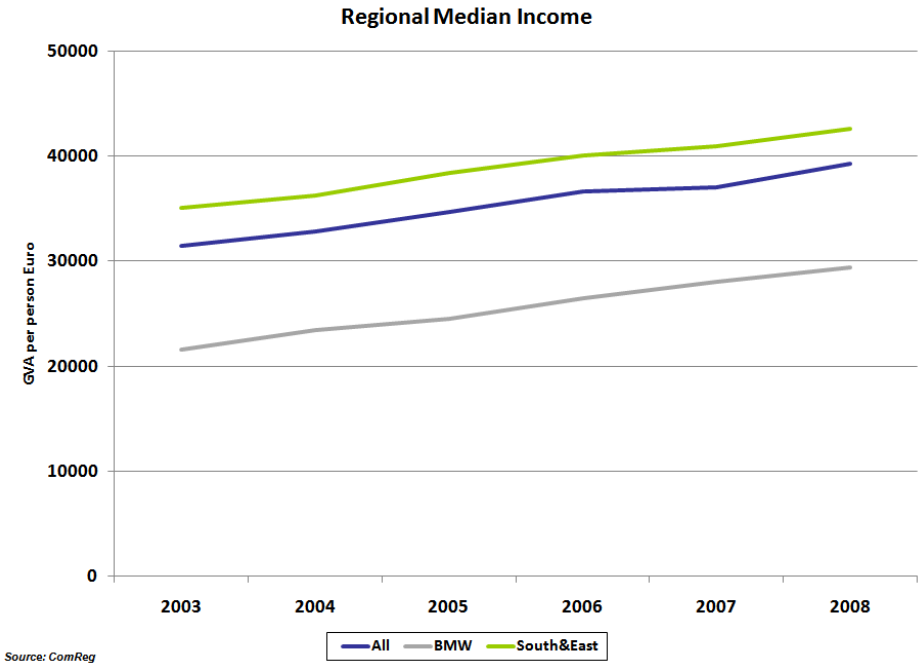
It is clear from Figure 2.1.3 below that there is a relationship between a region's income and its internet take-up. Using CSO data on median incomes over the same period used in the above analysis on internet

7 As of 2008, the CSO estimates that there are 1,466,200 private households in Ireland

8 Border, Midlands and the West

usage, it can be seen that income in the BMW region is far lower than that of the country overall and also the South & East. This trend is mirrored in internet usage.

Figure 2.1.3 – Regional median income, 2003-2008



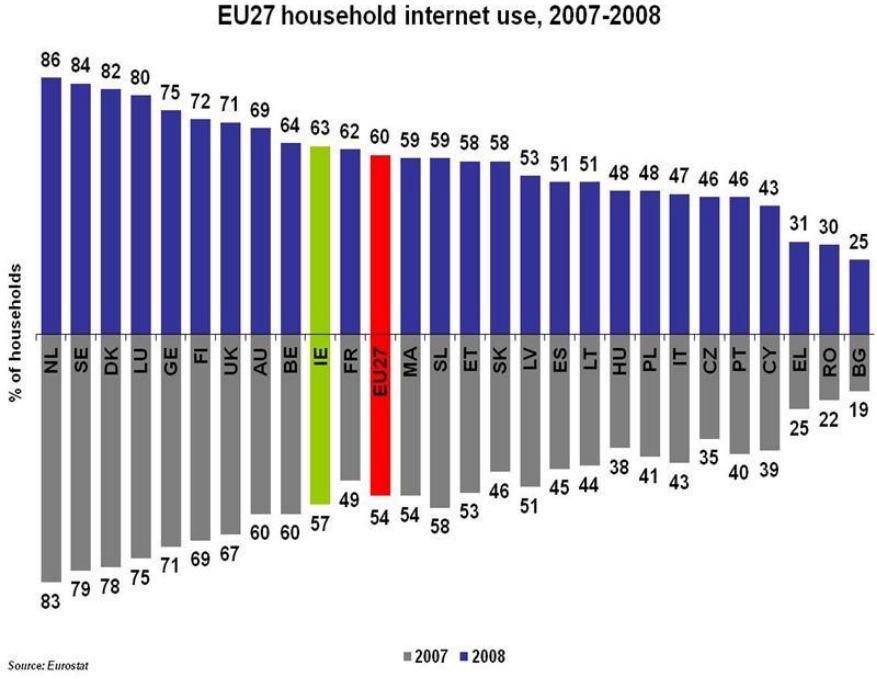
2.2 European residential internet usage

Eurostat[9] collects internet usage statistics on an annual basis for the European Commission. Irish data is based on data provided to Eurostat by the CSO. As of 2008, using data from the Eurostat database[10] Figure 2.2.1 shows that 60% of households within the EU27 now have internet access at home, which shows that there has been a significant increase in internet penetration across Europe since 2007 (+6 percentage points).

According to Eurostat, the household internet penetration rate has increased in Ireland since the previous study was conducted by 6 percentage points.

What is clear is that a significant percentage of households in Ireland, as well as in countries like Belgium and France (which are all within +/-5 percentage points of Ireland) do not have access to the internet. According to the Eurostat data the percentage of households without internet in Italy, Poland, Portugal and Spain is lower than that of Ireland.

Figure 2.2.1 – EU27 internet usage, 2007-2008



9 The Statistical Office of the European Communities

10 http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database

2.3 Location of internet usage

According to ComReg's most recent consumer survey[11], work and home remain the primary locations from where the internet is accessed. Data collected by Eurostat suggests a similar pattern across Europe in terms of preferred internet-access location. Figure 2.3.1 below outlines a historical view of the location of internet use among those who use the internet from any location in Ireland. Usage in all locations has increased with the exception of work, probably due to increased unemployment in the country over the last two years although there is a possibility that people are disinclined to access the internet at work as it may be seen as a non-productive activity.

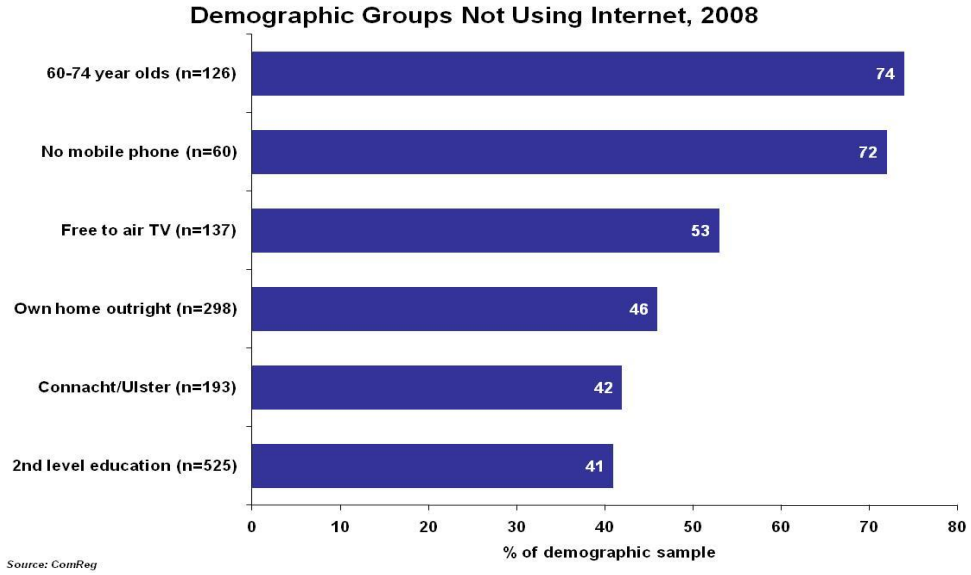
Figure 2.3.1 – Location of internet usage, 2006-2009[12]

Place of internet use	2006 %	2007 %	2008 %	2009 %
Home	72	79	82	87
Work	34	35	38	28
School/college	12	14	15	15
Friends' house	5	6	9	9
Cyber cafes	4	7	6	6
Public library	3	3	3	5
On the move	2	2	3	4
Elsewhere	1	-	1	1

2.4 Non-internet usage

It is clear that internet usage in Ireland has grown over the last four or five years. However, one of the key objectives of this report is to identify non-users of the internet. A substantial number of people remain unengaged with the internet in Ireland and it is evident from Figure 2.4.1 below that respondents in older age groups and those who tend not to engage with other technologies tend to be those least likely to use the internet.

Figure 2.4.1 – Non-users of the internet

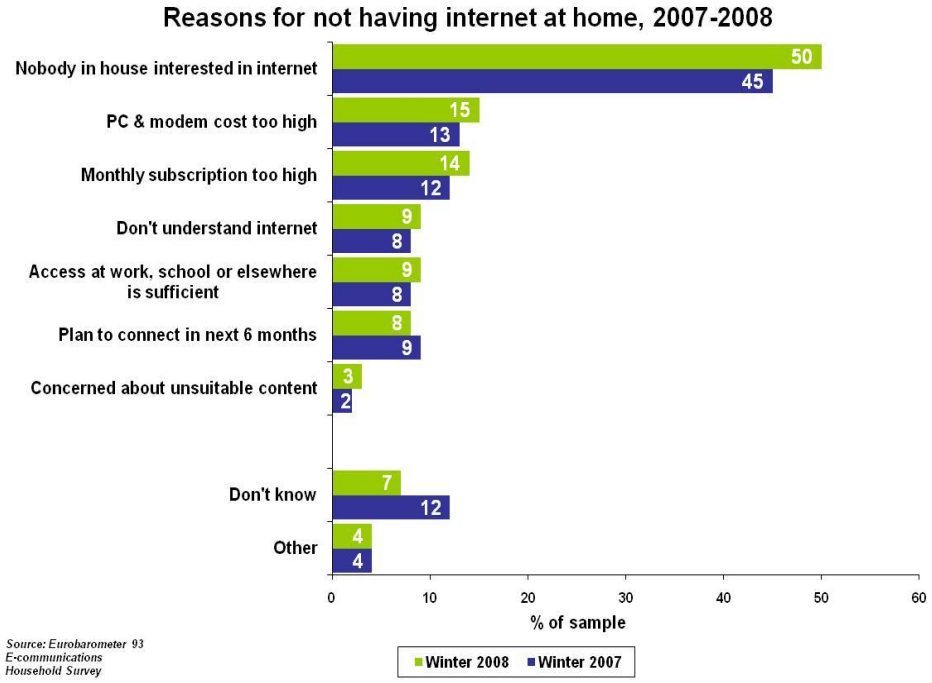


11 ComReg 09/60

12 % may not add to 100 as multiple responses are permitted by respondents.

Figure 2.4.2 below charts the main reasons, averaged across the EU27, why households do not have internet access. The majority of those surveyed in both 2007 and 2008 indicated that their reason for not using the internet is that nobody in the house is interested in it. The financial aspects of connecting to the internet, either that the hardware or monthly subscription are too expensive, are also frequently suggested by survey respondents. However, almost one in ten of those surveyed in 2007 and 2008 indicated that they plan to connect to the internet in the next six months.

Figure 2.4.2 – EU27 reasons for not subscribing to the internet



Lack of interest among consumers still remains a significant challenge to be overcome in order to convince those who do not use the internet of its benefits. Cost is also a concern for some consumers, particularly in the current economic climate. While cost can be tackled through public subsidies etc., lack of interest is a more difficult issue to overcome. Public and private sector initiatives may be required to add content and applications that compel consumers to use the internet.

3 Business Internet Usage

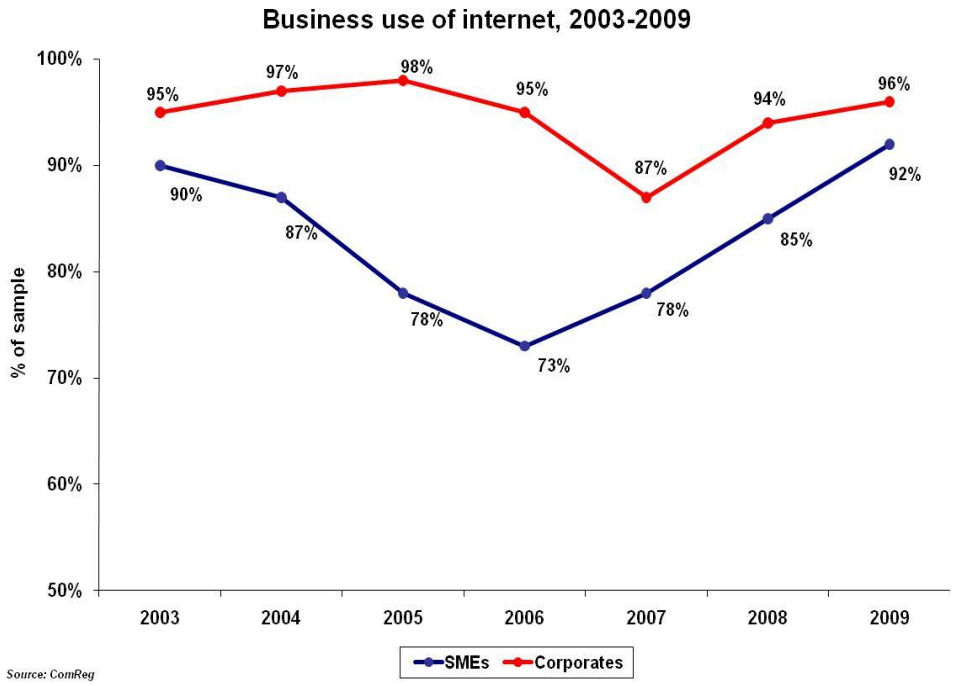
"Now businesses throughout the country can have ready access to the national and international markets. Employment will be created and sustained..."

On 22nd January 2009, Communications Minister Eamonn Ryan spoke about the benefits of broadband to business when announcing the National Broadband Scheme[13]. While in the previous section the levels of consumer internet usage and non-usage in Ireland and the EU27 were discussed, this section looks at business usage of the internet, focussing on where internet usage is more prevalent and on specific cohorts of businesses that do not use the internet.

3.1 Irish business internet usage

Figure 3.1.1 charts levels of internet usage for small-to-medium sized enterprises (SMEs) and corporates between 2003 and 2009. According to the most recent survey data, 92% of SMEs have an internet connection while there is almost ubiquitous internet access among Irish corporates[14]. Since 2003 there has been a slight increase in internet usage for both SMEs and corporates but it is fair to say that the vast majority of Irish businesses have been online for most of this decade.

Figure 3.1.1 – Irish business internet usage, 2003-2009[15]



13 http://www.irishtimes.com/newspaper/breaking/2009/0122/breaking37.htm

14 The 2008 CSO Information Society and Telecommunications report indicated that "virtually all enterprises use computers…98% of enterprises in manufacturing, 99% in construction and 98% in services…"

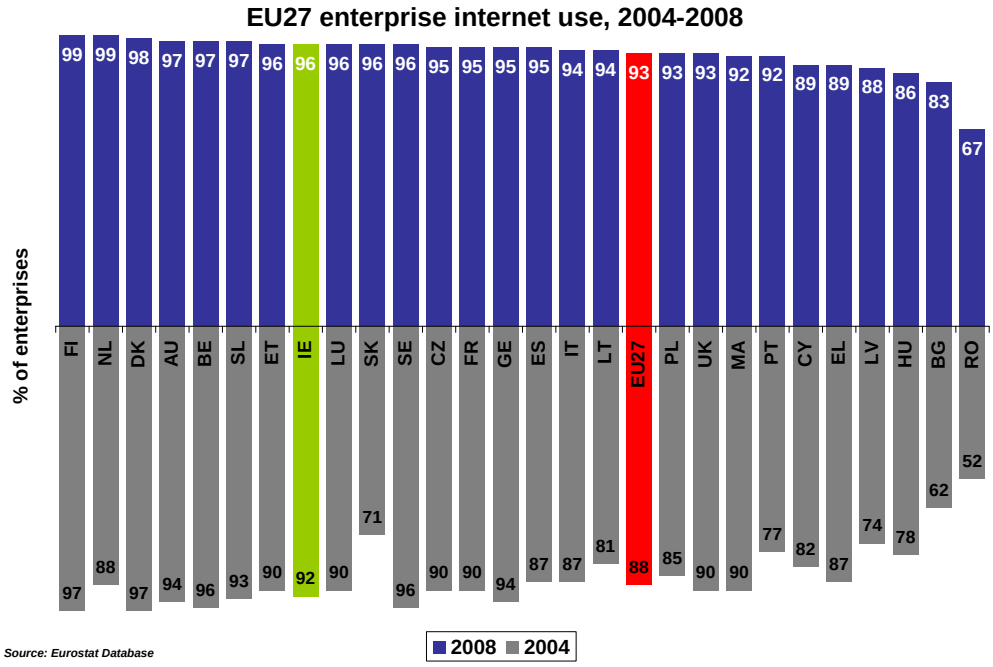
15 Methodological changes to survey samples explain the dip in business usage between 2005 and 2007

3.2 European business internet usage

Using Eurostat data, Figure 3.2.1 compares internet usage for enterprises in the EU27 between 2004 and 2008. While in 2004, only half (including Ireland) of the EU27 countries had 90% or more of enterprises using the internet, in 2008 more than three quarters of the EU27 had 90% or more of enterprises using the internet. According to the Eurostat data, while almost one in ten enterprises didn't use the internet in 2004, this had fallen to 5% in 2008.

Ireland is significantly ahead of the EU27 average and the percentage of enterprises using the internet in Ireland has increased by four percentage points since 2004. It should be noted that those countries toward the bottom of the ranking are among the new accession states to the European Union.

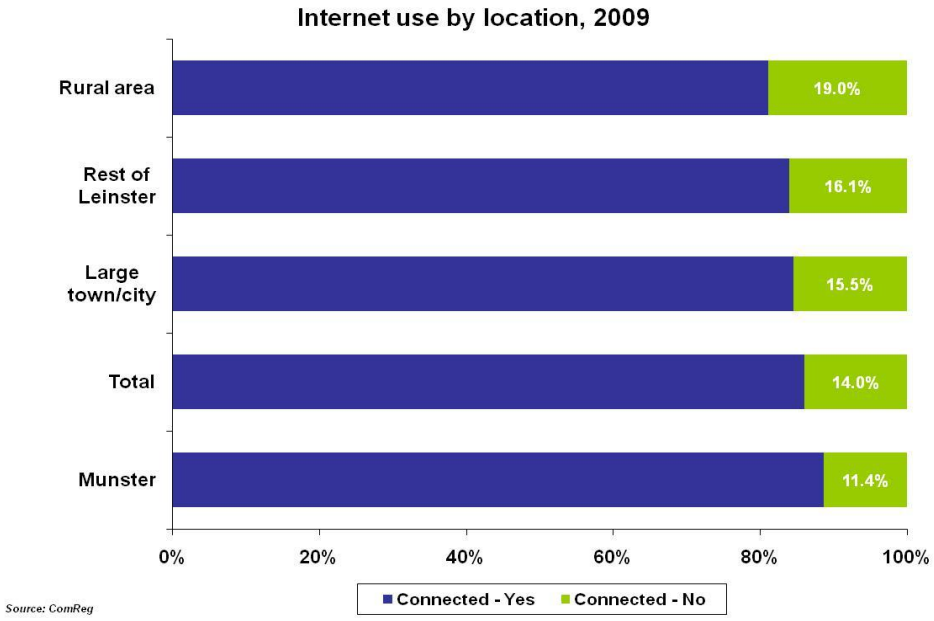
Figure 3.2.1 – EU27 Enterprise internet use, 2004-2008



3.3 Location of internet usage

Figure 3.3.1 presents a sample of regional results for business internet usage in Ireland in 2009. Companies in rural areas were least likely to have an internet connection while there were a higher percentage of companies in the rest of Leinster without an internet connection than in Munster.

Figure 3.3.1 – Irish internet use by location, 2009

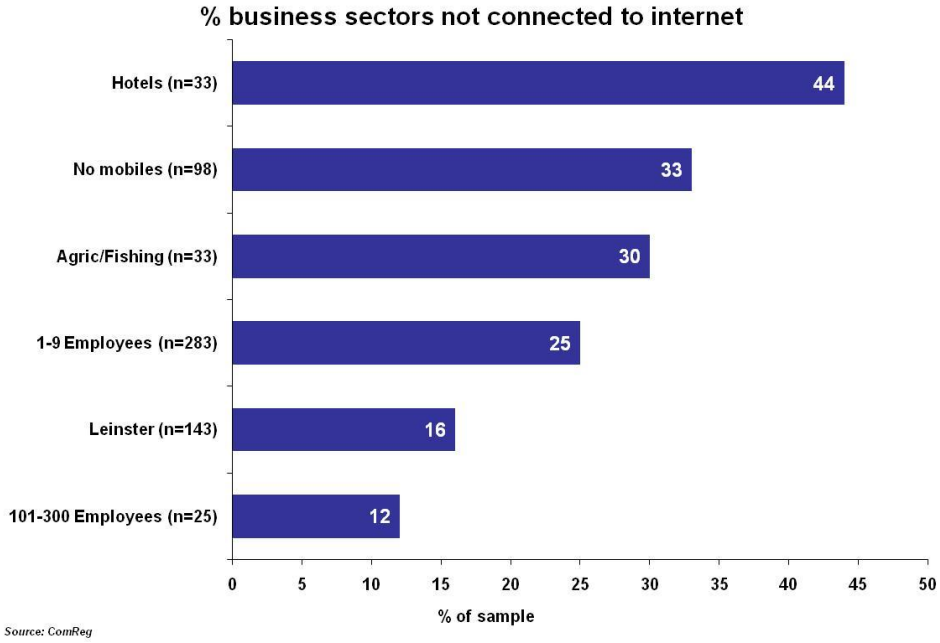


Source: ComReg

3.4 Non-internet usage

According to the results in Figure 3.4.1, 44% of hotels surveyed do not have an internet connection while 30% of businesses (SMEs) in the agriculture/fishing sector do not have an internet connection.

Figure 3.4.1 – Irish businesses not connected to internet, 2009



While cost and lack of interest are key issues facing consumers not accessing the internet, it is the size of the enterprise (smaller) and the specific sector which the company operates in (agriculture particularly) that are important factors affecting whether or not the business connects to the internet.

4 Residential Narrowband Usage

"You don't get broadband in my part of the country in Westport, apparently they (suppliers) keep pushing the goal posts so we'll wait and see I suppose…"

In 2008, Millward Brown Lansdowne, on behalf of ComReg, conducted a segmentation analysis of consumers in order to distinguish specific groups, in terms of technology usage. The resulting research[16] determined that there were four identifiable groups.

The comment above is taken from a consumer, classified by the research as a "Tech Rejector" and highlights the fact that in some parts of the country, narrowband remains the only option for those who want to access the internet.

A market segment is a subgroup of people (or organisations) sharing one or more characteristics that cause them to have similar product and/or service needs. A true market segment means that each one is distinct from other segments (different segments have different needs), is homogeneous within the segment (exhibits common needs) and it responds similarly to a market stimulus.

The purpose of the research was ultimately to explore underlying segment behaviours, attitudes and motivations in terms of technology usage and developments. The main objectives of this qualitative research identified were:

- To explore segment attitudes to technology developments
- To understand how the use of ICTs have changed over the last few years and how it might change into the future
- To identify any major knowledge gaps or information short-falls which might encourage greater use of ICTs

4.1 Irish residential narrowband usage

At the end of 2003, according to ComReg's Quarterly Key Data Report, 96% of all internet subscriptions were narrowband/dial-up. Residential narrowband penetration (in terms of population) in Ireland was approximately 15%.

By Q2 2009 only 10% of internet subscriptions were narrowband/dial-up and penetration had fallen to just below 4%. On average, over the last five years, approximately 94% of all narrowband subscriptions were residential.

Figure 4.1.1 below shows the total (consumer and business) narrowband population between 2004 and 2009. In absolute terms there were approximately 149,000 residential narrowband subscriptions as at Q2 2009; a fall of 77% since Q1 2004.

The survey data collected by ComReg in 2004 corresponds with ComReg's Quarterly Key Data Report. The data suggests that over 80% of residential consumers with internet access were using narrowband/dial-up internet in

16 The Consumer Voice, December 2008

2004, while 2009 survey data showed that narrowband access continued to fall, with only 12% of those with internet access using this type of connection.

Figure 4.1.1 – Narrowband and internet population, 2004-2009

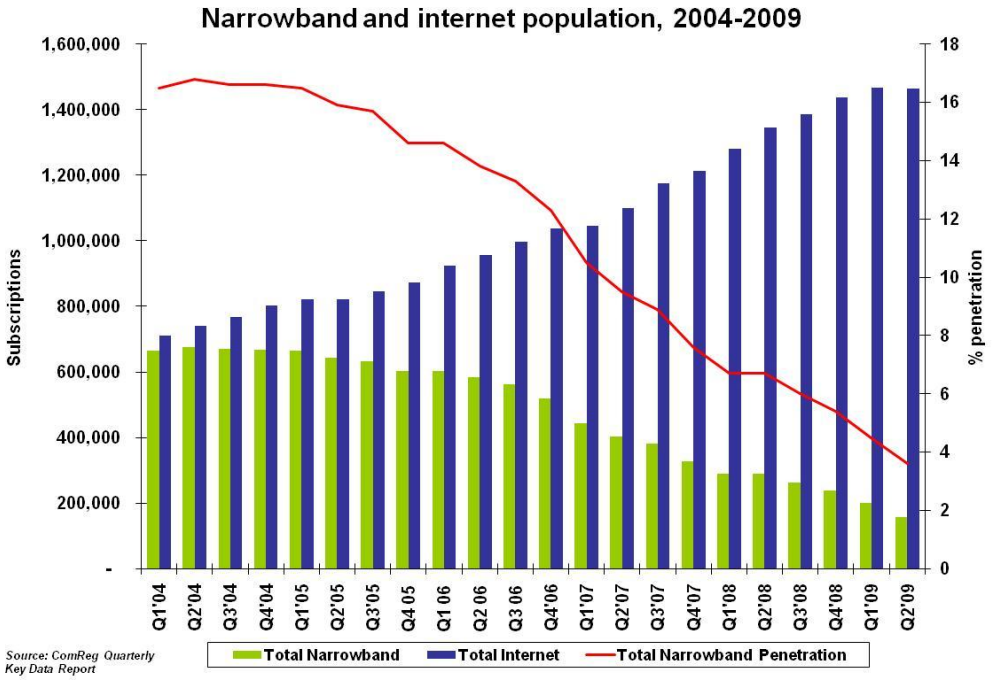
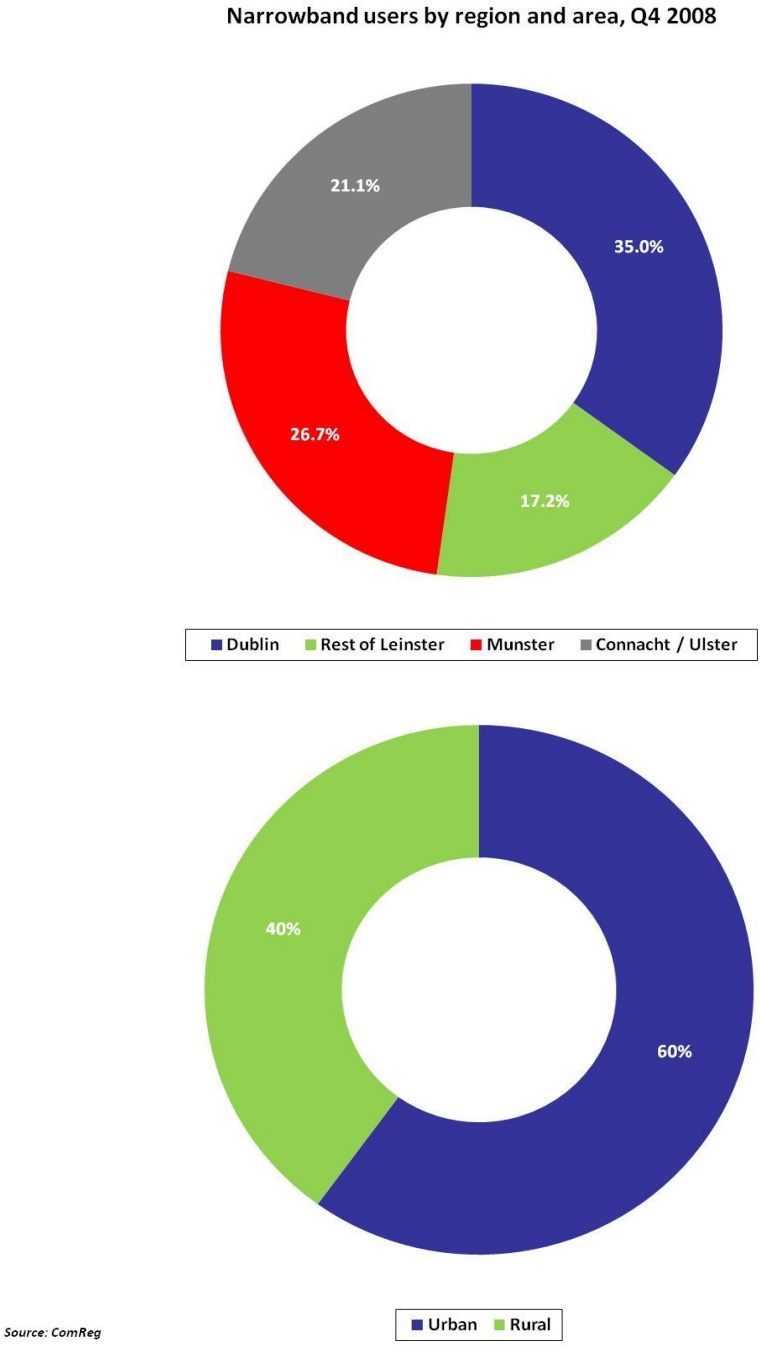


Figure 4.1.2 below uses Q4 2008 survey data to show in what areas consumers are more likely to have a narrowband connection in Ireland. The data indicates that there is a fairly even split of narrowband users across the country, although more than half of those surveyed who said they had a narrowband connection, were in the Dublin/Rest of Leinster area. This is, perhaps, not as surprising as one would assume at first glance. It has to be noted that there is a greater number of internet users in the Dublin/Rest of Leinster area than in other parts of the country. Furthermore, in contrast to what would be expected, over half of those narrowband users surveyed said they lived in an urban area. However, the same point may be used here, in that there are a larger number of internet users in urban areas than in rural.

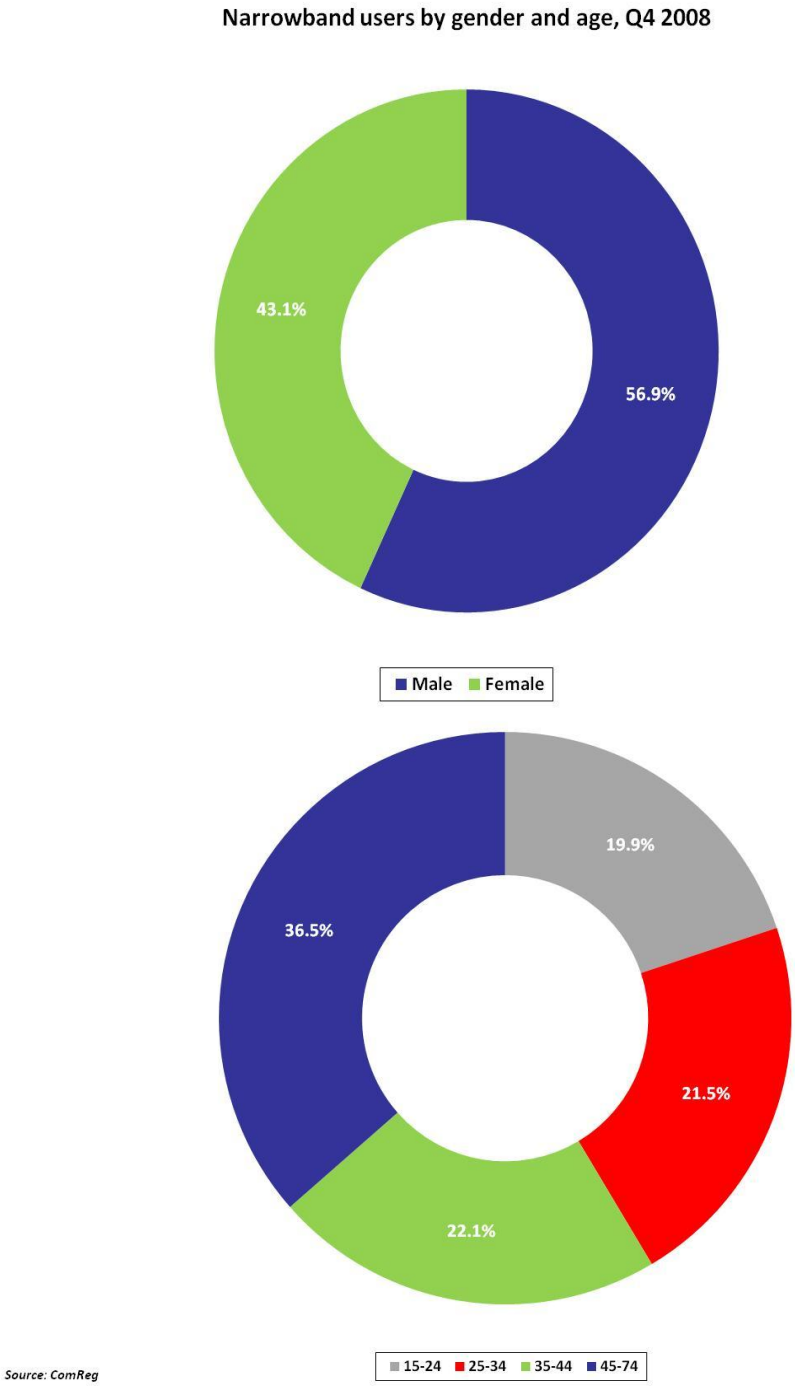
Figure 4.1.2 – Narrowband users by region and area



Source: ComReg

Figure 4.1.3 below presents a breakdown of narrowband users by gender and age as of Q4 2008. Once again there is a fairly even split, similar to that of the regional analysis of narrowband users. According to the data there are slightly more male narrowband users than female and over one third of narrowband users surveyed were over 45 years old. There are approximately one in five narrowband users across the three other age groups.

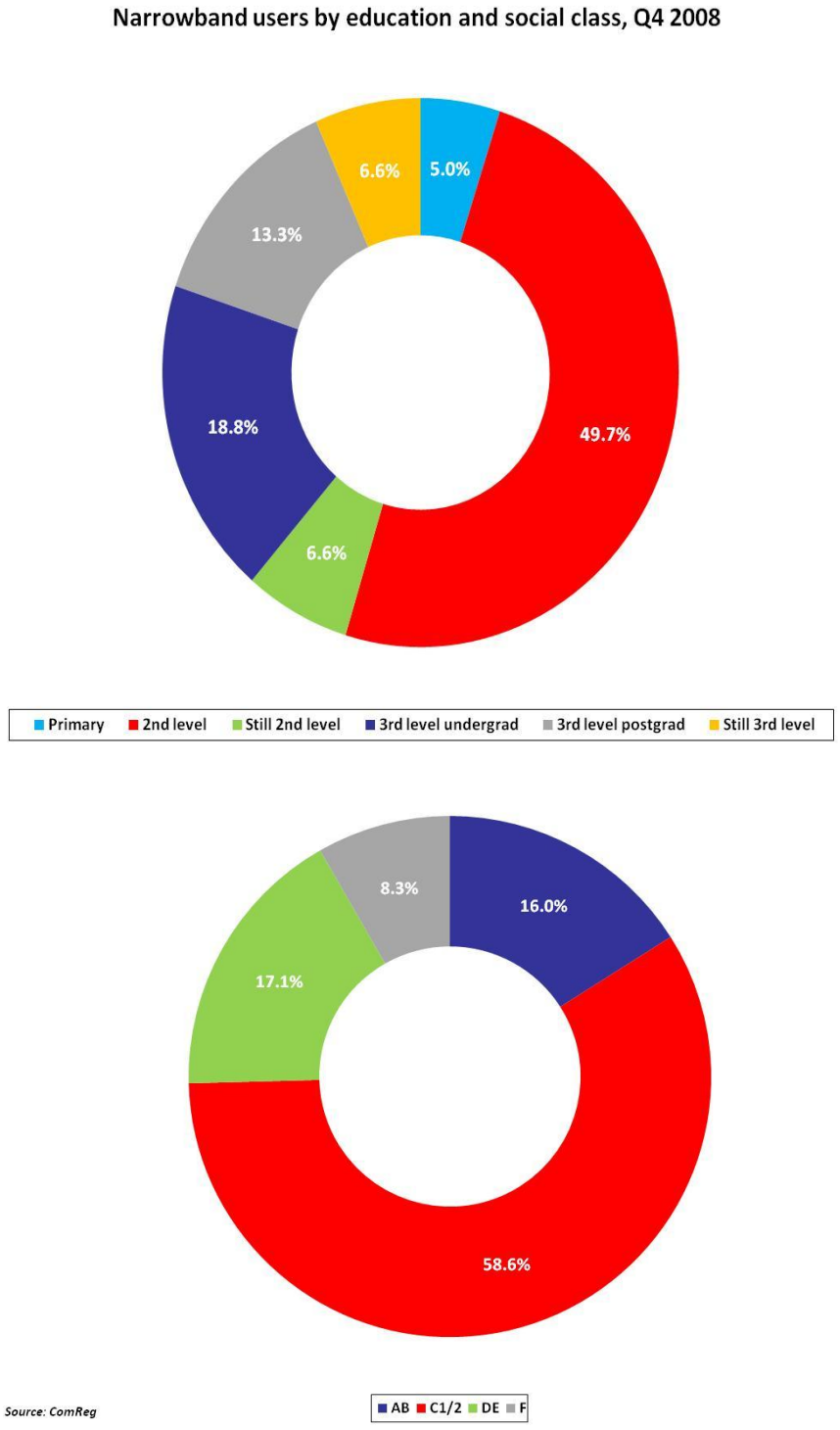
Figure 4.1.3 – Narrowband users by gender and age



Source: ComReg

The breakdown of narrowband users by education and social class is presented in Figure 4.1.4. The split is more pronounced when it comes to education as over 60% of those who use a narrowband connection do not have a third level qualification. In addition almost 60% of narrowband users are in the C1/C2 bracket in terms of social class.

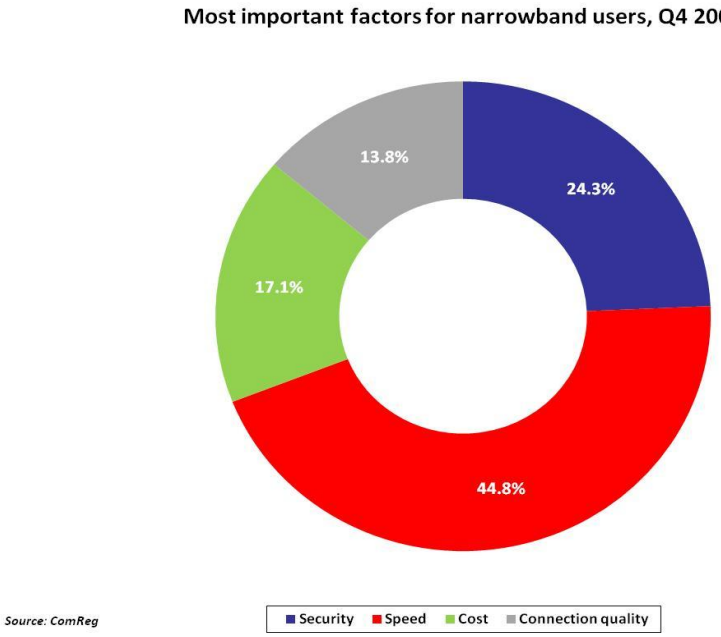
Figure 4.1.4 – Narrowband users by education and social class



Source: ComReg

Figure 4.1.5 highlights the factors that narrowband users consider important in their internet connection. Positively, almost half of those narrowband users surveyed, indicated that they consider speed to be important, suggesting that they might take up broadband in the future.

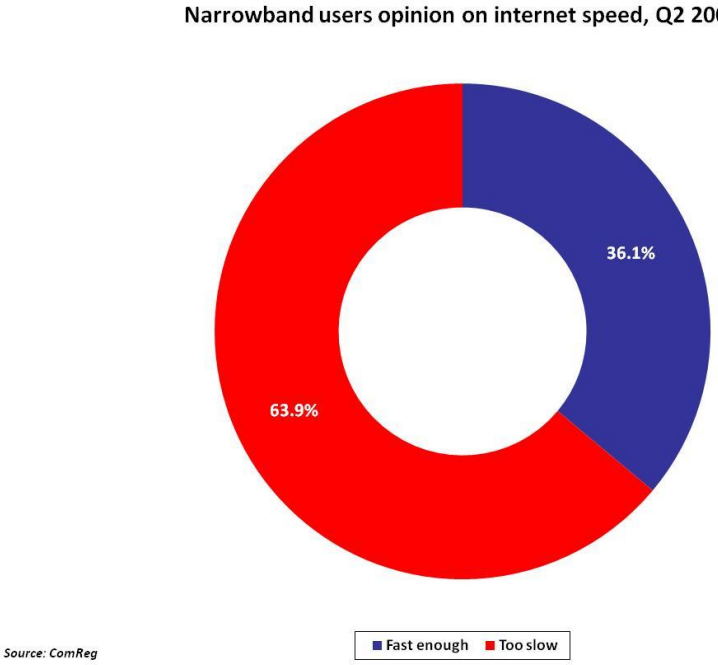
Figure 4.1.5 – Most important factors for narrowband users



Source: ComReg

Almost two thirds of narrowband users consider their internet speed is too slow. Taking this into account with the data presented in Figure 4.1.5, it is clear that there is a definite group of residential consumers on narrowband who would benefit from the higher speeds that broadband can offer.

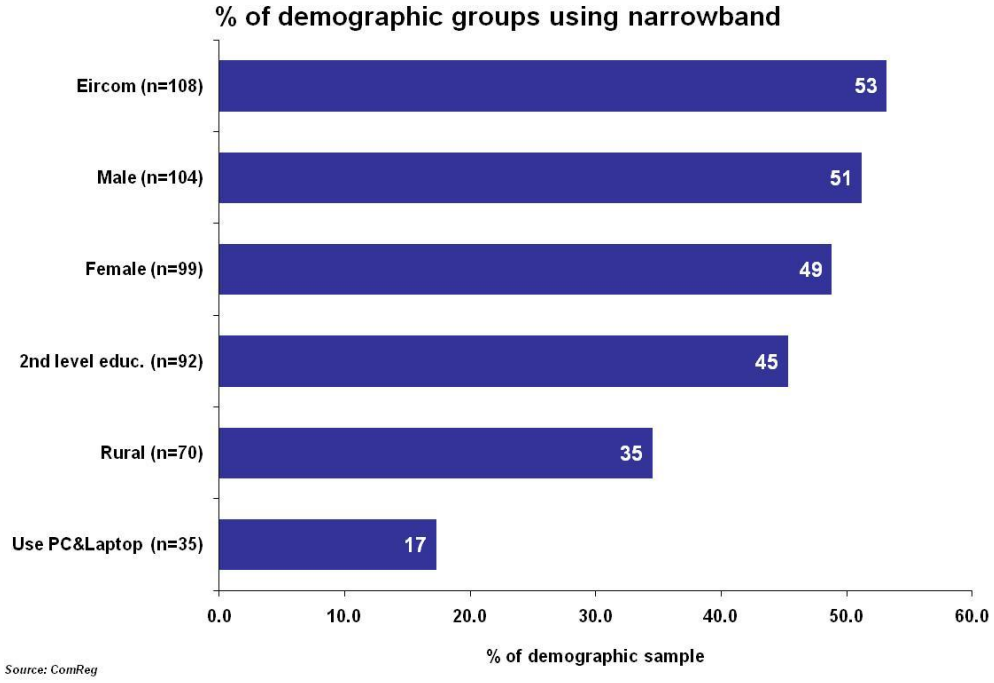
Figure 4.1.6 – Narrowband users' opinion on internet speed



Source: ComReg

ComReg's most recent consumer survey shows that 53% of all narrowband subscribers have an Eircom connection. The gender divide is quite even for all narrowband subscribers. Figure 4.1.7 gives a breakdown of sample demographic groups that access the internet using narrowband.

Figure 4.1.7 – Narrowband demographics, 2009



As indicated in Figure 4.1.8, the CSO's 2009 Information Society and Telecommunications report showed that at a national level the main reason given, in Q1 2008, for having the internet but not having broadband was that it was not available in the area.

Figure 4.1.8 – Reasons for households not having broadband but having internet connection, 2008[17]

		BMW		South and East		Total
	'000	%	'000	%	'000	%
Too expensive	12.8	10.1	37.2	15.3	50.0	13.5
No need	21.6	17.0	64.5	26.5	86.1	23.3
Not available in my area	85.6	67.5	98.1	40.4	183.7	49.6
Can access broadband elsewhere	3.1	2.4	15.2	6.3	18.4	5.0
Other	9.7	7.6	38.3	15.8	48.0	13.0
Total	126.9	100.0	243.1	100.0	370.0	100.0

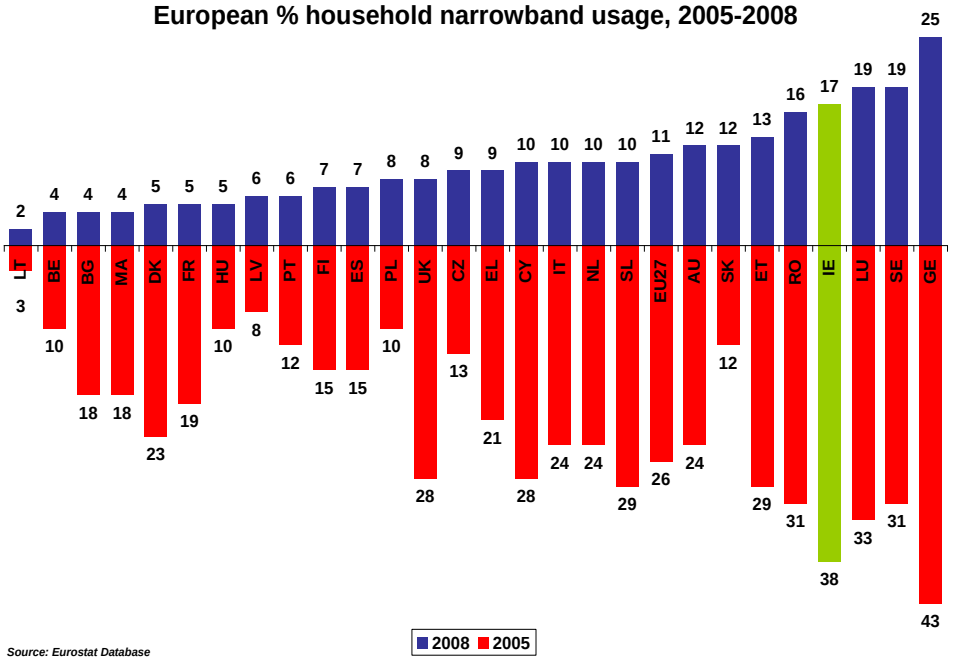
17 CSO – Quarterly National Household Survey, Q1 2008

4.2 European residential narrowband usage

Figure 4.2.1 charts European household narrowband usage between 2005 and 2008. The trend towards declining numbers of narrowband connections is apparent in almost all of the European countries charted. This is illustrated by the relatively high number of countries with a significant drop in the proportion of households using narrowband technology between 2005 and 2008. Sweden tops the list in this respect as, in the 12 months to mid-2008, the percentage of narrowband households there dropped eleven points compared with the 2007 figure[18].

While the European average of households with narrowband internet connections is 11%, Germany has the highest percentage with 25% and Ireland, according to the Eurostat data, has 17% of households connecting to the internet using narrowband. In 2005, 38% of households in Ireland used narrowband and there has been a twenty one percentage point drop over three years.

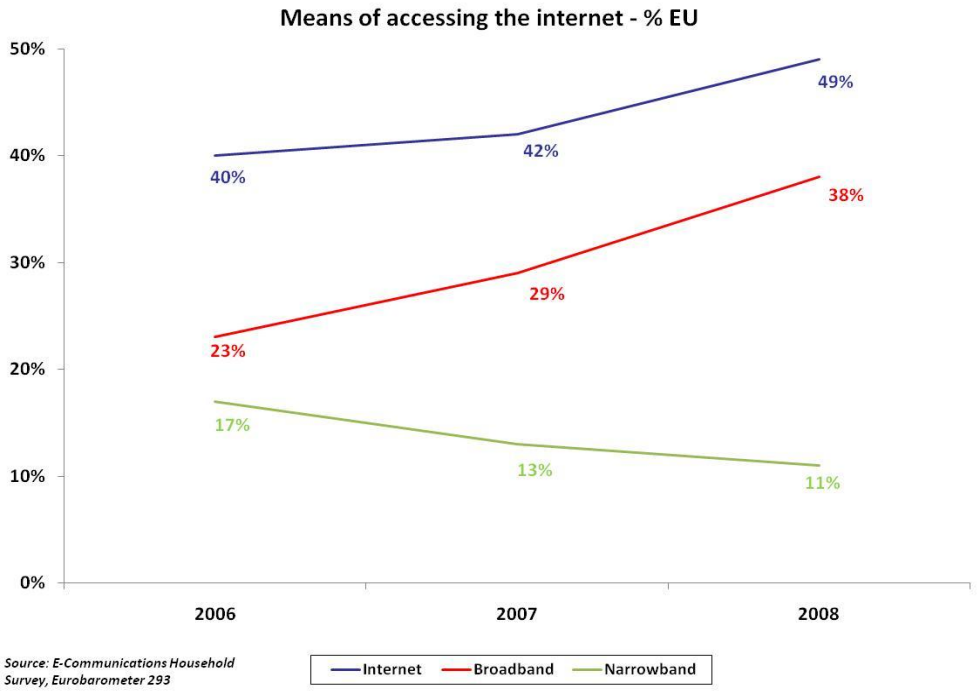
Figure 4.2.1 – European household narrowband, 2005-2008



18 E-Communications Household Survey, Eurobarometer 293

Figure 4.2.2 shows that narrowband penetration rates have fallen by 6 percentage points. A clear switch from old to new technologies can be observed. This tends to suggest that new internet connections are increasingly broadband, and that in addition there is a migration from narrowband to broadband access.

Figure 4.2.2 – Means of accessing the internet EU27



The decline in the use of dial-up has mainly benefited ADSL. This is for example the case in Cyprus and Greece where consumers have switched from dial up standard lines to ADSL. However, in Slovakia the replacement of dial-up standard lines appears to have benefited the cable TV network. Figure 4.2.3 shows that, on average approximately 80% of internet users in the EU27 are satisfied with their connection, whether that is narrowband or broadband. Approximately 16% of internet users in the EU27 are dissatisfied. According to Eurostat data, 21% of respondents in Ireland were dissatisfied with their internet connection.

Figure 4.2.3 – EU27 satisfaction with internet connection

EU – agree	EU27 (80%)
Highest agree by country	Austria (90%) Czech Republic (90%)
EU – disagree	EU27 (16%)
Highest disagree by country	France (23%) Lithuania (21%)

5 Business Narrowband Usage

"The fact that firms are overlooking the efficiencies of eBusiness and use the internet primarily for emailing and web-browsing is a major challenge facing SMEs..."[19]

In November 2005, a survey conducted by Chambers Ireland showed that approximately one third of Irish businesses were accessing the internet using a narrowband connection. ComReg's business survey results at the same time were quite similar. The quote above, by Chambers Ireland's Head of Research (now Deputy Chief Executive) Seán Murphy, gives an indication of the challenge that existed even four years ago. This section shows that, while there has been much success in getting businesses onto broadband in order, there still remain obstacles to overcome in order to have complete broadband access for Irish businesses.

5.1 Irish business narrowband usage

It is clear from the ComReg business surveys conducted over the last number of years and the ComReg Quarterly Key Data Report that there are only a small number of businesses that currently use narrowband, particularly as a primary means of connecting to the internet. Businesses tend to have a back-up narrowband connection rather than use it as their main access. In 2005, a survey conducted by Millward Brown IMS on behalf of ComReg showed that approximately 50% of businesses (SMEs and Corporates) connected to the internet primarily using broadband. In the same survey, when companies without a broadband connection were asked if not having a broadband connection was a disadvantage to their business, 43% said no. The majority of respondents in this case were SMEs spread quite evenly among Dublin, Rest of Leinster, Munster and Ulster. As availability of broadband has improved (in 2005, only 54% of all businesses surveyed said broadband was available in their area), narrowband usage has declined as can be seen in Figure 5.1.1. In the most recent business survey conducted by Millward Brown IMS (Q1 2009) only 2% of companies claim to use narrowband as their main internet connection, while data collected by ComReg for its Quarterly Key Data Report suggests that 6% of all business internet connections in Ireland are narrowband[20].

Figure 5.1.1 – Type of internet connection, 2005-2009

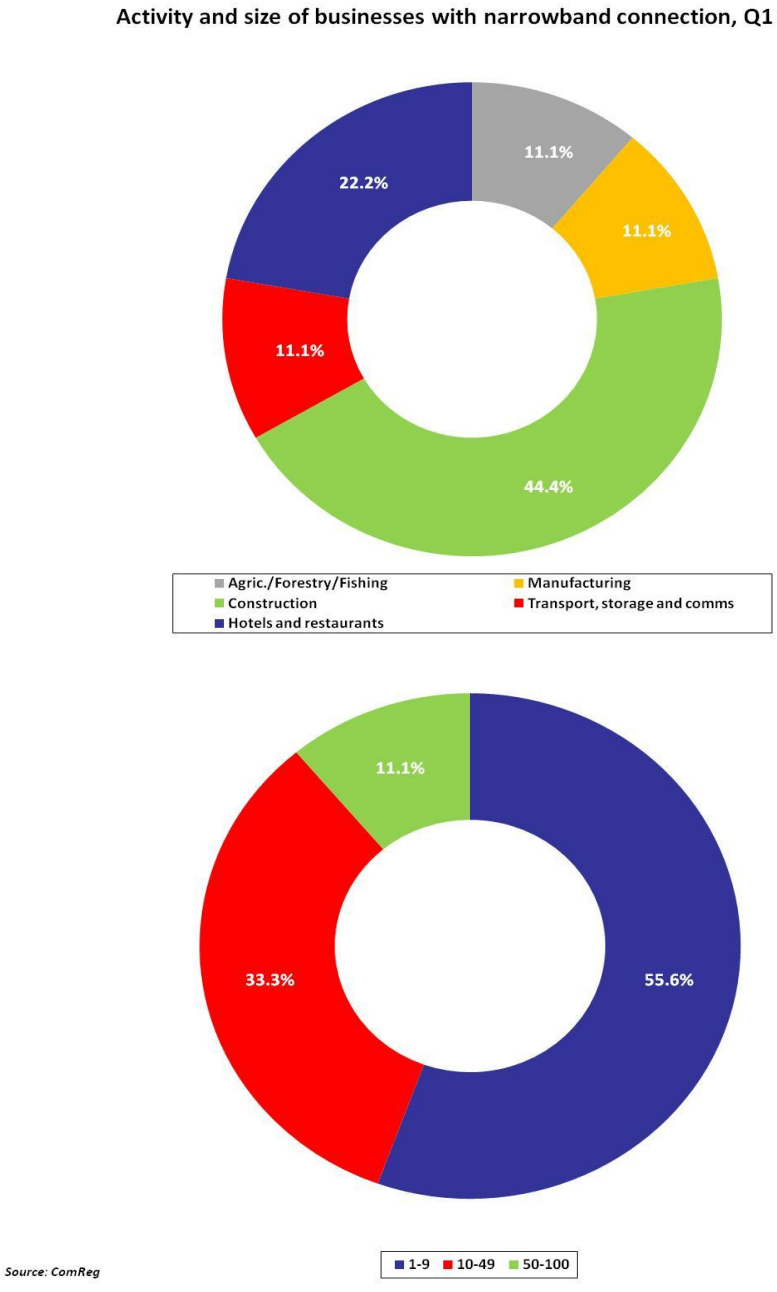
Type of internet connection	2005	2009
DSL	61	66
Dial-up	15	2
ISDN	13	4
Wireless broadband	5	12
Mobile broadband	-	4
Dedicated leased line	8	15
Fibre optic cable	-	7
Satellite	2	2
Other	5	6
Don't know	5	5

19 http://www.chambers.ie/article.php?newsid=356

20 % may not add to 100 as multiple responses are permitted by respondents.

The data presented in the following charts is as of Q1 2009 and suggests that, while it is difficult to define narrowband usage in the residential consumer sector, it is much easier to profile the characteristics of companies using narrowband in the business sector. Figure 5.1.2 shows companies that have a narrowband connection broken down by activity and size. There are no financial service companies in the analysis and, in general, very few service-based companies use a narrowband connection as either primary or secondary means of internet access. Construction and agricultural companies account for more than 50% of those businesses that have a narrowband connection. The second part of Figure 5.1.2 shows that smaller companies (1-9 employees) account for more than half of the businesses with a narrowband connection that were surveyed. It is clear from the chart that the more employees a company has, the less likely it is to have a narrowband connection.

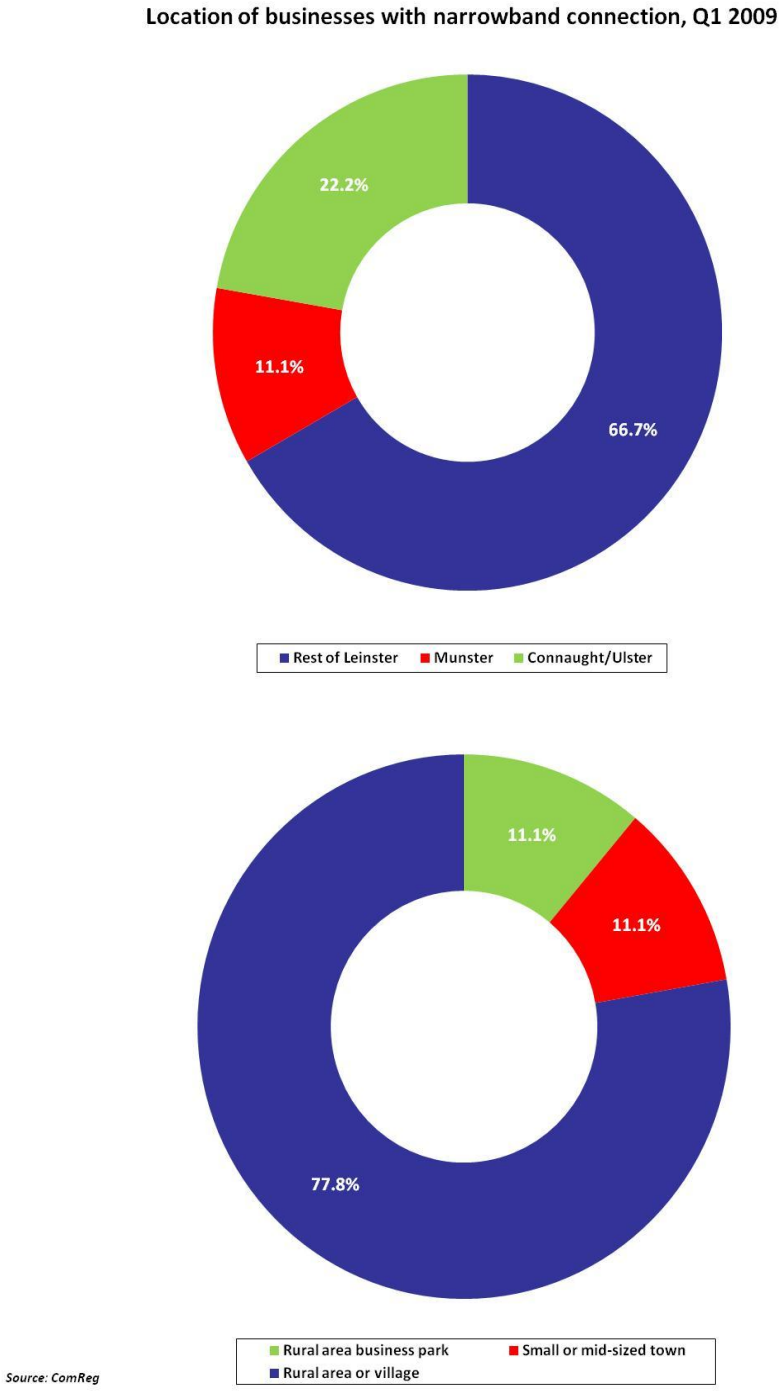
Figure 5.1.2 – Activity and size of businesses with narrowband



Source: ComReg

Figure 5.1.3 looks at the location of those businesses that have a narrowband connection. The first chart indicates that the majority of businesses with a narrowband connection are outside the Dublin area but within Leinster. Almost a quarter of businesses with a narrowband connection are in the Connaught/Ulster area. When these results are combined with those from the second chart, which shows that almost 80% of businesses with a narrowband connection are situated in a rural area, it is quite clear that businesses in an urban area are less inclined to have narrowband as a means to connect to the internet.

Figure 5.1.3 – Location of businesses with narrowband



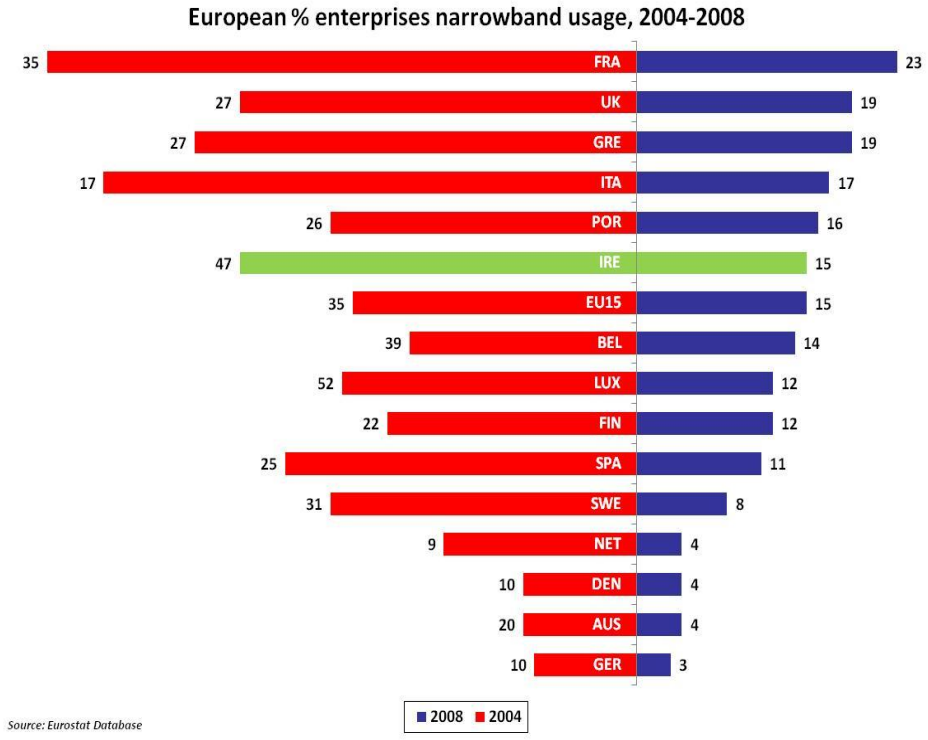
Source: ComReg

5.2 European business narrowband usage

Figure 5.2.1 below charts the percentage of businesses which access the internet using a narrowband connection (there is no distinction between primary and/or back-up connection) in the EU15 countries including Ireland in 2004 and 2008.

According to Eurostat data, which was used to produce the chart, France and the United Kingdom had the highest percentage of businesses using a narrowband internet connection. In 2008only 3% of businesses use a narrowband connection in Germany, which is interesting given that, as mentioned previously, Eurostat data also suggest that Germany has the highest level of residential narrowband usage in Europe. The EU15 average in 2008 is 15%, which is at the same level for Ireland.

Figure 5.2.1 – European enterprise narrowband, 2004-2008



6 The Broadband Experience

"I never turn my broadband off, it's just always there, and I check the weather in the morning online before I even leave the house."

"I use my broadband connection for everything from paying bills online to the environmentally friendly part of it, it's amazing!"

Above are two snippets from the 2008 ComReg/Millward Brown Focus Group research mentioned previously. It is content and consumers' perception of necessity of broadband that will further drive broadband take-up. According to the 2009 OECD Communications Outlook report, there is "a shift away from asymmetric broadband connections with faster downloads to symmetric connections capable of high-speed communication in both directions. Rather than simply downloading content from the internet, consumers are increasingly producing content which requires faster uploads."

Respondents to the ComReg/Millward Brown surveys who have found broadband to be beneficial, in general, access the internet every day. There are clear benefits from the adoption and usage of broadband. A paper by Professor Leonard Waverman for the annual LECG Connectivity Scorecard study[21] predicts that an increase of 1 percentage point (1 more broadband line per 100 individuals) in "medium or high ICT" countries[22] increases productivity by 0.1%. However, countries (mainly in Southern Europe) with low general ICT diffusion have been slower to adopt broadband, and the broadband that has been diffused does not appear to have had a productivity impact. The LECG/Waverman research is among a number of papers that have recently tried to understand the effect broadband has had in terms of productivity and economic impact. This section first discusses what barriers to broadband have been experienced in Ireland before discussing the positive aspects of broadband from an Irish perspective as well as looking at the European experience of broadband users.

6.1 Barriers to broadband

Figure 6.1.1 highlights the main reasons, among narrowband users, for not adopting broadband. Only one in five respondents said their speed is sufficient while over half indicate usage and expense are the main reasons.

Figure 6.1.1 – Reasons for not adopting broadband

Why don't you take up a broadband connection:	2008
Would not use internet often enough	37.5%
Too expensive	25.0%
Current package (speed) is sufficient	20.8%
Broadband not available in area	16.7%

21 Economic Impact of Broadband: An Empirical Study, LECG, February 2009

22 This group of countries includes Finland, France, Germany, Ireland and the UK among others

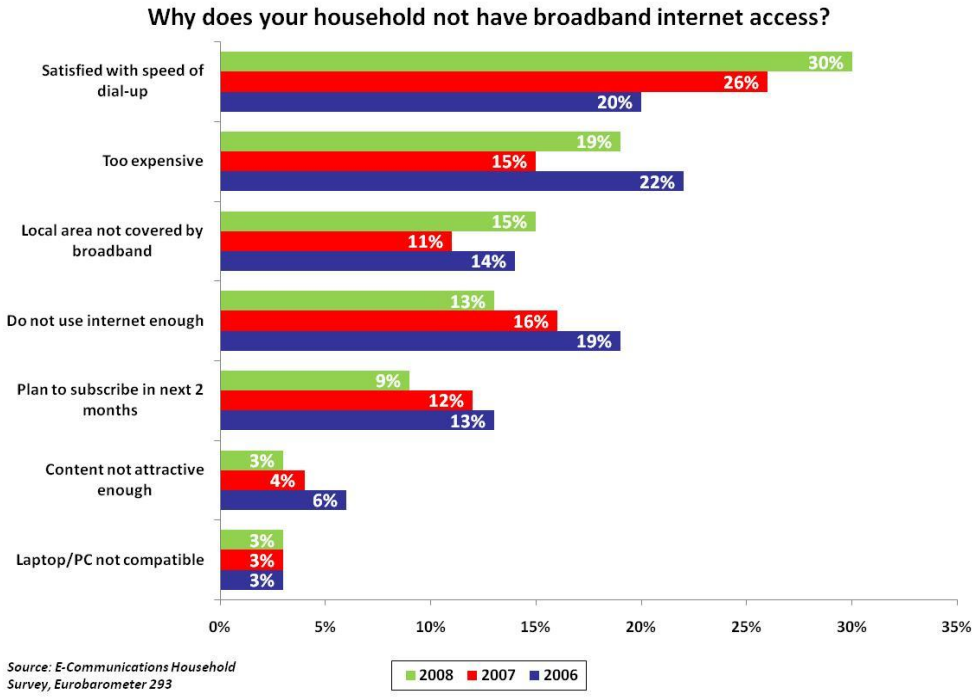
Those on dial-up connections answered that speed was a major barrier for them, and while some had to make do with this due to the fact that broadband was simply unavailable in their area, others (who did have availability) had simply given up on the technology as they did not know or understand how to use the technology and, while some had gone on educational courses to increase their knowledge of the internet, they felt it was too complex to grasp.

For many of those who lived in rural areas, broadband was simply not available. Others could not afford an extra bill and the benefits of broadband for them did not outweigh the additional cost per month. However while security was another issue raised by respondents and some had indeed been victim to fraudulent scams, this was not going to act as a deterrent to further engaging in internet activities.

Figure 6.1.2 below highlights the main reasons given by survey respondents, averaged across the EU27, for not subscribing to broadband. The most frequently given reason by respondents for not upgrading their existing connection was satisfaction with their current connection speed. Since the previous two surveys this reason for not switching to broadband has increased strongly in importance (+10 percentage points compared with the 2006 survey). The second most important reason for not changing to broadband is that this technology is not available in the respondent's local area. This reason was more common than in 2007 (+4 percentage points).

The impact of cost factors seems to have stabilised since the winter 2007 study. However, the installation costs of broadband technology were mentioned slightly more frequently than 2007 as a reason for not giving up a narrowband connection.

Figure 6.1.2 – EU27 reasons for not subscribing to broadband



It is safe to assume that any barriers that exist for businesses in Ireland adopting broadband would be similar to those experienced by businesses in Europe. However, as can be seen from the data presented in this report and in other sources, those companies that require broadband will, in general, have access to it. In reality the only insurmountable barrier to a company not having broadband is that it is not available in the local area. As the data suggests, some companies with a small workforce and/or who do not engage in intensive online activities will not adopt broadband whether it is available in the local area or not. Also, as mentioned previously, it has to be noted that many of the companies surveyed could have a broadband connection but use narrowband as a backup.

6.2 Residential broadband experience

Figure 6.2.1 shows that residential broadband consumers conduct traditional internet activities more frequently than narrowband users and that they also use their broadband connection for more intensive activities like downloading music and movies, instant messaging, online gaming and shopping online, which they could not have done effectively on a narrowband connection.

Figure 6.2.1 – Narrowband & broadband users' internet activities

In the last three months have you used the internet for any of the following:	Q4 2008	
	Narrowband	Broadband
Sending and receiving an email	67.0%	96.4%
Research	54.6%	78.1%
Online banking	44.3%	62.7%
Downloading movies and/or music	28.9%	71.0%
Online shopping	23.7%	59.5%
Social networking	19.6%	68.0%
Instant messaging	15.5%	72.9%
Play online games	10.3%	38.1%
Online gambling	2.1%	23.4%

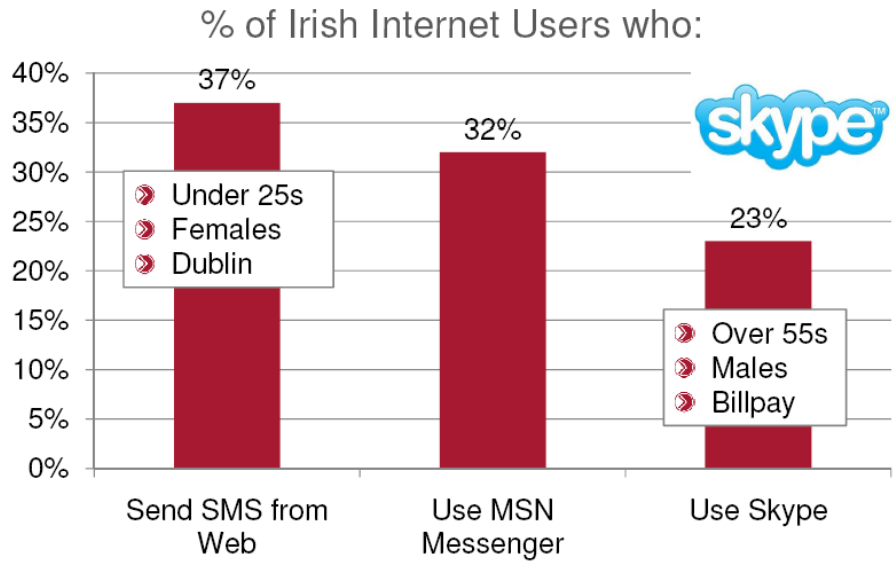
The results of the focus group that ComReg conducted in 2008 indicate that consumers believe their internet usage will increase further over the coming years and consumers will become more and more dependent on it than they already are.

The introduction of and adoption of mobile broadband in Ireland is a strong indication that consumers consider the ease of use of mobile broadband to be an advantage over other access platforms. Cost and flexibility of mobile broadband access have also been important. In the most recent ComReg consumer survey, 36% of respondents said that mobile broadband is more favourable than other broadband types because

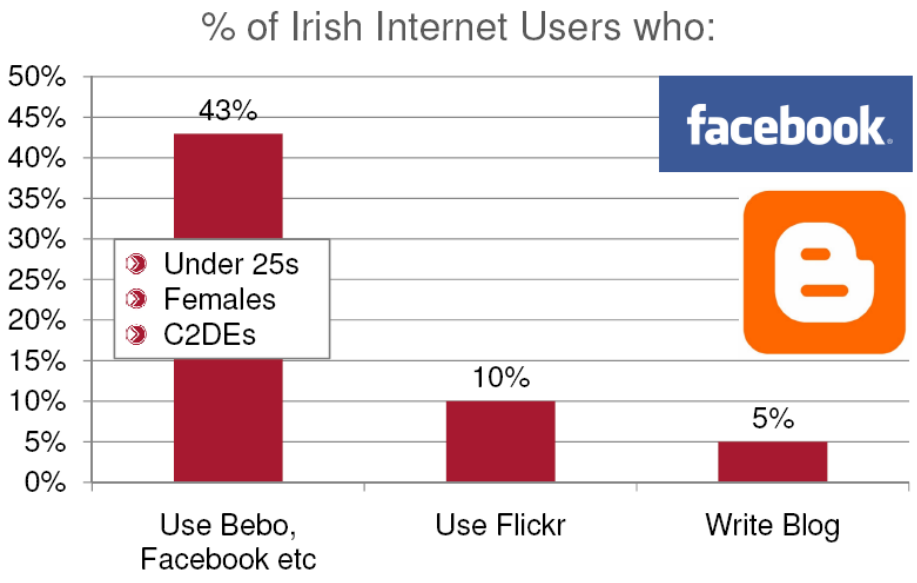
it is cheaper. Almost one quarter of consumers surveyed said that they use mobile broadband because of its flexibility.

More compelling online content or services would improve the value for money proposition of broadband services. However, it needs to be recognised that while internet activity continues to become more advanced (even 10% of narrowband customers claim online gaming and 16% claim instant messaging), in the main the majority of narrowband users conduct relatively simple but useful activities. To quote the DCENR's 2006 paper, 'A Review of Broadband Demand in Ireland', "…richer interactions will need to be encouraged". Figure 6.2.2 shows some results from Amárach's "Life Online" 2009 survey.

Figure 6.2.2 – Amárach 'Life Online' 2009 survey



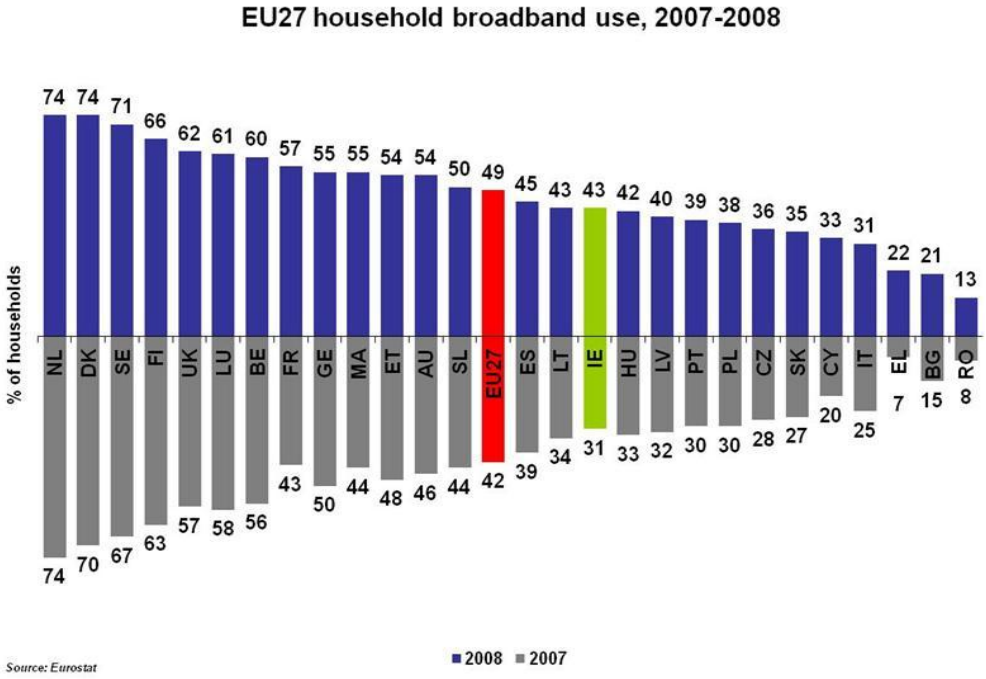
Source: Amárach Research Life Online 2009,
Telephone Survey, 1,000 adults, nationally representative sample, February 2009



Source: Amárach Research Life Online 2009,
Telephone Survey, 1,000 adults, nationally representative sample, February 2009

Figure 6.2.3 shows that, on average, 49% of households have a broadband connection in Europe. Ireland is just short of the average on 43%, but has seen growth of twelve percentage points even in the 12 months between 2007 and 2008. Household penetration of broadband is ahead of Portugal, Poland and Italy.

Figure 6.2.3 – EU27 household broadband use



6.3 Business experience of broadband usage

Online activities by companies who access the internet over a narrowband connection bear resemblance to those of residential consumer narrowband activity. Email usage is ubiquitous and almost two thirds of businesses with a narrowband connection use the internet for online banking. Similar to the results for residential consumers, activities which require more time spent online (in the case of businesses, e-learning for example) are not as frequently engaged in.

Figure 6.3.1 shows that the majority of companies with a broadband connection use the internet far more intensively than those companies with a narrowband internet connection. The results below suggest a lack of engagement with e-commerce and e-business applications by narrowband business users.

Figure 6.3.1 – Narrowband & broadband business usage

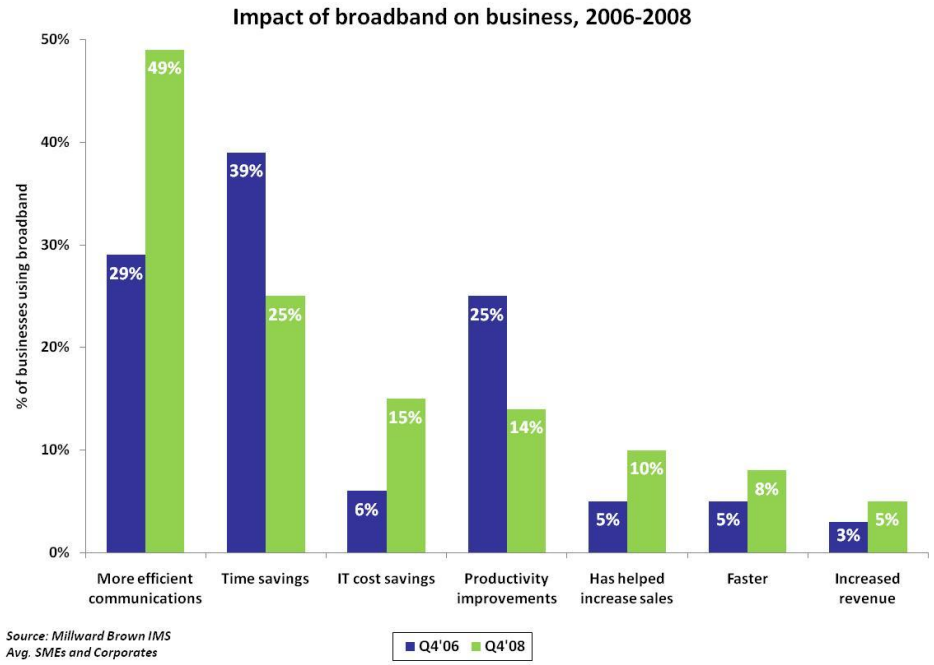
What does your company use the internet for:	Q2 2008	
	Narrowband	Broadband
Email	100%	100%
Online banking	60%	92%
Online orders from suppliers	40%	84%
Travel purchases	37%	75%
Online orders from customers	34%	80%
E-learning	6%	22%

It is perhaps easier to quantify and graphically present the impact of broadband on businesses than it is for the residential consumer. While consumers are happy to spend several hours online gaming or chatting to friends or using social networks, the reasons for a business to have broadband must coincide with their "bottom line", that is their productivity and profitability.

Figure 6.3.2 below shows how broadband has had a positive impact on Irish businesses between 2006 and 2008. Almost half of those surveyed in 2008 indicated that broadband has led to more efficient communication in their business, an increase of twenty percentage points in two years. More than twice as many companies in 2008 agreed than in 2006 that broadband had led to IT cost savings.

Increased revenues and sales were two other positive effects of broadband which more businesses agreed with in 2008 than in 2006. However, only 25% of businesses in 2008 suggested that broadband has led to time savings, compared to 39% in 2006. Similarly, in 2006 25% of businesses said that broadband had led to productivity improvements. In 2008 this had fallen to 14%. As both of the surveys (2006 and 2008) are based on random samples it is difficult to draw conclusions on the change over time, however, one could speculate that businesses feel their employees may not always be using broadband for reasons that would benefit the company.

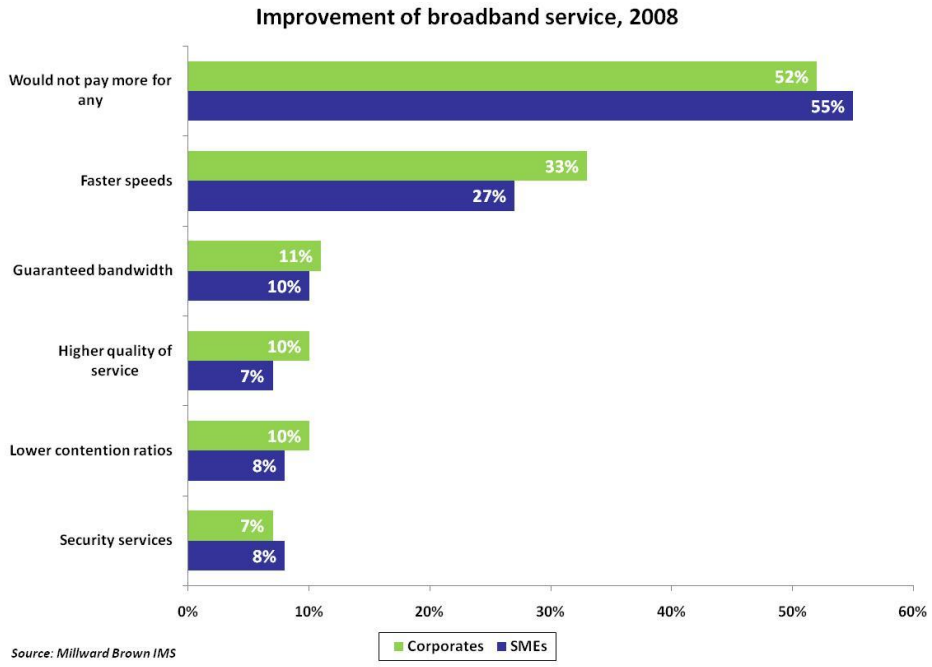
Figure 6.3.2 – Impact of broadband on business, 2006-2008



While the adoption of broadband has certainly led to improvements and enhancements for some companies, there is a suggestion that some companies may not have benefitted, as positive responses for time savings and productivity improvements have fallen between 2006 and 2008. Figure 6.3.3 highlights the fact that while broadband has some benefits, many businesses would not be prepared to pay any more for any addition to their broadband service.

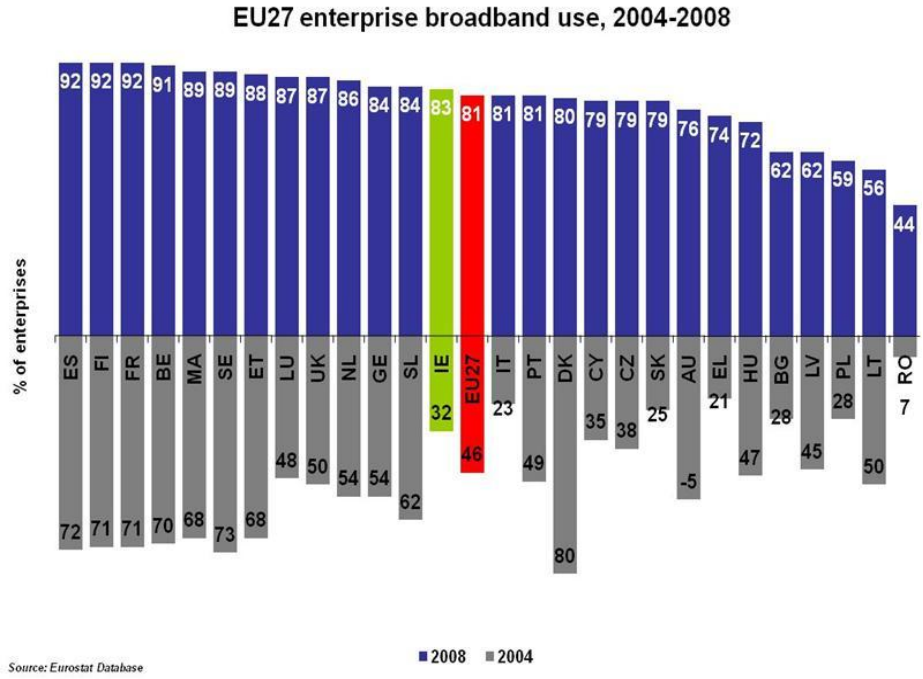
On average, for corporates and SMEs, 53% of businesses with broadband access would not be prepared to pay more for their broadband service if it came with higher speeds or higher quality of service, for example. However, on average, 30% of businesses with broadband access would pay more for faster speeds, while if their broadband service came with better security, on average 8% of businesses would be prepared to pay more.

Figure 6.3.3 – Improvement of business broadband service



Broadband usage among Irish enterprises, between 2004 and 2008 grew by over 150%. Figure 6.3.4 shows that the percentage of Irish businesses with a broadband connection is ahead of the European average (81%). Broadband penetration, in terms of enterprises, in Ireland is ahead of Italy, Portugal, Denmark and Austria among others.

Figure 6.3.4 – EU27 enterprise broadband use



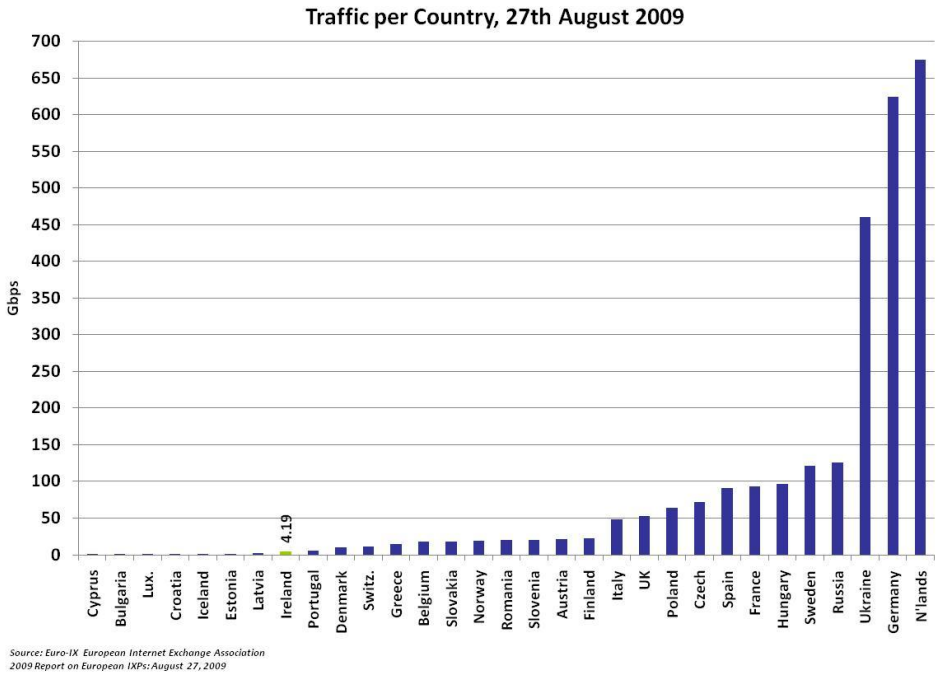
6.4 European experience of broadband usage[23]

Seven out of ten internet users in the EU27 thought that broadband had led to improvements in their opportunity to share views with other people and to learn about other cultures. However, relatively speaking, they were less likely to think that broadband had improved their relationships with family members and friends or their opportunity to meet new people. A large majority of online users in all EU Member States agreed that the internet had improved their capability of being informed about current issues (ranging from 79% in Sweden and the Netherlands to 94% in Lithuania, Poland and Hungary) and that it had improved their opportunity to learn (ranging from 54% in France to 94% in Malta).

Approximately two-thirds of internet users in the UK, Malta and Poland answered that broadband had improved their shopping habits. In Lithuania and Bulgaria, on the other hand, only three out of 10 internet users agreed that this was the case. In all aspects of life – e.g. relationships with family and friends, jobs, hobbies, money management and shopping – broadband was perceived more positively among men, the more highly educated online users and those living in a large city or urban area (i.e. they agreed more often with each of the statements). 25-39 year-old internet users were the most likely to see the positive effects of broadband on the way they shopped, managed their finances, worked and dealt with public authorities.

Figure 6.4.1 below details the total aggregated peak traffic per country in Europe. The data was captured on the 27th of August 2009[24] and shows that on the day, there was approximately 4.19Gbps of traffic in Ireland; up from 2Gbps the previous year.

Figure 6.4.1 – Traffic per country, 27th August 2009



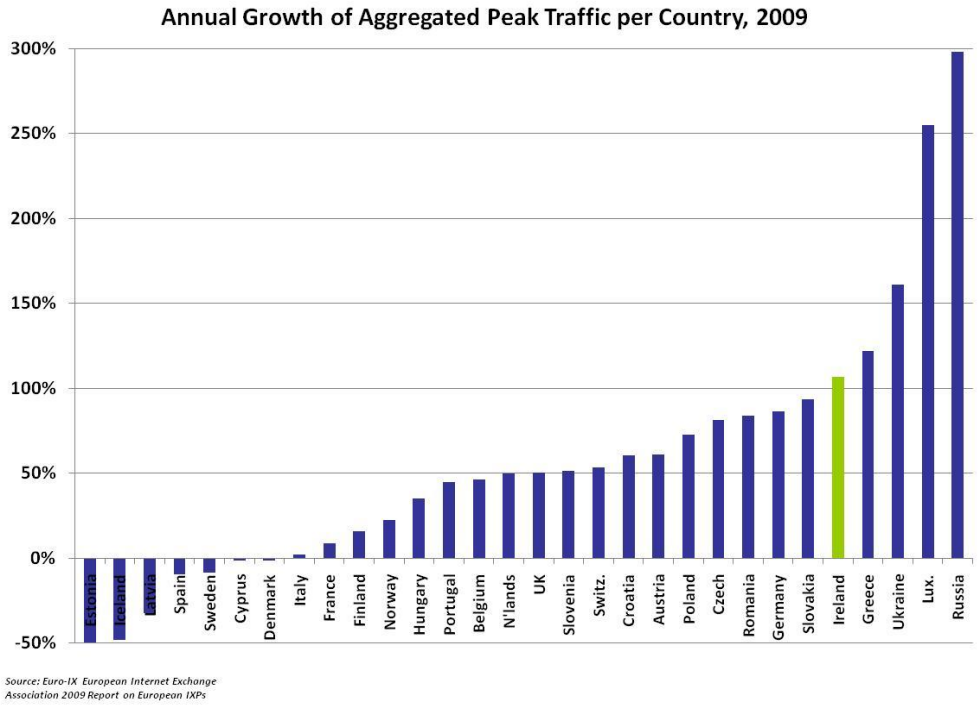
Source: Euro-IX European Internet Exchange Association 2009 Report on European IXPs: August 27, 2009

23 Flash Eurobarometer, Information Society as seen by European citizens – November 2008

24 The data is captured on one day and, is therefore subject to seasonality.

Traffic levels in Ireland, as seen in the previous chart, are nowhere near as high as those in the Netherlands, Germany or the UK. However, Figure 6.4.2 shows the growth rate in total aggregated peak traffic per country from August 2008 to August 2009. These statistics show that countries with higher broadband penetration, Sweden and Netherlands, for example have not seen the same growth in traffic that those with lower broadband penetration. For Ireland, the data shows that growth in traffic (no doubt content driven possibly due to the phenomenal growth in YouTube usage among other applications) has grown by over 100% in the year. Evidence from mobile operators has also suggested that mobile broadband customers, on average, use 2Gb per month.

Figure 6.4.2 – Euro-IX, Annual growth of peak traffic



Source: Euro-IX European Internet Exchange Association 2009 Report on European IXPs

7 Conclusions

The primary objective of this paper was to try and define cohorts of Irish consumers and businesses that either do not access the internet or only access the internet using a narrowband connection. Secondly, the report has examined the broadband experience of consumers and businesses based on survey data to identify what barriers currently exist to broadband adoption, but also what benefits there are for consumers and businesses that use a broadband connection. To give a broader view of the Irish situation, each of the key areas of the report also analysed from a European perspective.

From consumer survey data analysed, a general assumption can be made that the majority of those who do not use the internet at any level (either narrowband or broadband) are males that are over 45 and in the C1/C2 social class. They tend to live outside the main population areas and are disinclined to use other technologies. They also tend not to have an advanced education (that is beyond second-level). Cost and lack of interest have been given as the main reasons, in Europe and in Ireland, for not subscribing to the internet.

For businesses, internet penetration is almost ubiquitous in Ireland. However, there remains a small element of companies that do not access the internet at all. In general terms, the majority of these companies are active in a more outdoor environment (agriculture/fishing), have a small employee base, do not see the need for advanced technologies (for example, they also do not provide mobiles to employees) and are located in rural areas (with a larger percentage in the rest of Leinster region than in Munster). According to the data, companies that access the internet with a narrowband connection will primarily be smaller, construction firms in rural Leinster.

The information presented in this report has tried to provide a deeper understanding of why some consumers and businesses do not connect to the internet or only use a narrowband connection. Policy-makers seek ubiquitous broadband adoption, understanding that usage of broadband has social and economic benefits. It is hoped that the report will add to, and assist in, the debate on how to provide broadband to those that do not have it or, equally important, those that do not feel the need to have it. While the data suggests that much of the remaining element of narrowband users are in rural areas, it is clear that, nationwide, there remain disparate consumers and businesses (not readily pigeonholed) either totally disconnected from the online world or only using narrowband to connect to the internet because it is not affordable or because they do not recognise the benefits that connection could provide.

In 2009, broadband take-up in Ireland has continued to grow, albeit at a slower pace (perhaps due to the economic recession) than previously. With the National Broadband Scheme (managed by '3') already in place, cable upgrades by UPC ongoing, the rollout of a WiMax network by Imagine in the offing as well as the ongoing phenomenon of mobile broadband, the future of broadband in Ireland looks promising. For those that already have broadband, new investment by operators and the government alike, will improve speeds and connectivity in general. Those in areas where the business case for competitive provision of broadband is

challenging will benefit from public initiatives such as the National Broadband Scheme.