

# 5 Telecoms and networks

## 5.1 Broadband availability

**All homes in Wales are connected to an ADSL-enabled exchange, while 84% are connected to an LLU-enabled exchange**

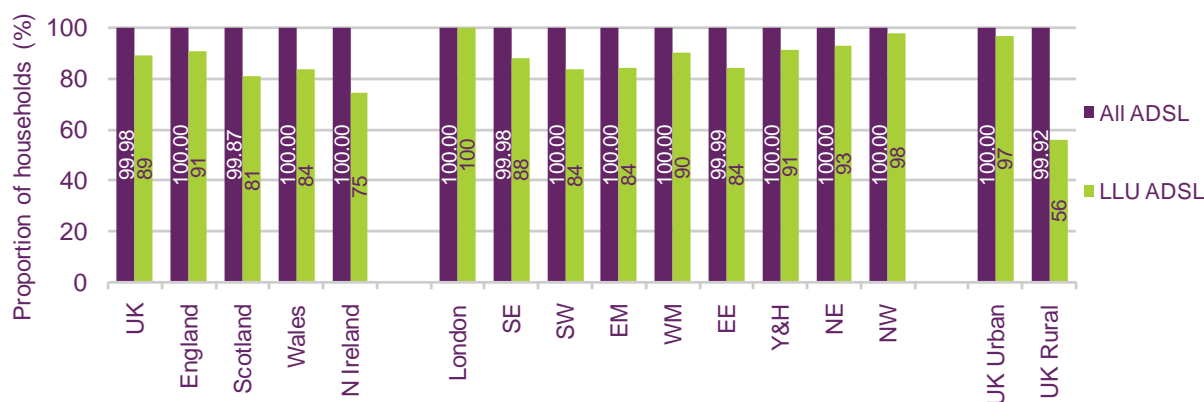
ADSL broadband is delivered over the copper phone line running from the local telephone exchange to the user's premises and has the highest availability of all of the technologies capable of delivering fixed broadband services in the UK. ADSL coverage therefore gives a good indication of overall UK broadband availability.

At the end of 2010 over 99.9% of UK homes were connected to an ADSL-enabled local exchange (although some people living in these areas may not be able to receive ADSL broadband services, or may be able to do so only at very slow speeds, as a result of the long length or poor quality of the copper telephone line from their premises to the local telephone exchange). All local exchanges in Wales were ADSL-enabled by the end of 2010.

Households connected to an ADSL-enabled exchange have access to broadband services delivered by the incumbent operator (BT for the whole of Wales and all of the UK except Hull), and consumers can choose between retail services provided either by the retail arm of the incumbent (BT Retail), or other retail services which use wholesale services provided by the incumbent.

Many exchanges have also been 'unbundled'. This means a local-loop unbundling (LLU) provider has sited its own equipment in BT's local exchange and provides ADSL broadband (either on a standalone basis or in conjunction with fixed voice services) over the incumbent's copper wire from the exchange to the customer premises. Those living in an unbundled exchange area are therefore likely to have a greater choice of providers and tariffs available to them than those living in exchange areas that have not been unbundled. At the end of 2010, 84% of homes in Wales were in exchange areas which had been unbundled, lower than the UK average (89%), but higher than in Scotland (81%) or Northern Ireland (75%).

**Figure 5.1 Proportion of homes connected to ADSL-enabled and unbundled exchanges**



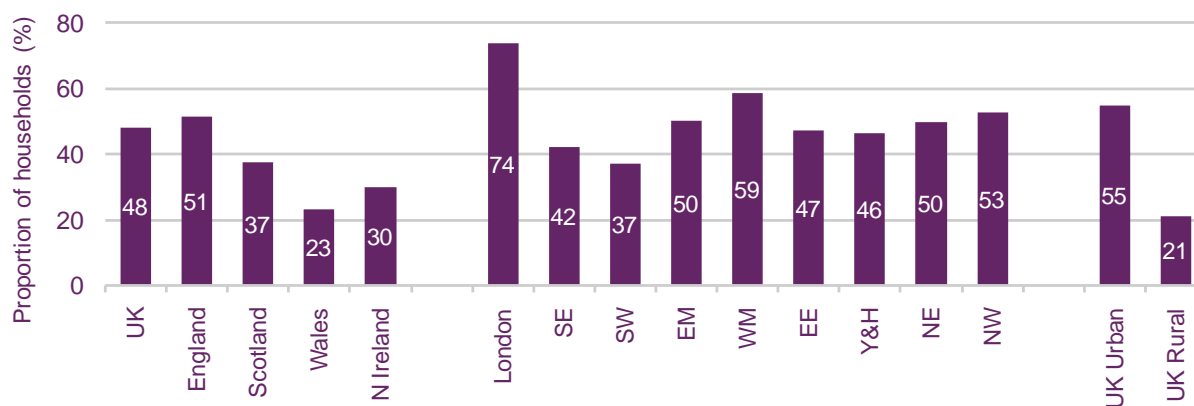
Source: Ofcom / BT, December 2010 data

**Wales had the lowest proportion of homes passed by Virgin Media’s cable network at 23%**

After ADSL broadband, cable broadband is the second most popular broadband technology in the UK and in June 2010, 23% of Wales homes were passed by Virgin Media’s cable broadband network, compared to 48% of all UK households. Virgin’s Media’s cable network offers headline connection speeds of ‘up to’ 50Mbit/s (and 100Mbit/s in some areas) and is concentrated in urban areas. This is because the original cable franchises concentrated network build in highly populated areas in order to maximise their potential customer bases.

This is reflected in Figure 5.2 below, which shows that while 55% of homes in urban areas were passed by Virgin’s cable broadband network in June 2010, only 21% in rural areas were. This largely explains the difference between the nations - the proportion of homes passed by Virgin Media’s cable broadband network was lowest in Wales at 23%, while it was highest in England at 51%.

**Figure 5.2 Proportion of households passed by Virgin Media’s cable broadband network**



Source: Ofcom / Virgin Media, June 2010 data

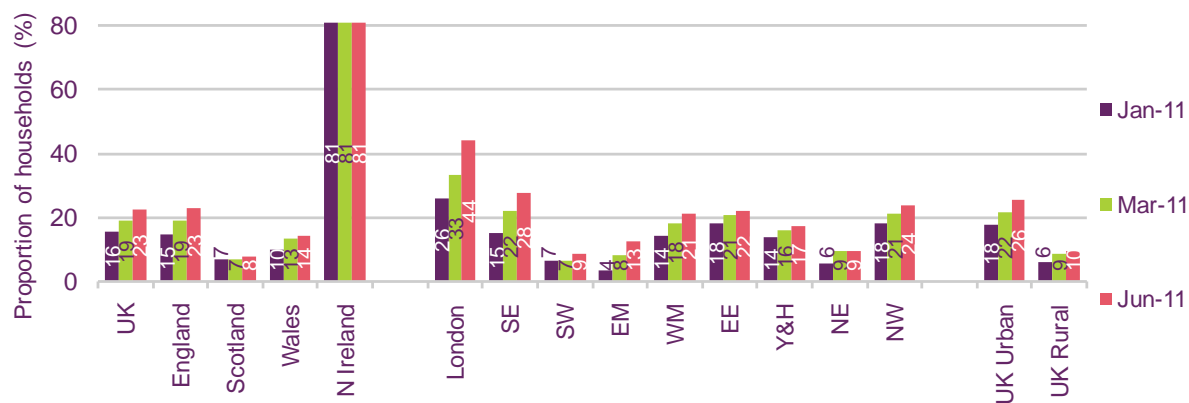
**Wales had the second lowest proportion of homes connected to a fibre-to-the-cabinet enabled exchange in June 2011, at 14%**

Fibre-to-the-cabinet (FTTC) broadband involves running fibre-optic cable from the local exchange to the street cabinet and then using VDSL (a fast form of DSL) to provide broadband service to the end-user over the copper wire from the cabinet to the customer’s premises. BT’s current FTTC service offers headline speeds of ‘up to’ 40Mbit/s and it has recently announced that this will be increased to ‘up to’ 80Mbit/s in 2012. Ofcom research finds that average speeds delivered by BT Retail’s *Infinity* service (fibre broadband) were around 32Mbit/s, more than four times as fast as average speeds delivered by ‘up to’ 20/24Mbit/s ADSL services

BT is currently rapidly rolling out FTTC, passing around 80,000 new premises every week, and aims to make it available to two-thirds of UK homes by 2015. In June 2011, 14% of homes in Wales were connected to an exchange where FTTC has been deployed – compared to around 23% across the UK as a whole.

It should be noted that, on average, when an exchange is FTTC-enabled, cabinets serving only around 80% to 90% of premises in the exchange area have fibre-optic cable run to them. This means that the proportion of homes in Wales that are able to receive FTTC services will be lower than the proportion connected to the exchange (approximately 11-13% at the beginning of June 2011, compared to the 14% connected to an FTTC-enabled exchange).

**Figure 5.3 Proportion of households connected to an FTTC-enabled exchange**



Source: Ofcom / BT

## 5.2 Mobile coverage

Although around nine in ten households in the UK have a mobile phone, there remain areas of the country where a lack of network coverage means that making mobile calls is not possible. These areas, sometimes known as ‘mobile not-spots’, are characterised by low population density and/or challenging terrain which present physical and economic challenges that may deter operators from putting up and maintaining mobile masts.

### How we measure the availability of mobile telephony in this report

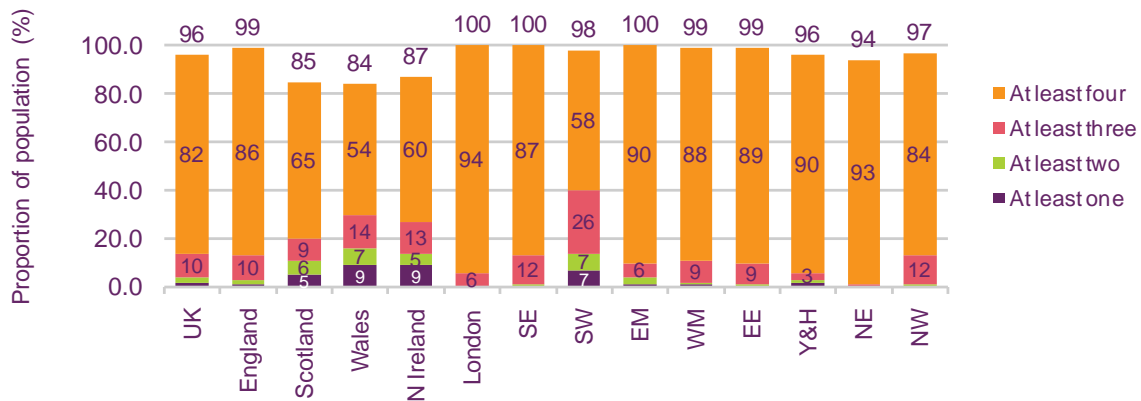
To evaluate the availability of mobile telephony services across the UK we examine the number of mobile networks with second generation (2G) and third generation (3G) coverage in each postcode district. For an operator to be counted as having coverage, its network footprint has to cover at least 90% of the postcode district, and by using this information in conjunction with population figures we can calculate the proportion of people living in postcodes that fall within this coverage threshold.

It is important to note that even if a postcode district does not meet or exceed this 90% threshold, it does not mean that mobile services are not available there; rather, that none of the mobile operators meets the 90% threshold that we use in this analysis.

Figure 5.4 details levels of mobile coverage based on population – it shows that 96% of people across the UK live in a postcode district with at least 90% 2G area-coverage from one or more operators. In the chart pack for this report we also detail mobile coverage by geography and provide maps indicating areas of mobile coverage.

2G mobile coverage is lower in Wales than in the other UK nations – 16% of the population live in postcode areas where no operator has more than 90% coverage. Lower network coverage in Wales, Scotland and Northern Ireland compared to England is a reflection of large areas of low population density and areas where hilly or mountainous terrain limits the range of cellular masts.

**Figure 5.4 2G mobile phone population coverage (90%), by number of operators**

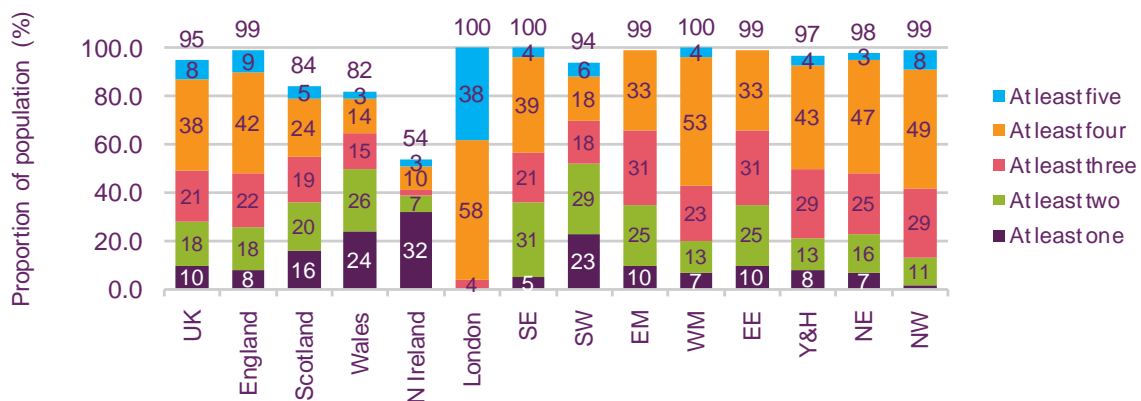


Source: Ofcom / GSM Association / Europa Technologies; Q2 2011

Note: Figures show the percentage of population within postcode districts where at least one operator had at least 90% 2G area coverage; data not directly comparable to those published in the 2010 report.

3G mobile networks offer faster download speeds which allow a much better experience of mobile data services such as web browsing and downloading files from the internet. Across the UK 3G coverage is generally lower than 2G coverage. In Wales, population coverage of 3G networks is 82% - lower than in England and Scotland, but higher than in Northern Ireland. However, whereas 54% of the population of Wales live in areas where four operators provide a 2G network, just 17% live in areas where four or five operators have a 3G network. This makes it particularly important that consumers check coverage using operators' postcode checkers before choosing a network provider.

**Figure 5.5 3G mobile phone population coverage (90%), by number of operators**



Source: Ofcom/ GSM Association / Europa Technologies; Q2 2011

Note: Figures show the percentage of population within postcode districts where at least one operator had at least 90% 3G area coverage; data not directly comparable to those published in the 2010 report.

### 5.3 Service take-up

#### Take-up of telephony services in Wales remains stable

Take-up of communications services in Wales is broadly in line with that in the other UK nations (Figure 5.66). A higher proportion of households in Wales have a mobile phone (87%) than a fixed-line phone (80%), with both these figures remaining stable since 2010.

The reported fall in mobile ownership in rural Wales (from 93% in Q1 2010 to 85% in 2011) should be treated with caution. It is unlikely that this reflects an actual decrease in ownership, as previously there have been year-on-year increases in mobile take-up in rural Wales. There are several possible explanations for this apparent fall: respondents for our consumer research are randomly selected (within quotas), and therefore sample profiles change every year. There is a slightly lower proportion of 16-24 year olds in this year's rural Wales sample, which may partly explain the lower take-up; people in this group are the most likely to own mobile phones. Further, the locations the sample is drawn from are selected randomly. As mobile-phone take-up varies within Wales' rural areas, the areas sampled this year may have been those with lower take-up.

**Figure 5.6 Take-up of communications services, 2011**

		UK	Wales	England	Scotland	N Ireland	Wales urban	Wales rural
<b>Individual</b>								
<b>Voice telephony</b>	Fixed Line	<b>85%</b>	80%	85%	80%	84%	78%	85%
	Mobile	<b>91%</b>	87%	92%	86%	92%	88%	85%
<b>Internet</b>	PC	<b>77%</b>	74%	78%	65%	78%	75%	70%
	Total Internet	<b>76%</b>	72%	78%	64%	76%	72%	68%
	Broadband (fixed and mobile)	<b>74%</b>	71%	76%	61%	75%	72%	67%
	Fixed Broadband	<b>67%</b>	65%	68%	57%	67%	65%	62%
	Mobile Broadband	<b>17%</b>	16%	18%	9%	13%	18%	12%

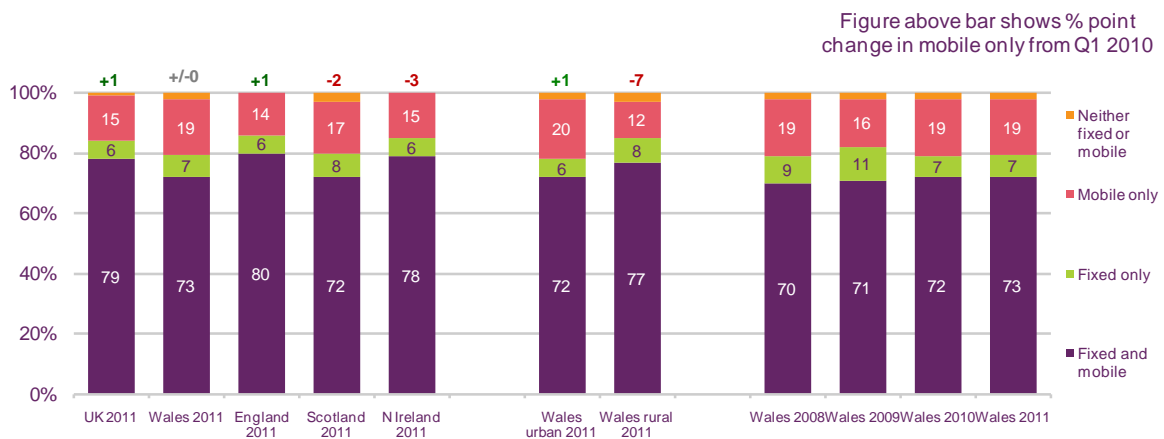
Source: Ofcom research, Q1 2011

Base: All adults aged 16+ (3474 UK, 493 Wales, 1983 England, 487 Scotland, 511 Northern Ireland, 241 Wales urban, 252 Wales rural)

QC1. Is there a landline phone in your home that can be used to make and receive calls?/ QD2. Do you personally use a mobile phone?/ QE1. Does your household have a PC or laptop computer?/ QE2. Do you or does anyone in your household have access to the internet/ world wide web at home?/ QE9. Which of these methods does your household use to connect to the Internet at home?

While nearly three-quarters of homes in Wales have both a fixed-line phone and a mobile phone (73%), one in five adults (19%) in Wales live in a mobile-only home, so are reliant on mobile telephony for incoming and outgoing calls. This proportion is higher than in the other UK nations, but has not changed since 2010. Mobile-only homes are more prevalent in urban (20%) than in rural areas (12%), and are most common among those aged 16-34 (37%).

**Figure 5.7 Cross-ownership of household telephony services**



Source: Ofcom research, Q1 2011

Base: All adults aged 16+ (3474 UK, 493 Wales, 1983 England, 487 Scotland, 511 Northern Ireland, 241 Wales urban, 252 Wales rural, 811 Wales 2008, 987 Wales 2009, 1075 Wales 2010, 493 Wales 2011)

QC1. Is there a landline phone in your home that can be used to make and receive calls?/ QD1. How many mobile phones in total do you and members of your household use?

### One in three mobile phone owners in Wales now own a smartphone

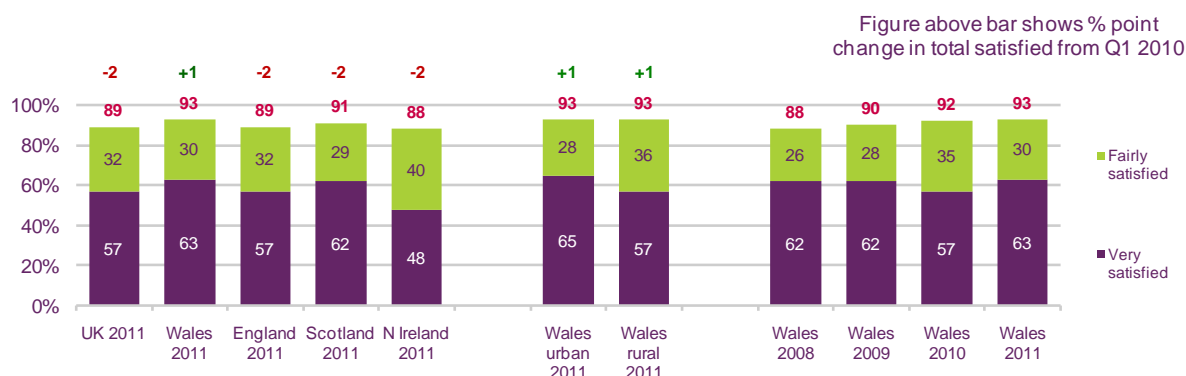
Furthermore, one in three (29%) adults with a mobile phone in Wales now have a smartphone handset. Ownership of smartphones is on a par with the UK average of 30%, and represents rapid adoption of a device that has only been widely available to consumers for the past 2-3 years. 16-34 year olds (47%) and ABC1 social groups (42%) are among those most likely to have a smartphone in Wales (see Figure 1.4, in Section 1)

## 5.4 Satisfaction

### Satisfaction with telecommunications service remains high in Wales

Ninety-three per cent of people in Wales with a fixed-line phone service say they are satisfied with the overall service provided, the highest level of satisfaction in the UK, with 62% saying they are “very satisfied” with the overall services provided.

**Figure 5.8 Overall satisfaction with fixed-line service**



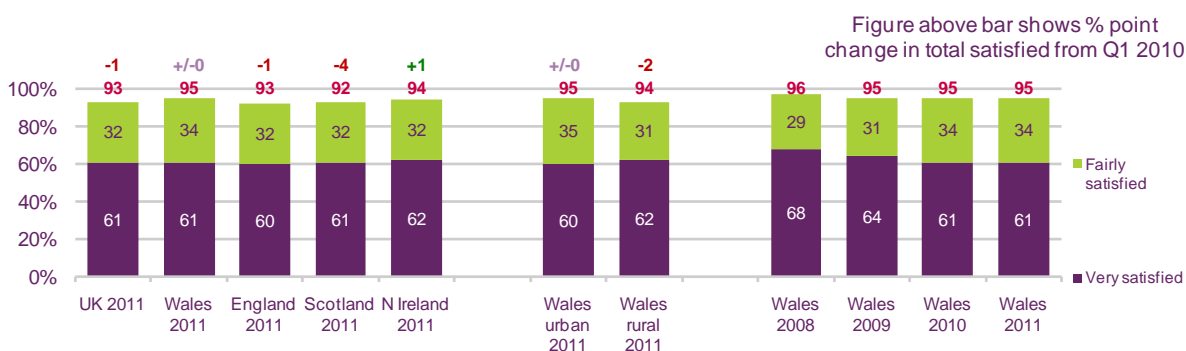
Source: Ofcom research, Q1 2011

Base: Adults aged 16+ with a landline phone at home (n = 2943 UK, 402 Wales, 1707 England, 400 Scotland, 434 Northern Ireland, 189 Wales urban, 213 Wales rural, 643 Wales 2008, 818 Wales 2009, 874 Wales 2010, 402 Wales 2011)

QC13a. Thinking about your home phone service only, how satisfied are you with (main supplier) for the overall service provided by (main supplier)?

Satisfaction with mobile phone service overall (95%) and mobile phone reception (87%) have both remained unchanged in Wales since 2010. Overall satisfaction with mobile phone service in Wales is the highest in the UK.

**Figure 5.9 Overall satisfaction with mobile phone service**



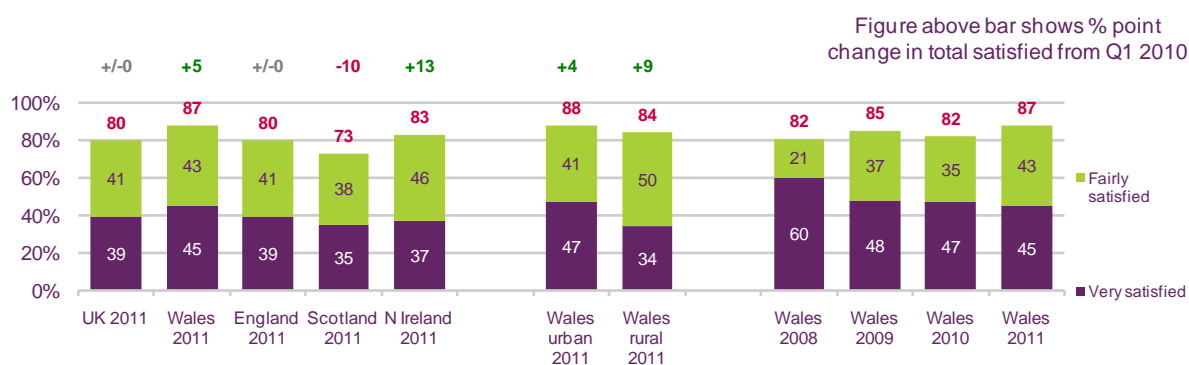
Source: Ofcom research, Q1 2011

Base: Adults aged 16+ who personally use a mobile phone (n = 3091 UK, 416 Wales, 1786 England, 425 Scotland, 464 Northern Ireland, 208 Wales urban, 208 Wales rural, 645 Wales 2008, 836 Wales 2009, 923 Wales 2010, 416 Wales 2011)

QD21a. Thinking about your mobile phone service only, how satisfied are you with (main supplier) for the overall service provided by (main supplier)?

Satisfaction with fixed broadband services in Wales has increased by four percentage points in the past year, standing now at 95% (with 39% being fairly satisfied and 56% very satisfied). Satisfaction with the speed of fixed broadband connection has also increased in Wales, by five percentage points, to 87%, the highest reported satisfaction level in the UK. Satisfaction with broadband speeds is higher in Wales' urban areas (88%) than it is in rural areas (84%). It should be noted that high satisfaction does not necessarily equate to high speeds, as consumer satisfaction is influenced by expectations.

**Figure 5.10 Satisfaction with speed of fixed broadband connection**



Source: Ofcom research, Q1 2011

Base: Adults aged 16+ with a fixed broadband connection at home (n = 2243 UK, 303 Wales, 1311 England, 294 Scotland, 335 Northern Ireland, 155 Wales urban, 148 Wales rural, 386 Wales 2008, 527 Wales 2009, 604 Wales 2010, 303 Wales 2011)

QE8b. Thinking about your fixed broadband internet service, how satisfied are you with (main supplier) for the speed of your service while online (not just the connection)?

## 5.5 Recent developments in Wales

### Upgrades to ADSL services

BT's roll-out of upgraded broadband services continued as 12 new exchange areas were listed for upgrade to wholesale broadband connect (WBC) ADSL2+ technology, which offers theoretical speeds of 'up to' 24Mbit/s, compared to the 'up to' 8Mbit/s services offered by first-generation ADSL technology (although it should be noted that actual speeds are typically much slower than these theoretical speeds – Ofcom's broadband speeds research finds that the average speeds for 'up to' 20/24Mbit/s ADSL services is around 6.2Mbit/s, compared to 3.4Mbit/s for 'up to' 8Mbit/s ADSL<sup>6</sup>). By Spring 2011, 47 of Wales' 437 exchanges had been upgraded.

### Super-fast broadband availability and trials

Nearly a quarter (23%) of households in Wales have access to Virgin Media's 'up to' 50Mbit/s service, and the cable operator is upgrading its network to offer speeds of 'up to' 100Mbit/s.

Virgin Media and Surf Telecom conducted a super-fast broadband trial in the village of Crumlin near Caerphilly. Five thousand subscribers received broadband speeds of up to 50Mbit/s, delivered by fibre carried over electricity pylons - the first time such a technology has been deployed in the UK.

<sup>6</sup> <http://stakeholders.ofcom.org.uk/binaries/research/telecoms-research/bbspeeds2011/bb-speeds-nov-2010.pdf>



BT is also in the process of rolling out fibre-to-the-cabinet (FTTC) services, offering speeds of 'up to' 40Mbit/s using VDSL technology. In April 2011, BT announced that 60,000 more homes and businesses in Wales would have access to super-fast broadband via fibre to the cabinet (FTTC) services<sup>7</sup>. BT plans to provide FTTC services to a quarter of a million premises in Wales by the end of 2012.

In March, Spectrum Internet (formerly Connect Cardiff) launched a new ISP service for Wales, initially serving south-east Wales via three exchanges in Chepstow, Cardiff and Newport. The ISP hopes to offer services for residential customers with speeds of between 20 and 30 Mbit/s.

For information on Welsh, and UK government projects to support the roll-out of broadband in Wales, please refer to Ofcom's *Broadband Guide for Wales* ([www.ofcom.org.uk/files/2010/11/A\\_broadband\\_guide\\_for\\_Wales.pdf](http://www.ofcom.org.uk/files/2010/11/A_broadband_guide_for_Wales.pdf)).

### **Wireless broadband trial**

During the year mobile technology trials in Pembrokeshire, using the Preseli mast, demonstrated how a wireless network could be used to deploy mobile broadband with speeds of 'up to' 50 Mbit/s in hard-to-reach broadband not-spot areas.

### **Spectrum liberalisation**

New technologies and innovations in the market offer the prospect of improved mobile voice and broadband coverage. In the past year, Ofcom liberalised the use of the existing 2G frequencies and announced proposals in March to auction the 800 Mhz and 2.6 Ghz bands. Taken together, both of these developments free up more spectrum which could be used for 3G, 4G/LTE (long term evolution) and WiMax services.

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<sup>7</sup> <http://www.btplc.com/news/Articles/ShowArticle.cfm?ArticleID=DF637649-26A2-4B80-ACB7-A5C3810B02F3>