

# 5 Telecoms and networks

## 5.1 Broadband availability

**Scotland had marginally the lowest proportion of UK homes connected to an ADSL-enabled exchange at the end of 2010**

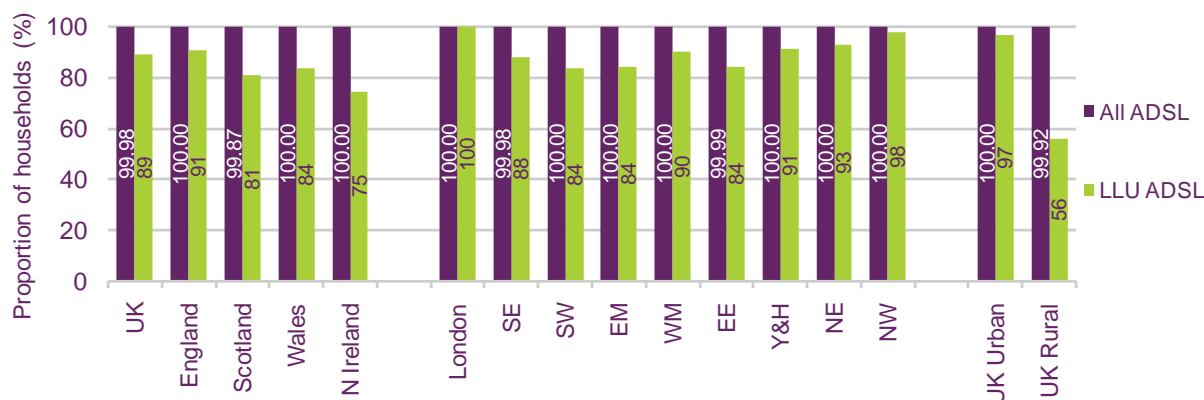
ADSL broadband is delivered over the copper phone line running from the local telephone exchange to the user's premises and has the highest availability of all of the technologies capable of delivering fixed broadband services in the UK. ADSL coverage therefore gives a good indication of overall UK broadband 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 only be able to do so 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). Across Scotland, 99.87% of homes were connected to an ADSL-enabled exchange, with 20 local exchanges not ADSL-enabled.

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

In addition, many exchanges have been 'unbundled'. This means that a local-loop-unbundling (LLU) provider has sited its own equipment in the incumbent operator'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 which have not been unbundled. In Scotland 81% of homes were connected to an LLU-enabled exchange at the end of 2010, the second lowest proportion among the UK nations.

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



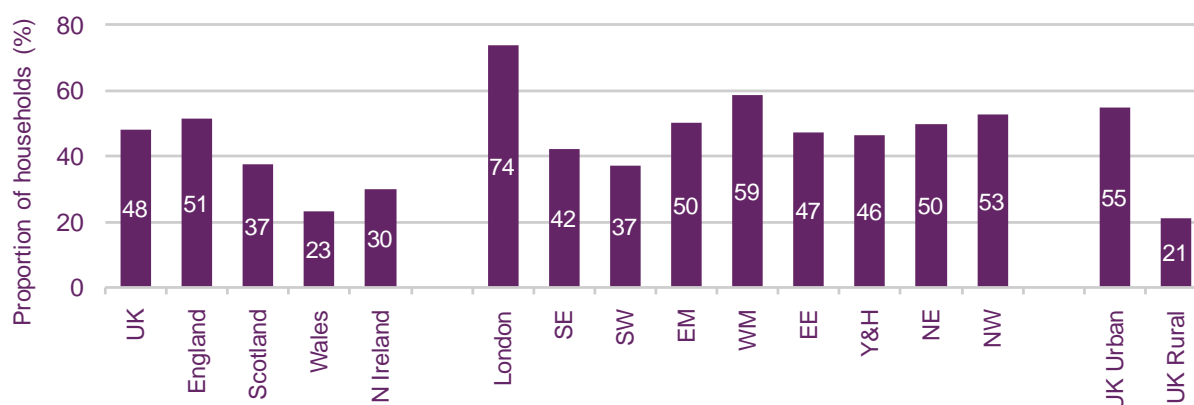
Source: Ofcom / BT, December 2010 data

**Scotland had the second highest proportion of homes that were passed by Virgin Media’s cable network, at 37%**

At the end of 2010 48% of UK homes were passed by Virgin Media’s cable broadband network, unchanged from a year previously. The cable network offers headline connection speeds of ‘up to’ 50Mbit/s (and 100Mbit/s in some areas) and is concentrated in urban areas, as 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. Similarly, among the UK nations the proportion of homes passed by Virgin Media’s cable broadband network ranged from 23% in Wales to 51% in England; in Scotland 37% of homes were passed by the cable network at the end of 2010, the second highest proportion among the UK nations.

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



Source: Ofcom / Virgin Media, June 2010 data

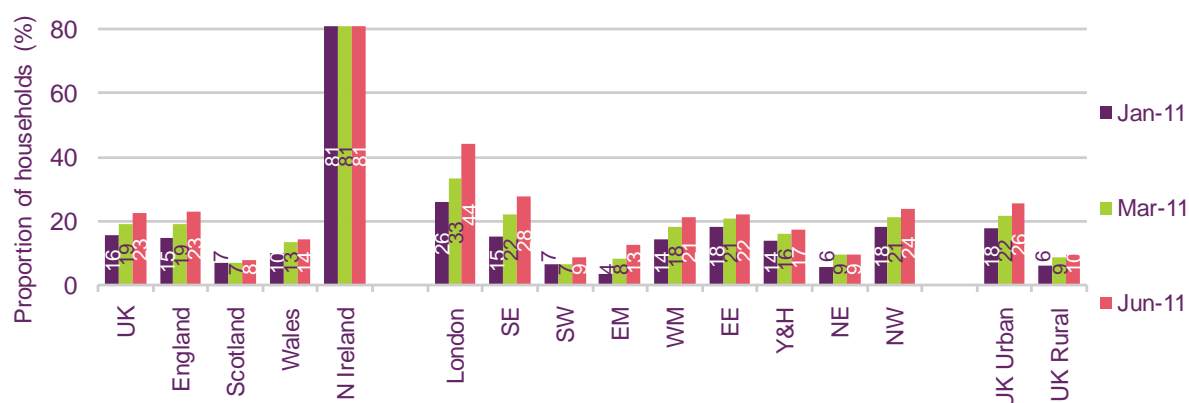
**Scotland had the lowest proportion of homes connected to a fibre-to-the-cabinet enabled exchange in March 2011, at just 7%**

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 is now rapidly rolling out FTTC, and aims to make it available to two-thirds of UK homes by 2015. BT Retail’s current FTTC service offers headline speeds of ‘up to’ 40Mbit/s; however, it 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.

At the beginning of June 2011 around 23% of UK homes were connected to a FTTC-enabled local exchange, with this proportion ranging from 8% in Scotland to 81% in Northern Ireland.

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 Scotland that are able to receive FTTC services will be lower than the proportion connected to the exchange (approximately 6-7% at the beginning of June 2011 compared to the 8% 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 obstacles which may deter operators from erecting and maintaining mobile masts.

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

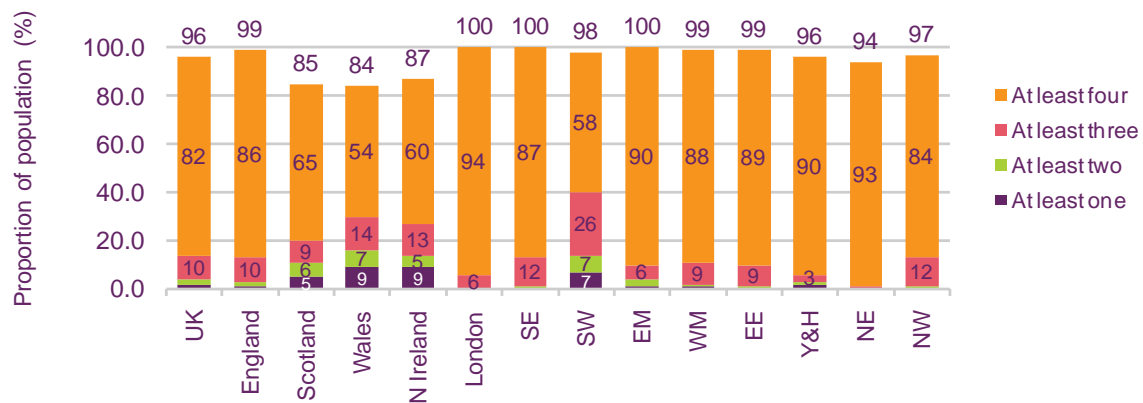
To evaluate the availability of mobile telephony services across the UK we examine the number of mobile networks with second generation (2G) and third generation (3G) coverage in each postcode district. For an operator to be counted as having coverage, its network footprint has to cover at least 90% 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 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 Scotland than in the UK as a whole – 15% of the population in Scotland live in postcode areas where no operator has more than 90% coverage. Lower network coverage in Scotland, Wales 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**

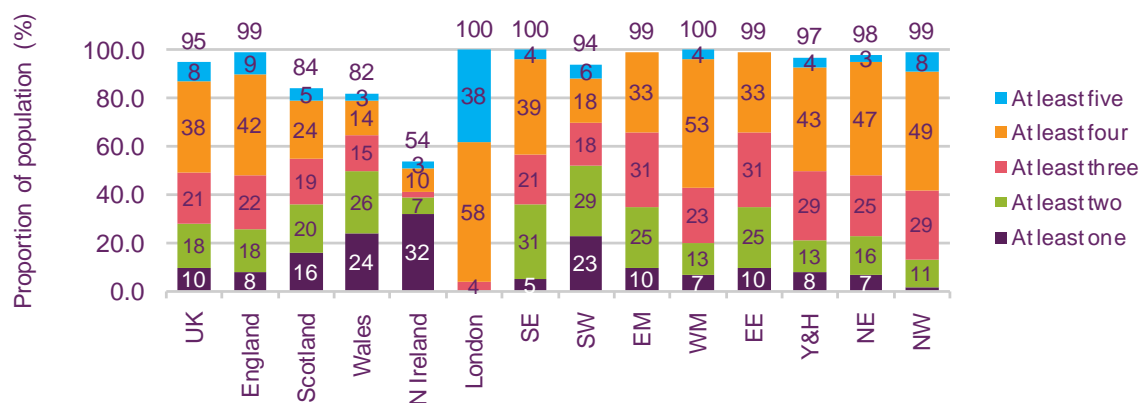


Source: Ofcom / GSM Association / Europa Technologies; Q2 2011

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 offer 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 Scotland, population coverage of 3G networks is 84% - lower than in England, but higher than in Wales and Northern Ireland. However, whereas 65% of the population of Scotland live in areas where four operators provide a 2G network, just 29% 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 that published in the 2010 report.

### 5.3 Service take-up

#### Ownership of telephony service in Scotland remains stable

Eight in ten homes in Scotland have a fixed-line phone. This figure has remained stable (up one percentage point) since last year. Mobile phone ownership among adults in Scotland has also remained stable (also up by one percentage point to 86%).

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

		UK	Scotland	England	Wales	Northern Ireland	Scotland urban	Scotland rural
<b>Individual</b>	<b>Voice telephony</b>							
	Fixed Line	85%	<b>80%</b>	85%	80%	84%	78%	86%
	Mobile	91%	<b>86%</b>	92%	87%	92%	85%	88%
	Mobile-only home	15%	<b>17%</b>	14%	19%	15%	18%	14%
<b>Internet</b>	PC	77%	<b>65%</b>	78%	74%	78%	63%	70%
	Total Internet	76%	<b>64%</b>	78%	72%	76%	63%	70%
	Broadband (fixed and mobile)	74%	<b>61%</b>	76%	71%	75%	60%	68%
	Fixed Broadband	67%	<b>57%</b>	68%	65%	67%	56%	62%
	Mobile Broadband	17%	<b>9%</b>	18%	16%	13%	8%	13%

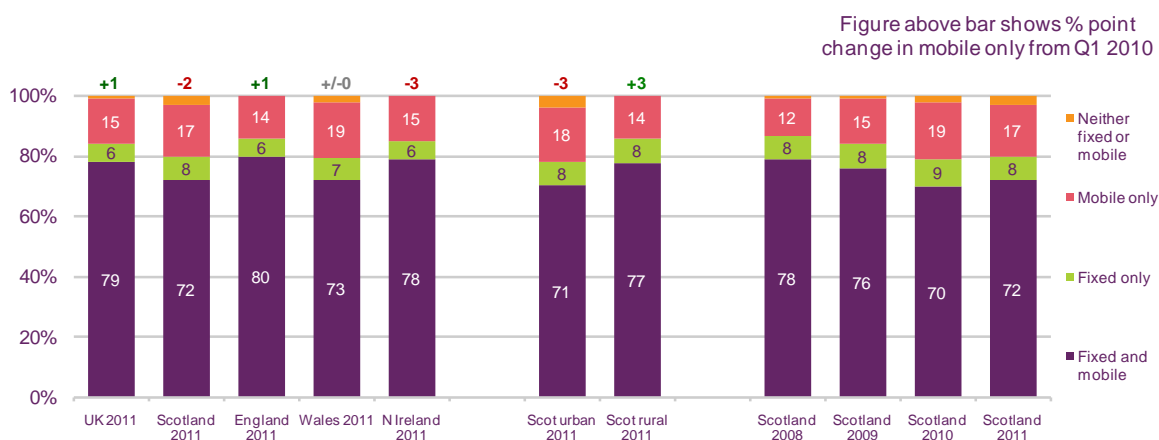
Source: Ofcom research, Q1 2011

Base: All adults aged 16+ (n = 3474 UK, 487 Scotland, 1983 England, 493 Wales, 511 Northern Ireland, 239 Scotland urban, 248 Scotland 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?

Seventeen per cent of adults in Scotland live in a mobile-only home, so are reliant on mobile telephony for incoming and outgoing calls. Mobile-only homes are more prevalent in urban (18%) than in rural areas (14%).

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



Source: Ofcom research, Q1 2011

Base: All adults aged 16+ (n = 3474 UK, 487 Scotland, 1983 England, 493 Wales, 511 Northern Ireland, 239 Scotland urban, 248 Scotland rural, 925 Scotland 2008, 1014 Scotland 2009, 1468 Scotland 2010, 487 Scotland 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 five mobile phone owners in Scotland now own a smartphone

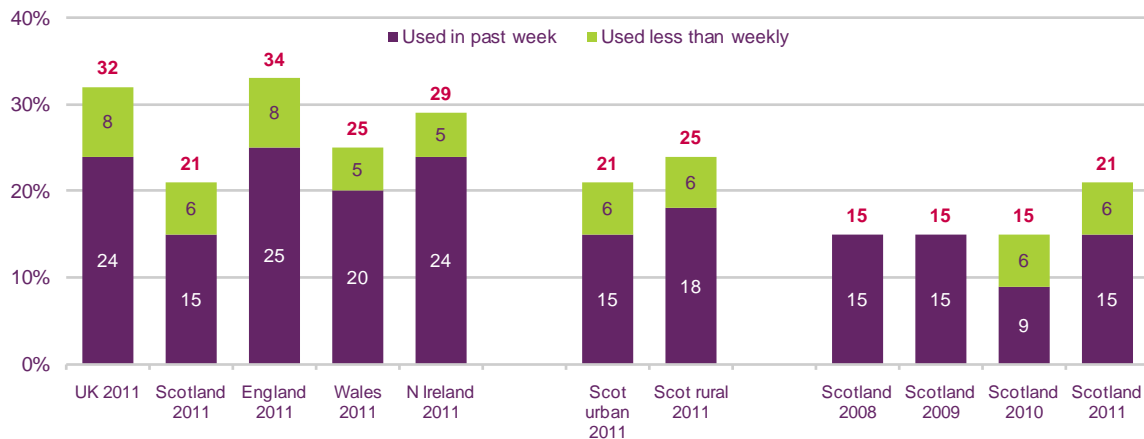
A fifth (21%) of adults with a mobile phone in Scotland now have a smartphone handset. Ownership of smartphones is below the UK average of 30%, but still represents rapid adoption of a technology that has been widely available to consumers for only the last 2-3

years. Males (26%), 16-34 year olds (32%) and ABC1 socio-economic groups (28%) are among those most likely to have a smartphone in Scotland.

### Use of a mobile phone to access the internet rises in Scotland

Twenty-one per cent of adults in Scotland use a mobile phone to access the internet (15% had done so in the last week, when we asked). This represents a six percentage point rise over the past year, which is likely to have been driven by the increasing popularity of smartphones. This figure is slightly higher than the proportion of smartphone owners (21% of mobile phone owners – equating to 18% of all adults).

**Figure 5.8 Use of mobile phone to access the internet**



Source: Ofcom research, Q1 2011

Base: All adults aged 16+ (n = 3474 UK, 487 Scotland, 1983 England, 493 Wales, 511 Northern Ireland, 239 Scotland urban, 248 Scotland rural, 925 Scotland 2008, 1014 Scotland 2009, 1468 Scotland 2010, 487 Scotland 2011)

QD28A-B. Which, if any, of the following activities, other than making and receiving calls, do you use your mobile for? And, which of these activities have you used your mobile for in the last week? (NB 2008 and 2009 surveys did not cover use in past week – 2008 and 2009 measures show any use)

### Satisfaction with fixed broadband speeds falls in Scotland

Overall satisfaction with fixed broadband connections has fallen across the UK in the past year by four percentage points. The fall in satisfaction has been slightly more marked in Scotland, down by six percentage points to 86%. This may be explained by a particularly sharp fall in satisfaction with fixed broadband connection speeds, which has fallen by ten percentage points in Scotland to stand at 73%.

**Figure 5.9 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, 294 Scotland, 1311 England, 303 Wales, 335 Northern Ireland, 137 Scotland urban, 157 Scotland rural, 489 Scotland 2008, 528 Scotland 2009, 778 Scotland 2010, 294 Scotland 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)?

Note: Figures above chart columns indicate the proportion of people who were 'very' or 'fairly' satisfied with their speed of service while online

## 5.4 Recent developments

Scotland has one of the first four *Broadband Delivery UK* (BDUK) pilot areas, in the Highlands and Islands, with a value of £35m from the £530m fund. The project aims to help deliver next-generation broadband throughout the Highlands and Islands. It aims to cover around 40 population centres throughout the region.