5 Telecoms and networks

5.1 Recent developments in Northern Ireland

Mobile Infrastructure Project (MIP) to tackle mobile voice not-spots

Northern Ireland is to benefit from the UK-wide Mobile Infrastructure Project (MIP), which aims to improve mobile voice coverage in areas where coverage is poor or non-existent. The UK government has committed £150m to the project, which will secure mobile voice services for about 60,000 premises across the UK that do not receive any mobile service from any operator, and to improve coverage on at least ten of the UK's busiest A roads.

Of the ten key roads identified, two are in Northern Ireland – the A2, which runs from Londonderry / Derry to Newry around the coast, and the A29, which runs north to south from Portrush through Cookstown, Dungannon and Armagh and on to the border. In May 2013, the UK government appointed Arqiva to manage the project, which will begin to extend coverage in late 2013 and will be completed by 2015.

Operators invest in 3G networks

Significant investment by mobile phone companies is set to deliver better 3G coverage for consumers in Northern Ireland. Everything Everywhere (EE) and Three expect to have completed improvements to their shared network by the end of 2013, which will see 3G population coverage rise to 95%. O2 and Vodafone have committed to making improvements to their shared network to deliver similar levels of coverage.

Further investment planned by the Northern Ireland Executive

Following significant investment in fibre optic networks, the Northern Ireland Executive is planning further improvements to the region's broadband infrastructure. The Northern Ireland Broadband Improvement Project aims to meet the UK-wide objectives of delivering 2Mbit/s broadband services to all premises and 24Mbit/s broadband services to 90% of premises by 2015.

A public consultation in September/October 2012 sought to help identify the potential intervention area. This is being finalised with a further consultation running from July/August 2013. Around £19.3m of public sector funding is available across a number of sources including DETI, DARD, BDUK and the European Union in support of this project. It is anticipated that a contract will be awarded in autumn 2013.

4G services in the nations

As part of the 4G spectrum auction, which took place in early 2013, one lot of 800MHz spectrum (which was awarded to Telefónica UK Ltd) carries an obligation to provide indoor mobile broadband reception to at least 98% of the UK population by the end of 2017. Given that it is easier to provide mobile coverage outdoors than indoors, a 4G network which meets this requirement is likely to cover more than 99% of the UK by population when outdoors.

In addition to the UK-wide coverage obligation, Ofcom requires the same operator to provide indoor service to at least 95% of the population of each of the UK nations. Outdoor coverage for the network meeting this obligation is likely to be around 97% of the population of each nation, and Northern Ireland will have similar levels of coverage and enjoy the benefits of 4G at the same time as other parts of the UK.

Cities get super-connected

Belfast and Derry / Londonderry are among the beneficiaries of the UK government's Super Connected Cities project.

Belfast was awarded £13.7m in the first round of funding while Derry / Londonderry is among 12 cities that will share £50m as part of a second round of funding.

Both councils are planning to use the fund to provide:

- A voucher scheme to help SMEs access fibred broadband services
- WiFi in public buildings such as museums, galleries, and hospitals.
- An open access wireless infrastructure built on each city's street furniture. In Derry's case, this will be an extension of existing facilities.

5.2 Availability of fixed broadband services

LLU broadband availability in Northern Ireland was the lowest among the UK nations at the end of 2012

Almost all UK premises are connected to an ADSL-enabled BT local exchange, although some 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 line from the premises to the local exchange.

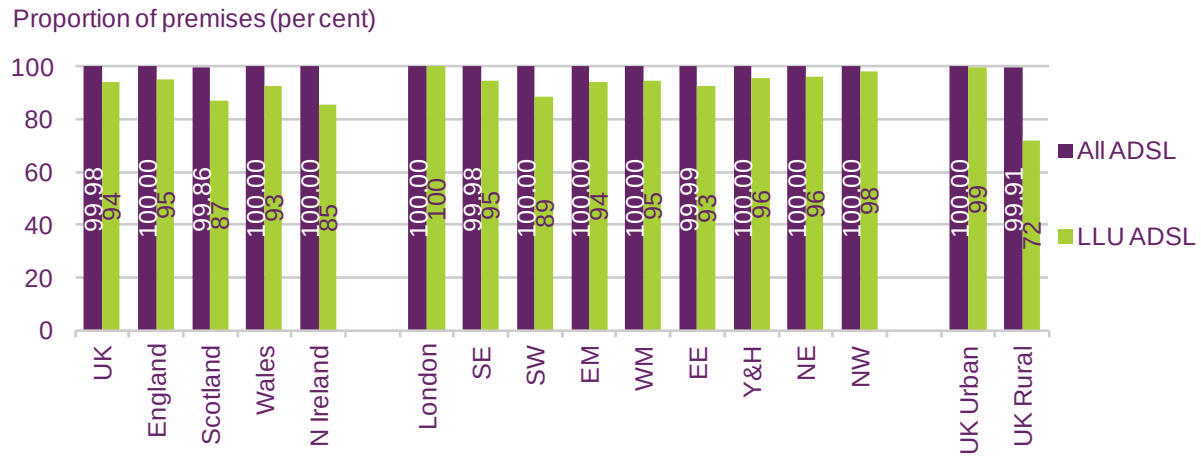
BT has just under 5,600 local exchanges, of which around 30 were not able to provide ADSL broadband at the end of 2012. Most of the BT local exchanges that are not capable of providing ADSL broadband are in Scotland (the remainder being in England) and the proportion of premises connected to an ADSL-enabled BT exchange is marginally lower in Scotland than in the rest of the UK (Figure 5.1).

Local loop unbundling (LLU) operators are able to provide fixed telecoms services by placing their own network equipment in the incumbent's local exchange. This is then connected to the LLU provider's backhaul network and ADSL broadband services are provided to the end user over the copper line from the exchange, which is leased from the incumbent operator. LLU operators generally benefit from economies of scale that are not available when purchasing wholesale services on a per-unit basis, and are better able to differentiate their services from those offered by their competitors. Premises in LLU-enabled exchange areas benefit as they usually have a greater choice of ADSL broadband services, and access to lower-cost services.

We estimate that 94% of UK premises were connected to an unbundled BT local exchange at the end of 2012, two percentage points higher than had been the case a year previously. This increase was largely due to LLU providers deploying services in rural areas: while the proportion of premises connected to an LLU-enabled local exchange in urban areas was unchanged at 99% during the year, the proportion in rural areas increased by over eight percentage points to 72%. This pattern is typical of telecoms network deployment: roll-out usually begins in urban areas (where there are larger numbers of premises and therefore more potential customers), and subsequently spreads to less densely populated areas. In fact, urban LLU availability was at a similar level to current rural availability as far back as 2006.

Northern Ireland had the lowest availability of LLU broadband at the end of 2012, when 85% of premises were connected to an LLU-enabled BT local exchange, nine percentage points below the UK average. By comparison, 95% of premises in England, where this proportion was highest, were connected to an LLU-enabled BT local exchange at the end of the year, while in Scotland and Wales the figures were 87% and 93% respectively.

Figure 5.1 Proportion of premises connected to ADSL and LLU-enabled exchanges: December 2012



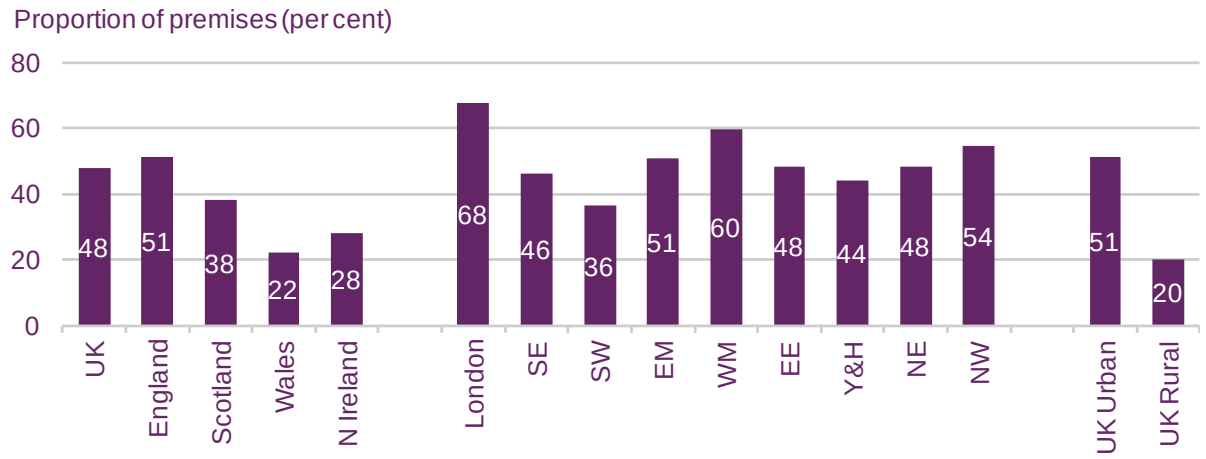
Sources: Ofcom/BT, December 2012 data

Over a quarter of premises in Northern Ireland are in postcodes served by Virgin Media's cable broadband network

As part of its work to monitor the UK's communications infrastructure, Ofcom collects data which show the total number of premises that are in postcodes in which one or more premise can receive services from cable and fibre broadband networks. This methodology is likely to slightly overestimate the coverage of these networks, as not all premises in a postcode will necessarily be able to receive the same services.

Data provided to Ofcom by Virgin Media show that 48% of UK premises were in postcodes that were served by its cable broadband network in June 2013 (Figure 5.2). Among the UK nations, the proportion of premises in postcodes served by Virgin Media's cable broadband network ranged from 22% in Wales to 51% in England, while in Northern Ireland it was 28%, the second lowest proportion among the UK nations. All of Virgin Media's cable network is able to provide broadband speeds of 'up to' 100Mbit/s, and it is rolling out an upgrade to 'up to' 120Mbit/s, which is due to be completed by the end of 2013.

Figure 5.2 Proportion of premises in postcodes served by Virgin Media's cable broadband network



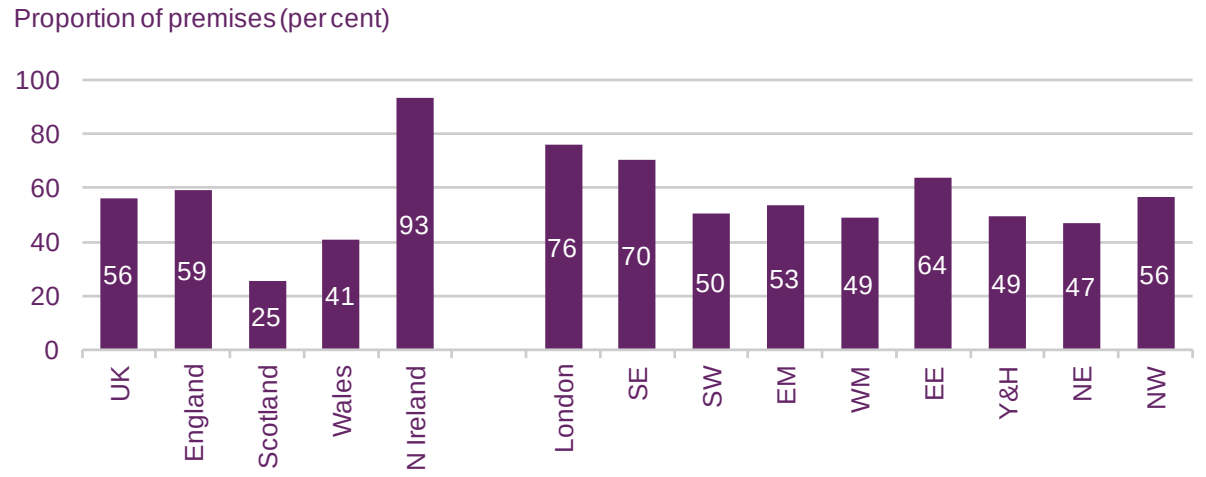
Sources: Ofcom/Virgin Media, June 2013 data

Northern Ireland had the highest availability of fibre broadband among the UK nations in June 2013

Data provided to Ofcom by BT Openreach and Kcom (the incumbent operator in the Kingston-upon-Hull area) show that over half of UK premises (56%) were in postcodes which were served by their fibre broadband networks by June 2013 (Figure 5.3). Once again, this is likely to slightly overstate the availability of fibre broadband services, as different premises in the same postcode may be served by different street cabinets, and one cabinet may have been upgraded while another has not.

In Northern Ireland, which has benefited from a Department of Enterprise, Trade and Investment (DETI) initiative to increase the availability of next-generation broadband services, 93% of premises were in postcodes served by BT Openreach's fibre network in June 2013, the highest proportion across the UK nations. By contrast, in Scotland just a quarter of premises (25%) were in postcodes served by BT Openreach's fibre network, less than half the UK average and the lowest proportion across the UK nations.

Figure 5.3 Proportion of premises in postcodes served by BT Openreach/ Kcom fibre broadband networks



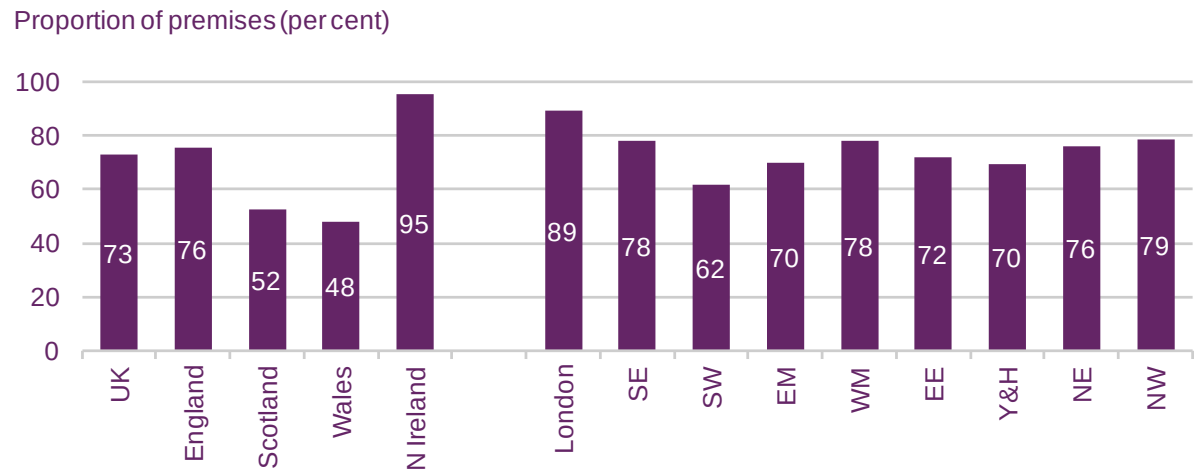
Sources: Ofcom/BT Openreach/Kcom, June 2013 data

Just one in twenty premises in Northern Ireland cannot receive broadband over an NGA network

By overlaying the Virgin Media cable broadband availability data in Figure 5.2 with the BT Openreach/ Kcom fibre availability data in Figure 5.3 we are able to estimate the proportion of premises that are in postcodes served by the next-generation access (NGA) networks which are used to provide superfast broadband services. As previously, this methodology is likely to slightly overestimate NGA coverage (despite the fact that this analysis includes only Virgin Media, BT Openreach and Kcom's NGA networks) as not all premises in a postcode will necessarily be able to receive NGA services.

This analysis suggests that just under three-quarters of UK premises (73%) were in postcodes served by NGA networks in June 2013, up from 65% in June 2012 (Figure 5.4). Across the UK nations this proportion ranged from 48% in Wales to 95% in Northern Ireland (where it was unchanged from June 2012), with just over half of premises in Scotland (52%) and three-quarters of premises in England (76%) being within NGA network footprints. Not all broadband connections provided by NGA networks will necessarily achieve 'superfast' speeds (here defined as an actual downstream speed of 30Mbit/s or higher). In particular, the speed achieved on a given line using fibre-to-the-cabinet (FTTC) technology will depend on the length and quality of the copper connection from the street cabinet to the consumer's premises.

Figure 5.4 Proportion of premises in postcodes served by NGA networks



Sources: Ofcom/operators, June 2013 data

5.3 Availability of mobile services

The proportion of premises in areas with outdoor mobile coverage varies across the UK nations

Ofcom research suggests that 92% of UK adults had a mobile phone in Q1 2013. While mobile use is widespread, there are still areas of the country where a lack of network coverage means that making mobile phone calls, sending text messages or accessing the internet over a cellular network is not possible. These areas, which are often referred to as 'mobile not-spots', are often characterised by low population density and/or undulating terrain, and present physical and economic obstacles that may deter mobile network operators (MNOs) from installing mobile phone masts in these areas. In other areas of the UK, some operators have installed masts and provide a mobile service where other operators do not have a presence, leading to the creation of 'partial not-spots'.

How we measure the availability of mobile telephony for this report

The coverage information presented in Ofcom's *Communications Market Reports* and *Infrastructure Report* is collected by Ofcom from the four MNOs. Information on coverage is provided by each operator for each 200x200m pixel of landmass across the UK. This information is correlated with maps of premises to give the premises coverage figures.

The availability figures quoted all refer to outdoor coverage. Coverage figures for indoor reception are likely to be lower because radio signals are attenuated as they pass through the fabric of buildings. Indoor reception is highly dependent on the building in which reception is desired, and where the user is located in the building, making it difficult to calculate accurate indoor coverage figures.

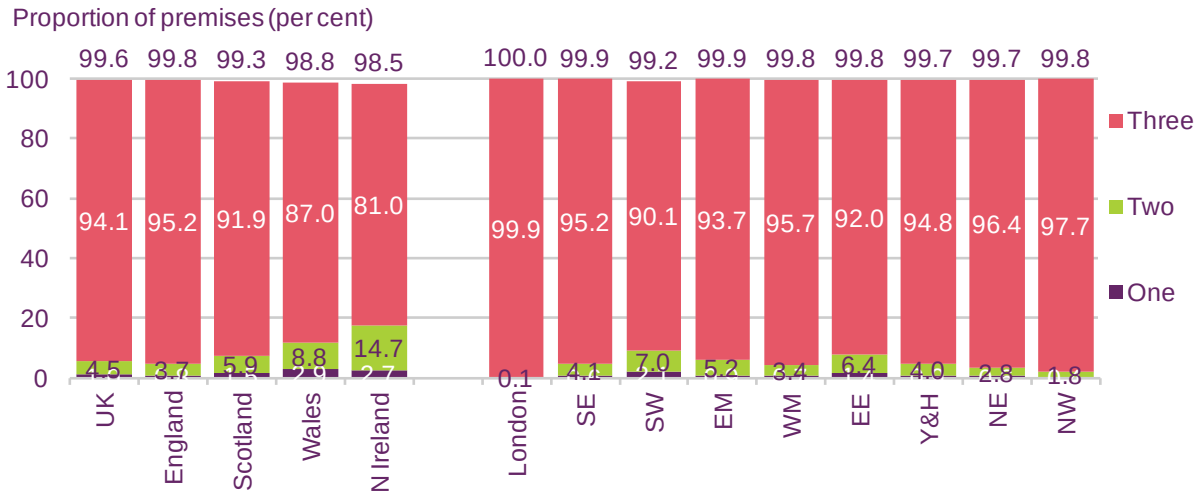
Figure 5.5 and Figure 5.6 show in detail levels of mobile coverage based on premises (i.e. homes and offices) for 2G and 3G services respectively. 3G is often considered the minimum necessary to provide a satisfactory experience of mobile internet, while 2G is considered satisfactory for telephone calls and text messaging. Mobile network operator Everything Everywhere (EE) launched 4G mobile services in the UK in October 2012, but we do not include details of 4G mobile coverage here.

98.5% of premises in Northern Ireland were in areas with outdoor 2G coverage in June 2013

The coverage data provided to us by MNOs shows that 94.1% of UK premises had outdoor coverage from all three UK 2G network operators (EE, O2 and Vodafone) in June 2013 (Figure 5.5). In total, 99.6% of premises were in areas where at least one mobile network provided outdoor 2G coverage, suggesting that 0.4% of UK premises (around 100,000 premises) were in areas without any 2G mobile coverage. The proportion of premises in areas with outdoor 2G coverage recorded in June 2013 is slightly lower than the 99.7% figure, calculated from 2011 data, which was included in the 2012 *Communications Market Reports*, and we are investigating this discrepancy.

2G coverage was slightly higher than average in England in June 2013, when 99.8% of premises were in areas with outdoor 2G mobile coverage. Northern Ireland had the lowest population coverage across the UK nations, with 81.0% of premises having outdoor coverage from all three 2G networks and 1.5% of premises (around 10,000 premises) being in areas without any outdoor 2G coverage. The lower-than-average 2G coverage in Northern Ireland is partly because a relatively high proportion of its population is more evenly spread across rural areas, and providing mobile services may not be as commercially viable in some instances.

Figure 5.5 2G premises mobile coverage, by number of operators



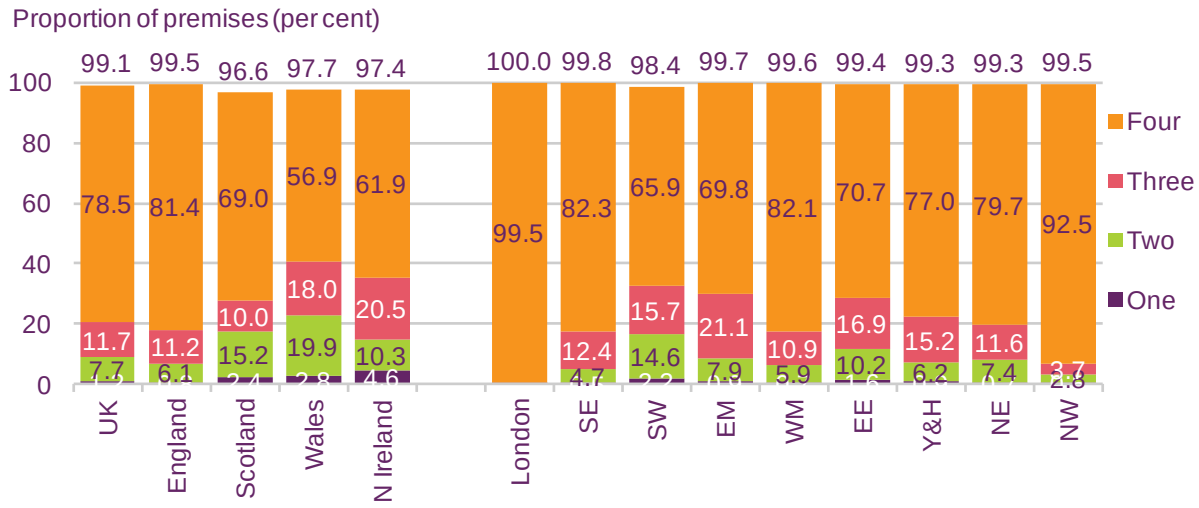
Sources: Ofcom/operators, June 2013 data
Note: Coverage is based on 200m square pixels covering the UK

Northern Ireland had the second lowest proportion of premises in areas with outdoor 3G coverage among the UK nations in June 2013

Our analysis suggests that 99.1% of UK premises were in areas where there was outdoor 3G mobile coverage in June 2013, while 78.5% were in areas where there was similar coverage from all four UK 3G networks (EE, O2, Vodafone and Three). Conversely, 0.9% of premises were in areas without any 3G mobile reception, equivalent to around 260,000 premises.

As was the case with 2G services, the proportion of premises in areas with outdoor 3G mobile coverage was highest in England, where 99.5% of premises were in areas with coverage from at least one 3G network and 81.4% had coverage from all four (Figure 5.6). Northern Ireland had both the second lowest proportion of premises in areas with outdoor 3G coverage from at least one MNO, and the second lowest proportion of premises with similar coverage from all four 3G networks among the UK nations in June 2013, at 97.4% and 61.9% respectively. This is likely to be a result of stricter planning laws for mobile masts being introduced in 2002, local opposition to building masts, and MNO network planning decisions at the time of 3G roll-out.

Figure 5.6 3G premises mobile coverage, by number of operators



Sources: Ofcom/operators, June 2013 data
Note: Coverage is based on 200m square pixels covering the UK

5.4 Service take-up

Northern Ireland has the highest mobile take-up among the UK nations

Personal ownership of a mobile phone was the highest among the UK nations in Northern Ireland in Q1 2013, at 94% (Figure 5.7). Furthermore, 28% of adults in Northern Ireland said they would miss mobile services most, out of all communications services, in Q1 2013 (see *Annex A: Adults' media literacy in the nations*), more than in any other nation and a significant increase since Q1 2012.

Forty-five per cent of all adults in Northern Ireland owned a smartphone in Q1 2013 (equivalent to 48% of mobile phone users), and while this was below the UK average of 51%, it represented a significant increase from the previous year's figure of 34%. Smartphone take-up was higher in urban areas (51% of adults) than in rural areas (35%), a difference which was reflected in the proportion of consumers using their mobile to access the internet.

Take-up of fixed telephony remained stable in Northern Ireland in the year to Q1 2013, at 82% of households, in line with the UK average of 84%. Household landline take-up was higher in the rural areas of Northern Ireland (89%) than in urban areas (78%), and 18% per cent of households in Northern Ireland had access only to mobile telephony in Q1 2013, similar to the UK average of 15%.

Figure 5.7 Take-up of communications services: 2013

		UK	N Ireland	England	Scotland	Wales	NI urban	NI rural
Individual								
Voice telephony	Fixed Line	**84%**	82%	85%	83%	76%	78%	89%
	Mobile phone	**92%**	94%	92%	92%	92%	95%	91%
	Smartphone	**51%**	45%	52%	45%	49%	51%	35%
	Mobile-only homes	**15%**	18%	15%	16%	23%	22%	11%
Internet	Total Internet	**80%**	78%	81%	76%	75%	78%	79%
	Broadband (fixed and mobile)	**75%**	74%	76%	70%	66%	73%	75%
	Fixed Broadband	**72%**	71%	73%	67%	63%	70%	72%
	Mobile Broadband	**5%**	5%	5%	7%	7%	5%	5%
	Mobile internet	**49%**	45%	49%	44%	47%	51%	35%

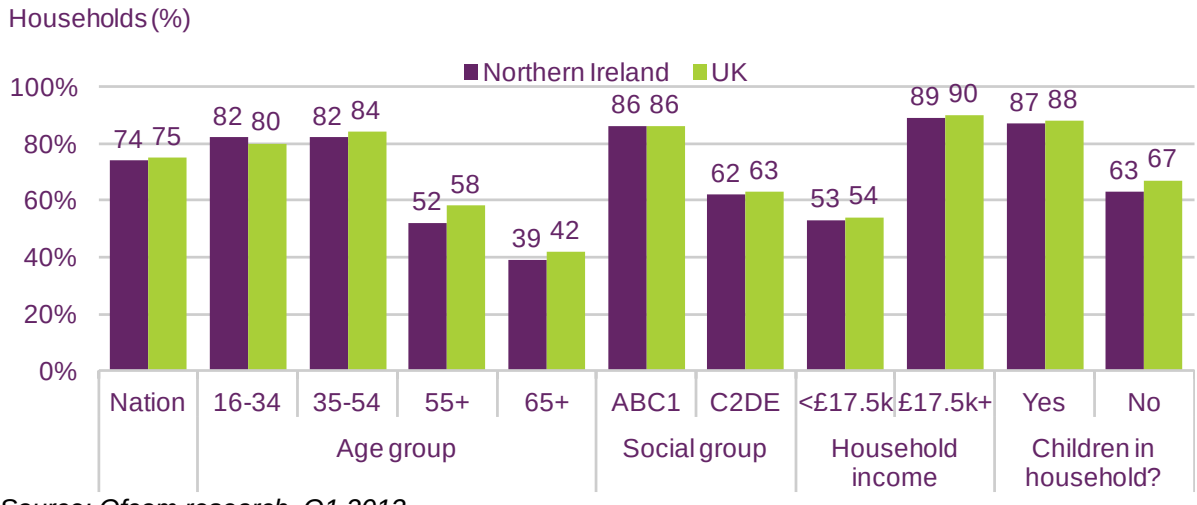
Source: Ofcom research, Q1 2013
Base: All adults aged 16+ (n = 3750 UK, 507 Northern Ireland, 2250 England, 501 Scotland, 492 Wales 254 Northern Ireland urban, 253 Northern Ireland rural)

Age and income are key drivers of broadband take-up in Northern Ireland

Figure 5.8 shows that, as with the rest of the UK, broadband penetration in Northern Ireland varies significantly by demographic. Eight in ten of those aged 16 to 34 and 35 to 64 had access to broadband services at home in Q1 2013, while this fell to four in ten (39%) among those aged 65+. Linked to age, nearly nine in ten households with children under 18 had broadband access (87%), with the same being true of higher-income households (89% of those with an annual household income of £17.5k+). Take-up was significantly lower (53%) among households with an income of less than £17.5k.

Analysis of broadband take-up shows that the gap between Northern Ireland and the UK average has closed over the past year, particularly with regard to those in older age groups.

Figure 5.8 Consumer broadband take-up in Northern Ireland

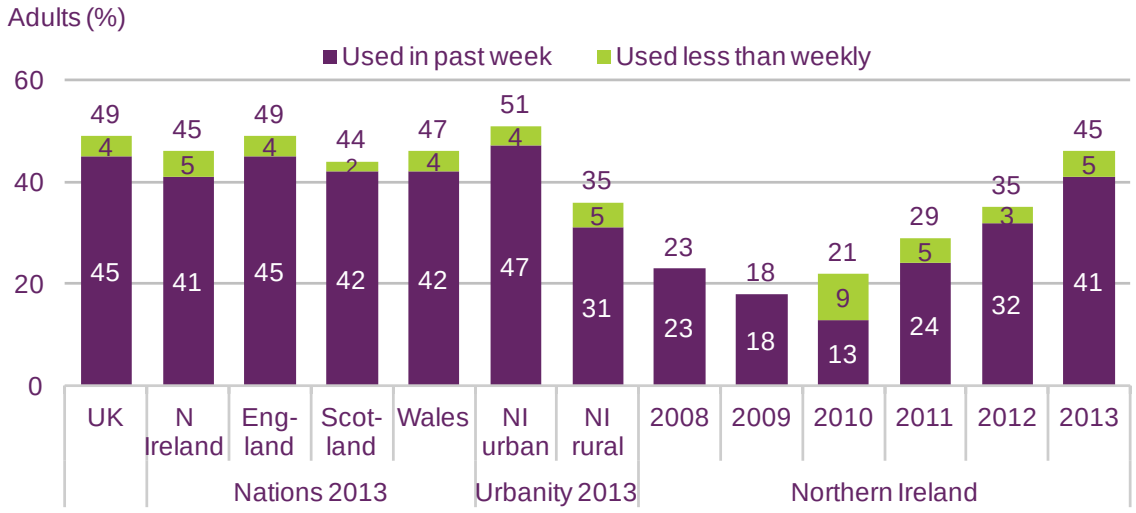


Source: Ofcom research, Q1 2013
Base: All adults aged 16+ (n =507 Northern Ireland, 161 16-34s, 161 35-54s, 185 55+, 104 65+, 233 ABC1, 274 C2DE, 174 <£17.5k income, 139 £17.5k+, 197 children in home, 310 no children in home)
QE9. Which of these methods does your household use to connect to the internet at home?Internet-enabled devices

Half of consumers in urban Northern Ireland use their phone to access the internet

As is shown in Figure 5.9, the proportion of adults in Northern Ireland who accessed the internet on their mobile phone increased by ten percentage points, to 45%, in the year to Q1 2013. Mobile internet use in Q1 2013 was in line with the UK average, and the increase over the previous year was largely as a result of increasing smartphone take-up (which grew from 34% to 45% in the year to Q1 2013). There was a notable increase in mobile internet use in urban areas of Northern Ireland, where 51% of adults used their phone to access the internet in Q1 2013 (the same proportion that had a smartphone). The proportion of adults in rural Northern Ireland who accessed the internet using a mobile was lower, at 35%.

Figure 5.9 Use of mobile phone to access the internet

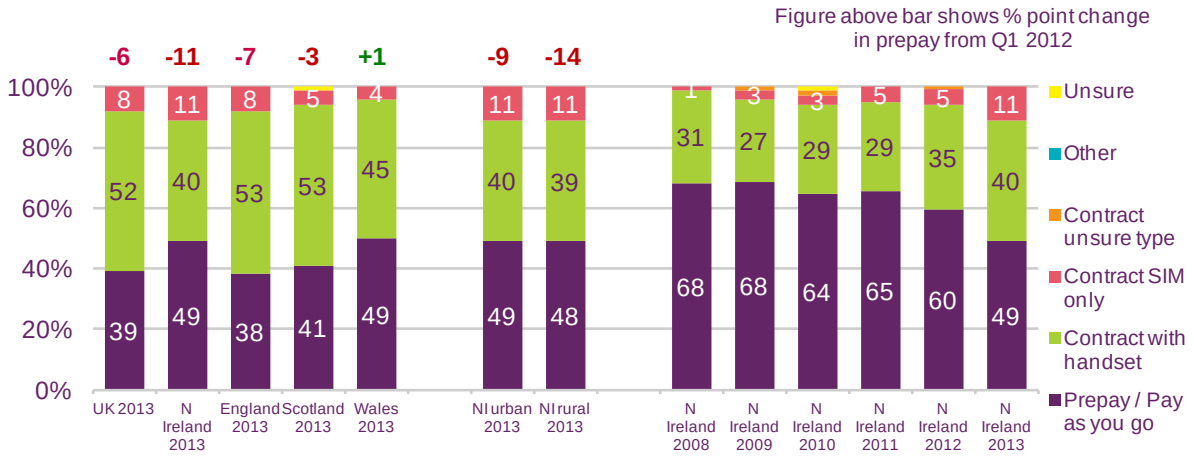


QD28A-B. Which, if any, of the following activities, other than making and receiving calls, do you use your mobile for?/ And, which of these activities have you used your mobile for in the last week? (NB 2008 and 2009 surveys did not cover use in past week – 2008 and 2009 measures show any use)
Source: Ofcom research, Q1 2013
Base: All adults aged 16+ (n = 3750 UK, 507 Northern Ireland, 2250 England, 501 Scotland, 492 Wales 254 Northern Ireland urban, 253 Northern Ireland rural, 629 Northern Ireland 2008, 652 Northern Ireland 2009, 761 Northern Ireland 2010, 511 Northern Ireland 2011, 508 Northern Ireland 2012, 507 Northern Ireland 2013)

Half of mobile consumers in Northern Ireland have a contract subscription

There was a significant fall in the proportion of mobile phone users in Northern Ireland who used pay-as-you-go tariffs in the year to Q1 2013, down from 60% to 49% (although this was still higher than the UK average of 39%). This shift of consumers from pre-pay to contract tariffs has occurred across the UK, and is likely to be linked to the increase in take-up of smartphones. A fifth of contract mobile users in Northern Ireland (21%) had a SIM-only tariff in Q1 2013, while 78% had a contract which included a mobile handset (Figure 5.10).

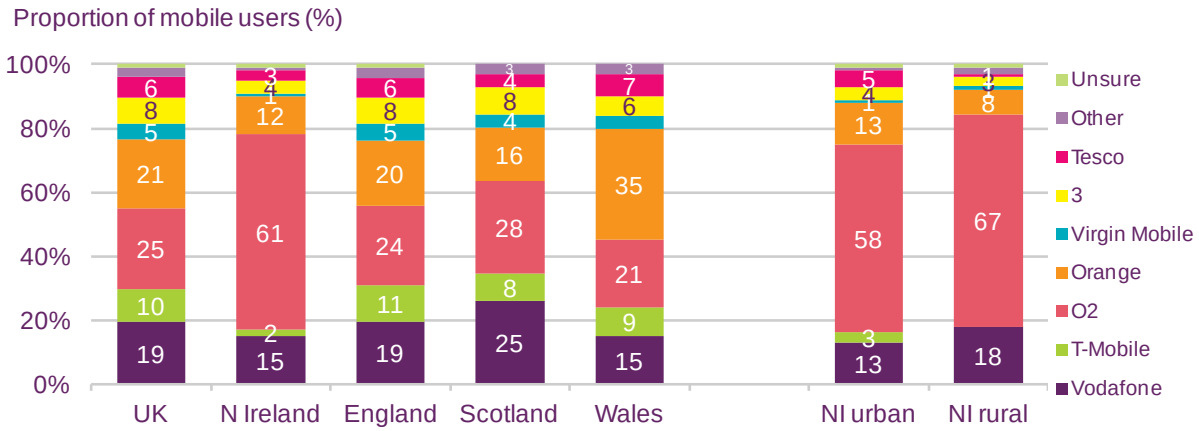
Figure 5.10 Type of mobile subscription



QD11. Which of these best describes the mobile package you personally use most often? (NB 2008 survey did not cover type of contract)
Source: Ofcom research, Q1 2013
Base: Adults aged 16+ who personally use a mobile phone (n = 3387 UK, 463 Northern Ireland, 2020 England, 464 Scotland, 440 Wales, 237 Northern Ireland urban, 226 Northern Ireland rural, 744 Northern Ireland 2008, 877 Northern Ireland 2009, 658 Northern Ireland 2010, 425 Northern Ireland 2011, 463 Northern Ireland 2012, 463 Northern Ireland 2013)
Six in ten mobile consumers in Northern Ireland are on the O2 network

As was the case in previous years, O2 had a high share of mobile consumers in Northern Ireland in Q1 2013, at 61% (rising to 67% of mobile consumers on this network in rural areas). While this was a seven percentage point fall from 2012, O2's share in Northern Ireland remains significantly above the UK average of 25% (Figure 5.11). Vodafone and Orange were the second and third most popular mobile networks, with a 15% and 12% share of mobile consumers in Northern Ireland respectively.

Figure 5.11 Mobile network provider used most often



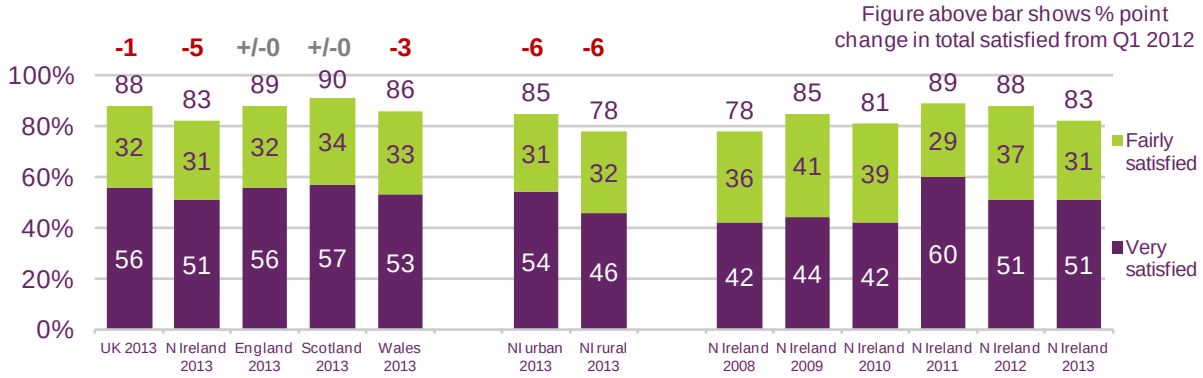
QD10. Which mobile network do you use most often?
Source: Ofcom research, Q1 2013
Base: Adults aged 16+ who personally use a mobile phone (n = 3387 UK, 463 Northern Ireland, 2020 England, 464 Scotland, 440 Wales, 237 Northern Ireland urban, 226 Northern Ireland rural)

5.5 Satisfaction with telecoms services

Satisfaction with mobile phone reception declined in the year to Q1 2013

Satisfaction with mobile phone reception in Northern Ireland dipped slightly in the year to Q1 2013, when it was among the lowest across the UK nations (Figure 5.12). Eighty-three per cent of mobile users in Northern Ireland described themselves as being 'very' or 'fairly' satisfied with their ability to access their mobile network in Q1 2013, down from 88% in Q1 2012. Levels of satisfaction were slightly higher in urban (85%) than in rural (78%) areas, probably due to better mobile infrastructure in urban centres. More information regarding consumer views and experiences of mobile reception issues and not-spots can be found in Section 1.3 of this report.

Figure 5.12 Satisfaction with mobile reception

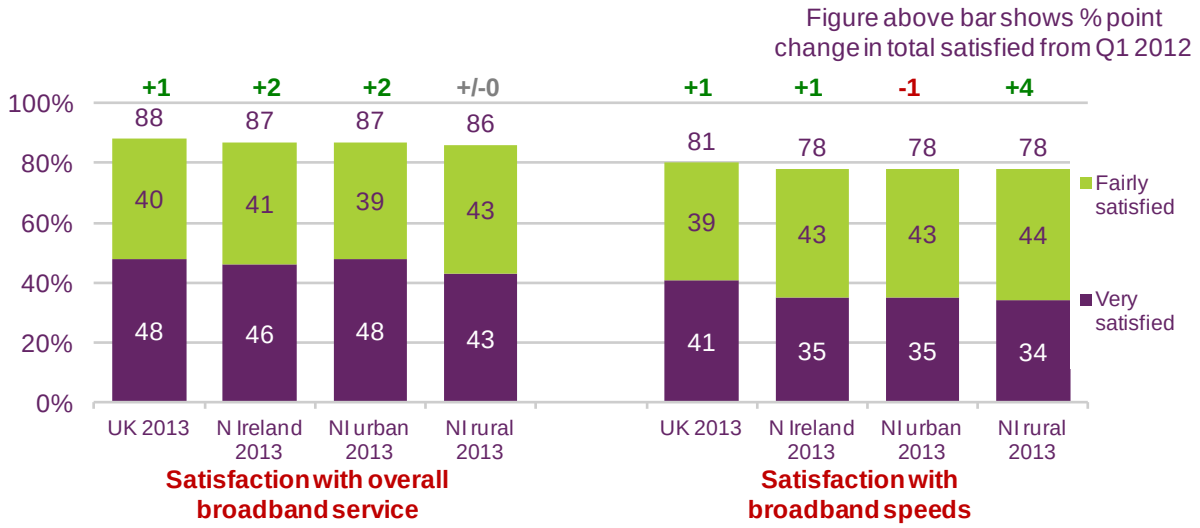


QD21c. Thinking about your mobile phone service only, how satisfied are you with (main supplier) for reception/ accessing network?
Source: Ofcom research, Q1 2013
Base: Adults aged 16+ who personally use a mobile phone (n = 3387 UK, 463 Northern Ireland, 2020 England, 464 Scotland, 440 Wales, 237 Northern Ireland urban, 226 Northern Ireland rural, 744 Northern Ireland 2008, 877 Northern Ireland 2009, 658 Northern Ireland 2010, 425 Northern Ireland 2011, 463 Northern Ireland 2012, 463 Northern Ireland 2013)
Note: Figures above chart columns indicate the proportion of people who were 'very' or 'fairly' satisfied with their mobile reception
The findings presented in Section 1.3 of this report are from a different source of consumer research to this chart.

Nearly nine in ten fixed broadband users in Northern Ireland are satisfied with their service

Overall satisfaction with fixed broadband services and satisfaction with fixed broadband speeds remained relatively stable in Northern Ireland, at 87% and 78% respectively in the year to Q1 2013 (Figure 5.13). Satisfaction levels were similar across rural and urban areas, although a smaller proportion of consumers across Northern Ireland as a whole said that they were 'very' satisfied with their fixed broadband speeds in Q1 2013 (35%) than had done in Q1 2012 (44%). As was the case across the rest of the UK, most broadband users in Northern Ireland (72%) were unaware of the advertised speed of their connection, and three-quarters (77%) were unaware of its actual speed.

Figure 5.13 Satisfaction with fixed broadband service and fixed broadband speeds



QE8b. Thinking about your fixed broadband internet service, how satisfied are you with (main supplier) for the overall service/ for the speed of your service while online (not just the connection)?
Source: Ofcom research, Q1 2013
Base: Adults aged 16+ with a fixed broadband connection at home (n = 2548 UK, 351 Northern Ireland, 1562 England, 341 Scotland, 294 Wales, 173 Northern Ireland urban, 178 Northern Ireland rural, 319 Northern Ireland 2008, 388 Northern Ireland 2009, 469 Northern Ireland 2010, 335 Northern Ireland 2011, 331 Northern Ireland 2012, 351 Northern Ireland 2013)
Note: Figures above chart columns indicate the proportion of people who were 'very' or 'fairly' satisfied with their speed of service while online