

4 Telecoms and networks

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Superfast Cymru is a Welsh Government intervention to provide superfast broadband connectivity to those areas in Wales where the market has demonstrably failed to provide it.

4.1 Recent developments in Wales

Superfast Cymru

Deployment began in January 2013 and is expected to deliver coverage to around 720,000 premises, from a maximum intervention area encompassing about 765,000 premises across Wales, by the time the project ends in December 2017.

BT is using two technologies, fibre-to-the-cabinet (FTTC) and fibre-to-the-premises (FTTP), to deliver the Welsh Government's requirement for superfast broadband access, capable of at least 30Mbit/s to 90% of the intervention area.

To date, over 647,487 homes and businesses in Wales have been given access to fast fibre broadband as a result of the Superfast Cymru project. These are premises that would not have otherwise been covered by commercially-driven roll-outs.

An open market review is under way to establish exactly where superfast broadband is available, property by property. This will inform a further Welsh Government intervention, anticipated to deliver from 2018 onwards and backed by £80m of public funding¹.

This further investment in extending broadband reach is expected to use additional private sector match-funding to maximise the opportunity to extend broadband coverage to the hardest-to-reach premises across Wales by 2020.

Additionally, the Welsh Government appointed Airband to deliver a superfast service to business parks and industrial estates across North and South Wales, and areas where fibre was not available or broadband speeds were poor. This project is now complete; it covers over 2,000 business and industrial premises in North and South Wales.

Access Broadband Cymru

Access Broadband Cymru funds (or part-funds) the installation costs of new broadband connections for homes and businesses in Wales, delivering a step-change in download speeds.

There are two levels of funding, depending on the speed required; £400 for download speeds between 10Mbit/s and 20Mbit/s, and £800 for download speeds of 30Mbit/s and above.

The scheme is technology-neutral, using a range of technologies including satellite and wireless to deliver superfast speeds and/or speeds at least double current download speeds.

¹ <http://gov.wales/newsroom/science-and-technology/2016/161107-up-to-80m-investment-for-next-stage-superfast-scheme/?lang=en>

Ultrafast Connectivity voucher scheme

The Ultrafast Connectivity voucher scheme is available to businesses across Wales to help meet the initial capital costs incurred in installing ultrafast broadband services. For the purpose of the scheme,

ultrafast is defined as greater than 100Mbit/s downstream, and greater than 30Mbit/s upstream. The maximum grant available is £10,000. It provides 100% funding for the first £3,000

and 50% between £3,000 and £17,000. The business is expected to match-fund the remaining 50% and any costs above £17,000.

Mobile summit

In January 2017, Ofcom convened a meeting at its office in Wales, bringing together politicians, mobile network operators, farmers' unions and residents from across Wales, to discuss the barriers to improving

mobile coverage in Wales. The ambition to convene a summit was initiated by the Parliamentary Under-Secretary of State for Wales, Guto Bebb MP, during an Ofcom Wales event at the Royal

Welsh Agricultural Show in 2016. Residents from Tregroes in West Wales shared their experiences of living with poor connectivity.

Welsh Government mobile action plan

The Minister for Skills and Science, Julie James AM, hosted a round-table meeting of industry representatives in January to discuss enhancing mobile coverage and capacity. The Welsh Government intends to produce a mobile action plan for improving mobile connectivity in Wales, and to provide a road map to achieving it.

The action plan is based on addressing nine key areas with a stated and agreed set of actions:

1. planning;
2. public assets;
3. non-domestic rates;
4. regulation;
5. innovation;

6. infill solutions;
7. transport routes;
8. ESMCP (emergency services mobile communications programme); and
9. emerging technologies.

The mobile action plan will be published shortly.

National Infrastructure Commission for Wales

Following a public consultation which ended in January 2017, and a subsequent inquiry conducted by the Economy, Infrastructure and Skills Committee, the Welsh Government Cabinet Secretary for Economy and Infrastructure, Ken Skates, announced the

establishment of a National Infrastructure Commission for Wales. He said that the purpose of the commission was to help create a better informed, longer-term investment strategy by providing the government with independent and expert advice on strategic

infrastructure needs and priorities. The Government will run a public appointments exercise for the commission's chair and members in early autumn, in order to set up the commission by the end of the year.

4.2 Service take-up

Take-up of communication services in Wales was in line with UK averages in 2017

Take-up of landline, mobile and broadband services in Wales were broadly consistent with levels in the UK as a whole in 2017. In previous years, there had been differences between Wales and the UK as a whole in levels of smartphone and tablet ownership.

In 2017, however, adults in Wales were as likely as the UK average to have a tablet computer in their household and to personally use a smartphone.

Adults in Wales are less likely than those in the UK as a whole to use a mobile phone to access the internet (58% vs. 66%).

There are two significant differences in service and device take-up between urban and rural areas of Wales. Adults in urban areas are more likely than those in rural areas to personally use a mobile phone (95% vs. 90% rural), while those in rural areas are more likely to have a landline phone in the household (88% vs. 78% urban).

Figure 4.1: Take-up of communications services: 2017

		UK	Wales	England	Scotland	N Ireland	Wales urban	Wales rural
Voice telephony	Landline (H)	82%	80%	82%	81%	84%	78%	88% ↑
	Mobile phone (P)	94%	94%	95%	90%	94%	95% ↑	90%
	Smartphone (P)	76%	74%	77%	70%	76%	76%	69%
Internet	Computer (any type) (H)	84%	81%	85%	75%	80%	82%	81%
	Tablet computer (H)	58%	61%	58%	56%	62%	62%	57%
	Total Internet (H)	88%	84%	89%	77%	83%	85%	83%
	Total Broadband (H)	83%	79%	84%	73%	79%	78%	81%
	Fixed Broadband (H)	82%	78%	83%	72%	79%	77%	81%
	Mobile Broadband (H)	2%	1%	2%	2%	1%	1%	1%
	Use internet on mobile (P)	66%	58% ↓	68%	57%	68%	58%	57%

Source: Ofcom Technology Tracker, H1 2017

Notes: 1 Households with an internet connection of any description; 2 Households with a fixed broadband and/or dedicated mobile broadband (dongle/SIM) data connection (excludes households that solely use a mobile handset/s to access the internet); 3 Households that use a dedicated mobile broadband (dongle/SIM) data connection to access the internet (excludes households that solely use a mobile handset/s to access the internet); 4 Households that use a mobile handset/s to access the internet (may also have any other type of internet access).

Base: All adults aged 16+ (n = 3743 UK, 495 Wales, 2245 England, 510 Scotland, 493 Northern Ireland, 249 Wales urban, 246 Wales rural)

Significance testing: Arrows indicate any significant differences at the 95% confidence level between Wales and UK in 2017 and between Wales urban and rural in 2017.

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?/ **QD4:** Do you personally use a smartphone?/ **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?/ **QD28A:** Which if any, of the following activities, other than making and receiving voice calls, do you use your mobile for?

Total broadband take-up has remained unchanged in Wales since last year

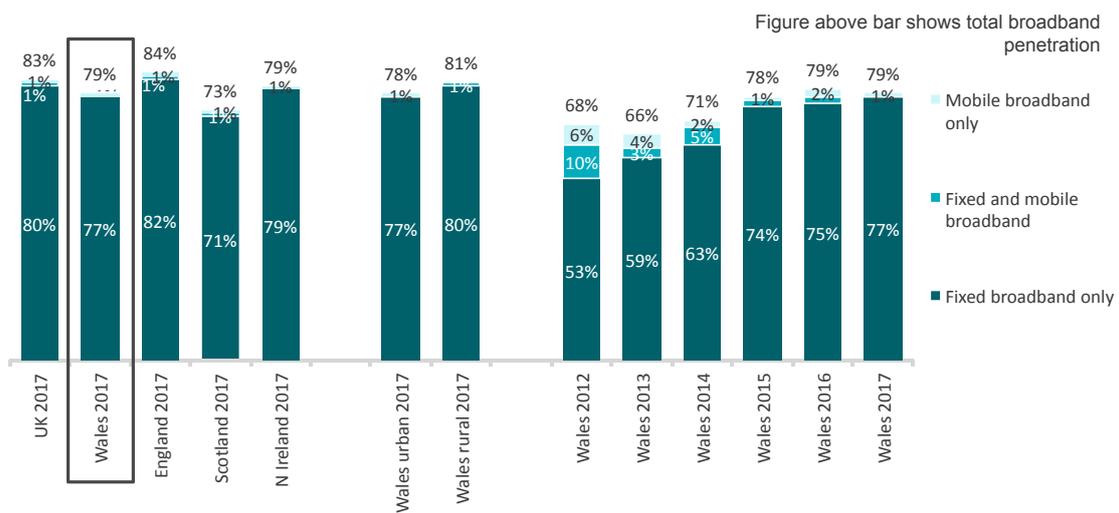
Mobile broadband
 Various types of wireless high-speed internet access through a portable modem, telephone or other device.

As shown in Figure 1.2, total broadband take-up for households in Wales (79%) is consistent with that for the UK as a whole, with no change in Wales since 2016.

The proportion of households in Wales using solely a fixed broadband service in 2016 was also in line with the rest of the UK (77% and 80% respectively).

This proportion has remained stable in recent years. There was also no difference between urban and rural areas in the take-up of broadband by connection type.

Figure 4.2: Overall household broadband take-up, by connection type



Source: Ofcom Technology Tracker, Half 1 2017

Base: All adults aged 16+ (n = 3743 UK, 495 Wales, 2245 England, 510 Scotland, 493 Northern Ireland, 249 Wales urban, 246 Wales rural, 513 Wales 2012, 492 Wales 2013, 491 Wales 2014, 496 Wales 2015, 289 Wales 2016, 495 Wales 2017)

Significance testing: Arrows indicate any significant differences at the 95% confidence level between Wales and UK in 2017, between Wales urban and rural in 2017 and at the 99% confidence level between Wales 2016 and 2017.

QE9: Which of these methods does your household use to connect to the internet at home?

Broadband take-up in Wales is unchanged across each demographic group

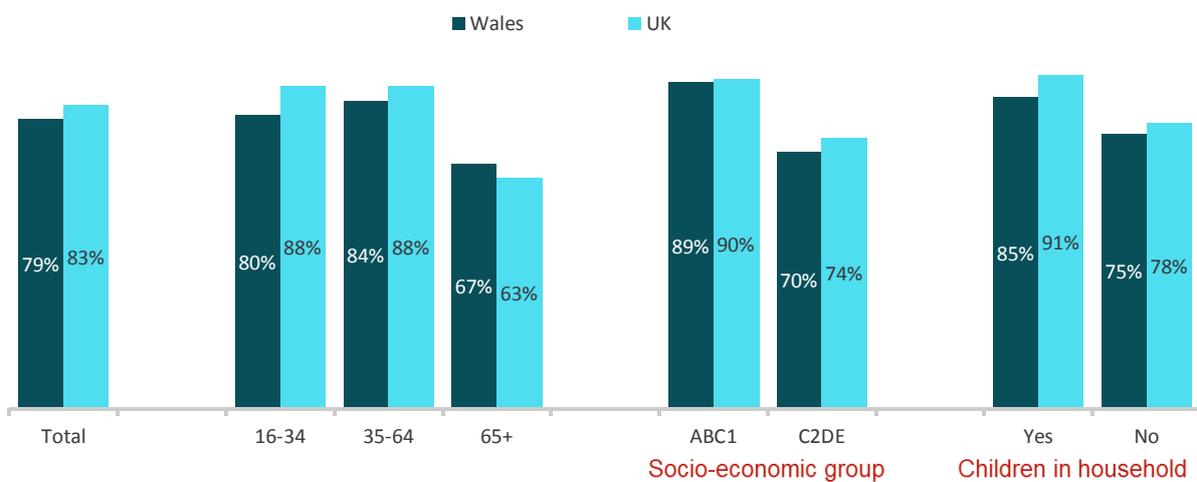
As shown in Figure 1.3, there was no significant difference between broadband take-up¹ in Wales and in the UK as a whole in 2017 (79% and 83% respectively). There were also no significant differences between Wales and the

UK for the different demographic groups shown in the chart.

However, within Wales, as within the UK as a whole, there were differences in broadband take-up by age, socio-economic group and household income.

Adults aged 65 and over were less likely than younger age groups to have broadband (63% vs. 88%), and take-up was higher among ABC1 adults (90%) than among those in the C2DE socio-economic groups (74%).

Figure 4.3: Overall household broadband take-up in Wales, by demographic



Source: Ofcom Technology Tracker, Half 1 2017

Base: All adults aged 16+ (n =495 Wales, 130 16-34s, 238 35-64s, 127 65+, 259 ABC1, 236 C2DE, 159 children in home, 336 no children in home)

Significance testing: Arrows indicate any significant differences at the 95% confidence level between Wales and UK in 2017 for each measure.

QE9: Which of these methods does your household use to connect to the internet at home?

¹ This figure includes fixed and dedicated mobile broadband (via dongle/SIM) access but excludes access on mobile handsets.

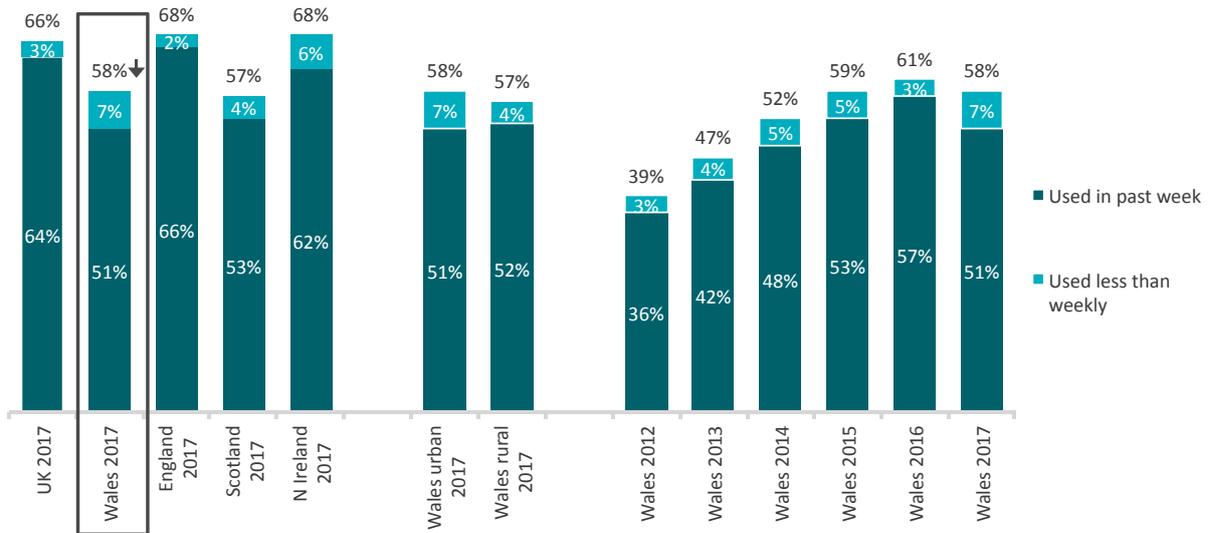
Six in ten adults in Wales report using the internet on their mobile phone at least weekly

Around six in ten adults in Wales (58%) said they had used their mobile phone to access the internet in 2017, with most of this group saying they had done so in the

previous week (51% of all adults). Although the figures for Wales were largely unchanged since 2016, they were significantly lower than those for the UK as a whole

(66%). In 2017, adults in rural Wales were as likely as those in urban areas to say they had used their mobile phone to go online.

Figure 4.4: Proportion of adults who use a mobile phone to access the internet



Source: Ofcom Technology Tracker, Half 1 2017

Base: All adults aged 16+ (n = 3743 UK, 495 Wales, 2245 England, 510 Scotland, 493 Northern Ireland, 249 Wales urban, 246 Wales rural, 513 Wales 2012, 492 Wales 2013, 491 Wales 2014, 496 Wales 2015, 289 Wales 2016, 495 Wales 2017)

Significance testing: Arrows indicate any significant differences at the 95% confidence level between Wales and UK in 2017, between Wales urban and rural in 2017 and at the 99% confidence level between Wales 2016 and 2017.

QD28A: Which, if any, of the following activities, other than making and receiving calls, do you use your mobile for? **QD28B:** And, which of these activities have you used your mobile for in the last week?

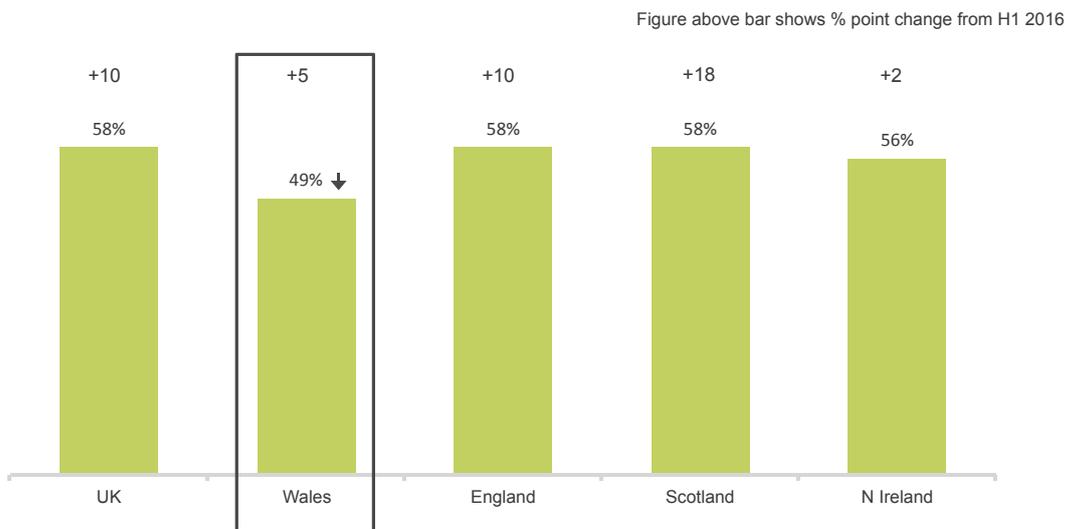
The proportion of 4G users in Wales is below the UK average

Nearly half (49%) of adults in Wales reported that they had a 4G mobile service in 2017, this was not a significant change from 2016. The proportion of 4G users across the UK as a whole has increased since 2016 (up 10 percentage points).

As a result, the measure for Wales in 2017 is below the UK average (58%). Data usage figures from Ofcom’s 2016 Connected Nations report¹ are similar but show a slightly higher usage of 4G services.

In Wales, 51% of mobile data was delivered by the 4G network. This was lower than the UK average of 60%.

Figure 4.5: 4G take-up, by nation



Source: Ofcom Technology Tracker, Half 1 2017

Base: All adults aged 16+ (n = 3743 UK, 495 Wales, 2245 England, 510 Scotland, 493 Northern Ireland)

Significance testing: Arrows indicate any significant differences at the 95% confidence level between Wales and UK in 2017. A circle around the +/- figure above the chart indicates any significant difference at the 99% confidence level between 2016 and 2017 for Scotland.

QD41. Do you have a 4G service? This is a service that enables faster mobile internet access

¹ <https://www.ofcom.org.uk/research-and-data/multi-sector-research/infrastructure-research/connected-nations-2016>

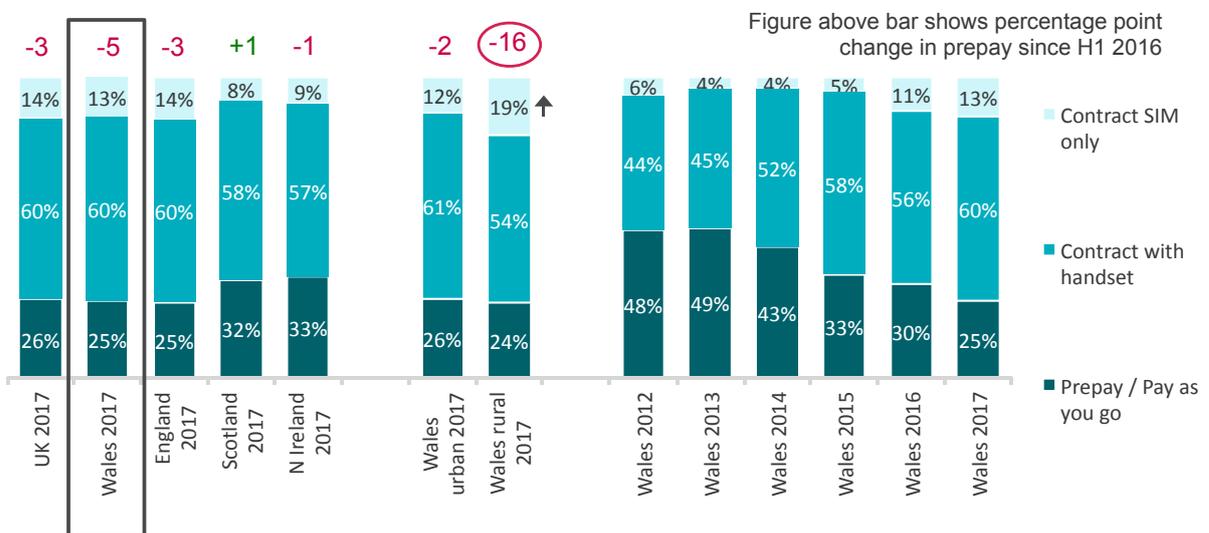
Types of mobile subscriptions used in Wales are in line with UK averages and are unchanged since 2016

In 2017, 60% mobile users in Wales said they ‘most often’ used a pay-monthly contract package with handset, while a quarter used a pre-pay phone and 13% had a SIM-only contract, each in line with the UK averages and each unchanged since 2016.

In 2017, mobile users in rural areas were more likely than those in urban areas to say they mostly used a SIM-only service (19% vs. 12%), with no other significant differences in type of mobile phone package by location.

Compared to 2016, mobile users in rural areas of Wales were less likely to use a pre-pay phone (down 16 percentage points to 24%).

Figure 4.6: Type of mobile subscription



Source: Ofcom Technology Tracker, Half 1 2017

Base: Adults aged 16+ who personally use a mobile phone (n = 3471 UK, 451 Wales, 2099 England, 464 Scotland, 457 Northern Ireland, 235 Wales urban, 216 Wales rural, 456 Wales 2012, 440 Wales 2013, 438 Wales 2014, 439 Wales 2015, 445 Wales 2016, 451 Wales 2017)

Significance testing: Arrows indicate any significant differences at the 95% confidence level between Wales and UK in 2017, between Wales urban and rural in 2017 and at the 99% confidence level between Wales 2016 and 2017. Circles around the +/- figures above the chart indicate any significant difference at the 99% confidence level between 2016 and 2017 for Wales, urban and rural.

QD11: Which of these best describes the mobile package you personally use most often?

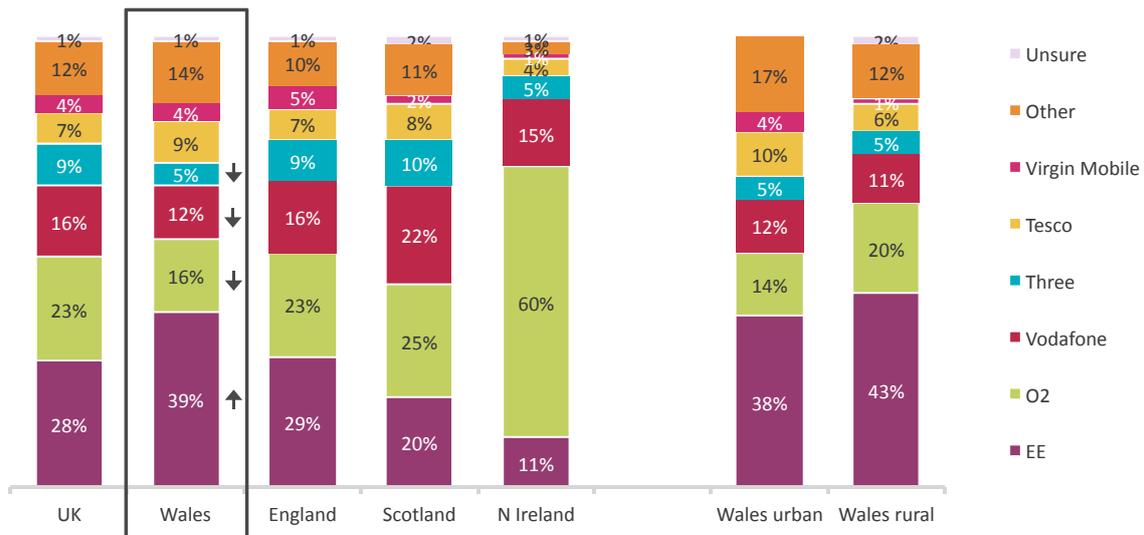
Respondents in Wales say that EE is the mobile network provider they use most often

Two-fifths (39%) of mobile users in Wales said EE was the network they used most often, compared to 28% across the UK as a whole.

In Wales this was followed by O2 (16%) and Vodafone (12%), although mobile users in Wales were less likely than all UK mobile users to

use O2 (16% vs. 23%), Vodafone (12% vs. 16%) or Three (5% vs. 9%).

Figure 4.7: Mobile network provider used ‘most often’



Source: Ofcom Technology Tracker, Half 1 2017

Base: Adults aged 16+ who personally use a mobile phone (n = 3471 UK, 451 Wales, 2099 England, 464 Scotland, 457 Northern Ireland, 235 Wales urban, 216 Wales rural)

Significance testing: Arrows indicate any significant differences at the 95% confidence level between Wales and UK in 2017 and between Wales urban and rural in 2017.

QD10: Which mobile network do you use most often?

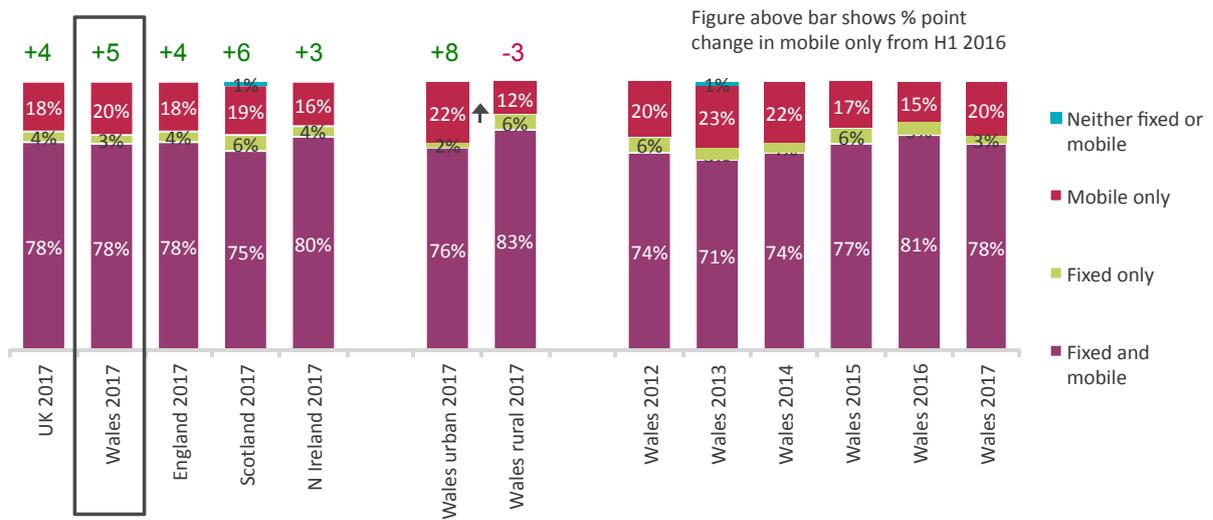
The proportion of households which are mobile-only in Wales remained unchanged since 2016, and is in line with the UK average

Four in five households in Wales (78%) had both fixed and mobile telephony services in 2017. Three per cent of households had access to a fixed line only, and 20% only had access to a mobile phone.

There were no significant changes in any of these figures since 2016 and no differences between Wales and the UK as a whole.

Adults in urban areas of Wales were more likely than those in rural areas to only have access to a mobile phone (22% vs. 12%).

Figure 4.8: Cross-ownership of household telephony services



Source: Ofcom Technology Tracker, Half 1 2017

Base: All adults aged 16+ (n = 3743 UK, 495 Wales, 2245 England, 510 Scotland, 493 Northern Ireland, 249 Wales urban, 246 Wales rural, 513 Wales 2012, 492 Wales 2013, 491 Wales 2014, 496 Wales 2015, 289 Wales 2016, 495 Wales 2017)

Significance testing: Arrows indicate any significant differences at the 95% confidence level between Wales and UK in 2017, between Wales urban and rural in 2017 and at the 99% confidence level between Wales 2016 and 2017. Circles around the +/- figures above the chart indicate any significant difference at the 99% confidence level between 2016 and 2017 for Wales, urban and rural.

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?

4.3 Satisfaction with telecoms services

Rural internet users in Wales are less likely than those in urban areas to be satisfied with fixed broadband speeds and with the service overall

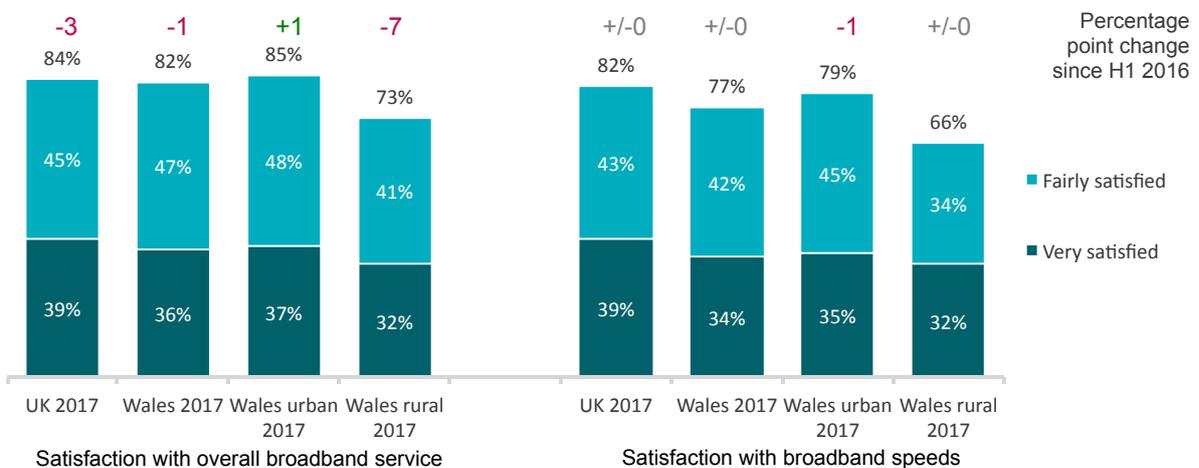
More than eight in ten broadband users in Wales (82%) were either 'very' or 'fairly' satisfied with their overall broadband service in 2017.

This figure is comparable to the UK as a whole (84%). The proportion of broadband users who were either 'very' or 'fairly' dissatisfied with the overall service in Wales was also comparable to the UK as a whole (10% vs. 8% in the UK). Compared to a year ago, there was no significant change in overall levels of satisfaction with fixed broadband services in Wales, or in the UK overall.

Satisfaction with fixed broadband speeds in Wales was comparable to the UK as a whole, with no significant change between 2016 and 2017.

Rural users in Wales were more likely to be dissatisfied than urban users with both their overall broadband service (17% vs. 8%) and with their broadband speed (24% vs. 11%).

Figure 4.9: Satisfaction with overall service and speed of fixed broadband connection



Source: Ofcom Technology Tracker, Half 1 2017

Base: Adults aged 16+ with a fixed broadband connection at home (n = 2928 UK, 383 Wales, 189 Wales urban, 194 Wales rural)

QE8A/B: 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)?

Significance testing: Arrows indicate any significant differences at the 95% confidence level between Wales and UK in 2017 and between Wales urban and rural in 2017

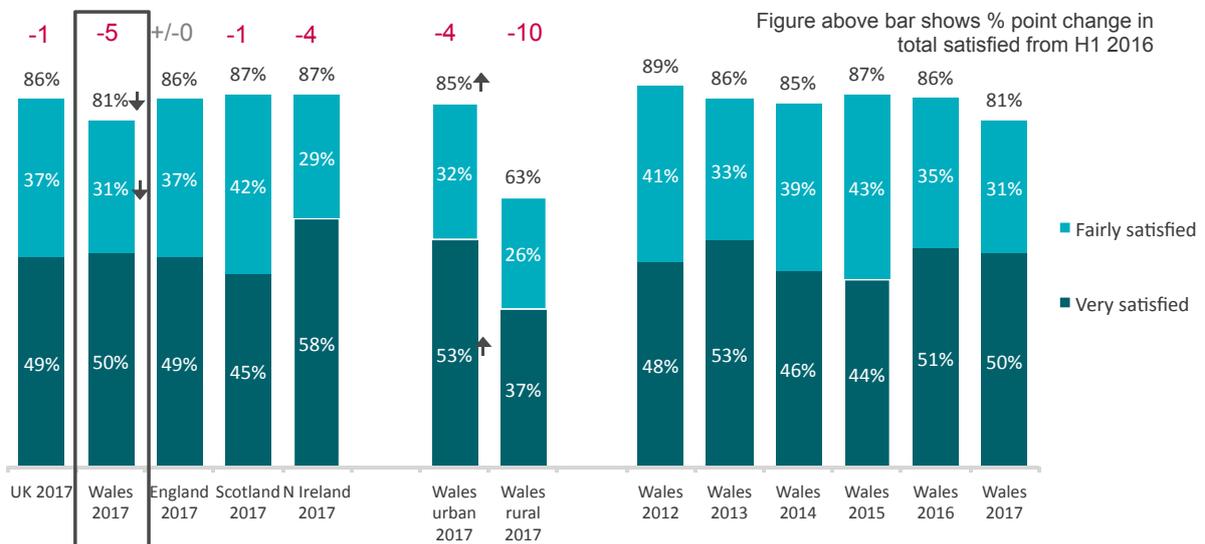
Two-thirds of mobile phone users in rural areas in Wales are satisfied with their mobile phone reception

Eight in ten (81%) mobile phone users in Wales were ‘very’ or ‘fairly’ satisfied with their mobile phone reception in 2017.

This was lower among users in Wales than in the UK as a whole (81% vs. 86%) and was not a significant change from 2016.

As in 2016, users in urban areas were more likely than those in rural areas to say they were satisfied with their mobile reception (85% vs. 63%).

Figure 4.10: Satisfaction with reception of mobile service



Source: Ofcom Technology Tracker, Half 1 2017

Base: Adults aged 16+ who personally use a mobile phone (n = 3471 UK, 451 Wales, 2099 England, 464 Scotland, 457 Northern Ireland, 235 Wales urban, 216 Wales rural, 456 Wales 2012, 440 Wales 2013, 438 Wales 2014, 439 Wales 2015, 445 Wales 2016, 451 Wales 2017)

Significance testing: Arrows indicate any significant differences at the 95% confidence level between Wales and UK in 2017 and between Wales urban and rural in 2017. QD21J: Thinking about your mobile phone service only, how satisfied are you with (main supplier) for reception/ accessing network?

4.4 Consumer experience of mobile data services

New research methodology to capture consumers’ experience of mobile services

In 2016 Ofcom piloted a new methodology to measure the consumer experience of using mobile services across the UK. This

approach involves establishing a panel of UK consumers who install an Ofcom-branded research app on their Android smartphone. The

app, provided by our technical partner P3, passively measures the experience of using mobile services as panellists use their phone.

Data service availability for 4G Android users in Wales is comparable to the UK average

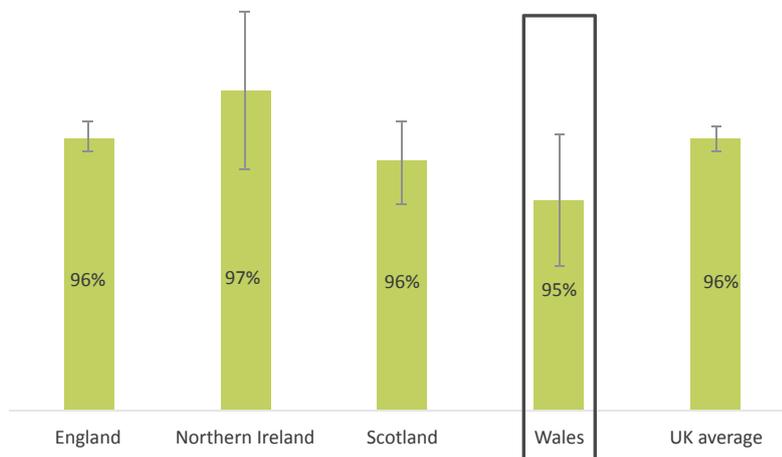
The app records whether people can use their data service when they want to. This is measured by running an automated test, which attempts to download a small file and logs whether this can be done successfully, every 15 minutes.

This metric defines the percentage of cases when the user is able to both connect to the network and download data.

Figure 1.11 shows data service availability for 4G users (4G users are those who have a 4G tariff and a 4G-enabled mobile phone).

Overall, on around 96% of occasions, users were able to access a mobile network (either 2G, 3G or 4G technology) and successfully download data. The confidence intervals (showing the range of values in which the true average will sit) for each nation overlap, and this therefore shows no difference between Wales (95%) and the overall UK average.

Figure 4.11: Data service availability for 4G users



Source: Ofcom mobile research app data 2016

Base sizes: England (1,915) Northern Ireland (110) Scotland (290) Wales (242)

Please note: The line within each bar shows the 95% confidence interval around the average

4.5 Welsh towns: telecommunications services

4.5.1 Methodology

To explore variations between how Welsh towns experience telecommunications services, Ofcom commissioned data from the British Population Survey. This survey interviewed 3,633 adults aged 18+ in Wales between April 2016 and March 2017.

For the purposes of this research, a town was defined as a settlement

with a population of more than 10,000 people. The towns in this category (sample size in brackets) were: Blackwood (94), Cardiff (240), Cwmbran (453), Llanelli (79), Methyr Tydfil (82), Newport (151), Swansea (135), and Wrexham (164).

Not all questions were asked of all respondents. Therefore, for some questions, it was not

possible to produce analysis for every town. All significance testing by town was compared to settlements of more than 10,000 people in Wales as whole.

The analysis looked at take-up of landline, mobile telephony, fixed broadband and smartphone internet access. It also looks at use of internet services, where possible.

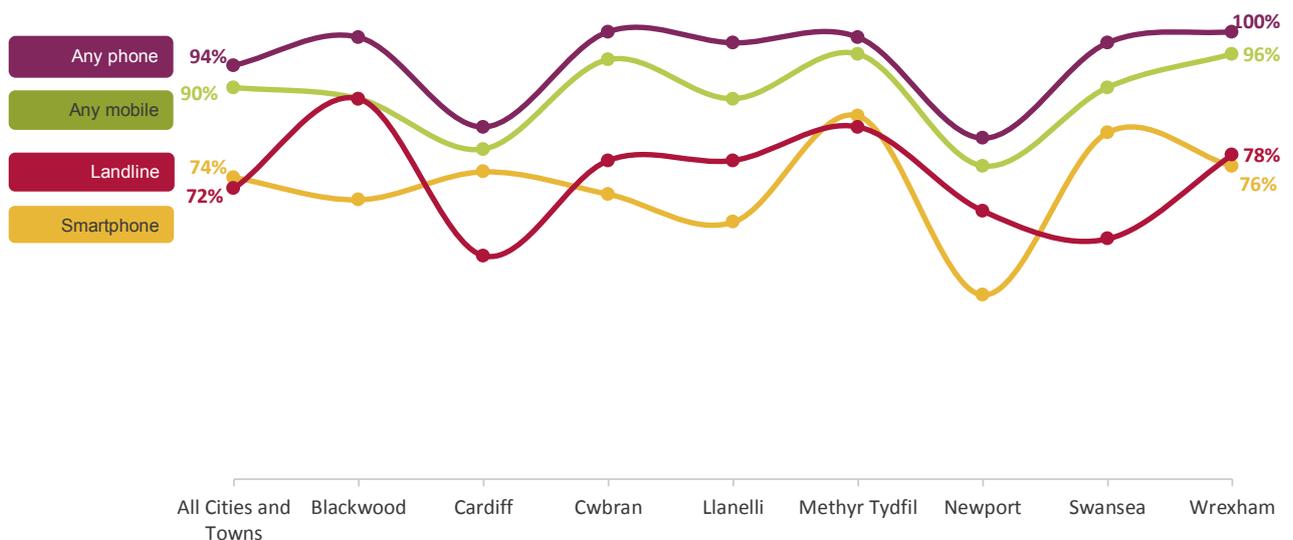
4.5.2 Take-up of landline, mobile and internet services

Across Welsh towns and cities, 94% of respondents have access to either a mobile or a landline phone. This is lower in Cardiff and Newport (83% and 81% respectively). Across all cities and towns, mobile access has overtaken landline access, although landline access is significantly higher in Blackwood (88%), Merthyr Tydfil (83%) and Cwmbran (77%).

Smartphone access is highest in Merthyr Tydfil and Swansea (85% and 82% respectively). Although around 95% of people in both Cwmbran and Wrexham have a mobile device, significantly higher than nearly all of towns and cities (excluding Methyr Tydfil), they have a higher proportion of devices that are not smartphones.

Roughly a quarter of people in each of these cities has only a simple mobile phone. There are relatively few simple mobile phones in Cardiff – nearly all of those people who have a mobile have a smartphone.

Figure 4.12: Use of landline and mobile services



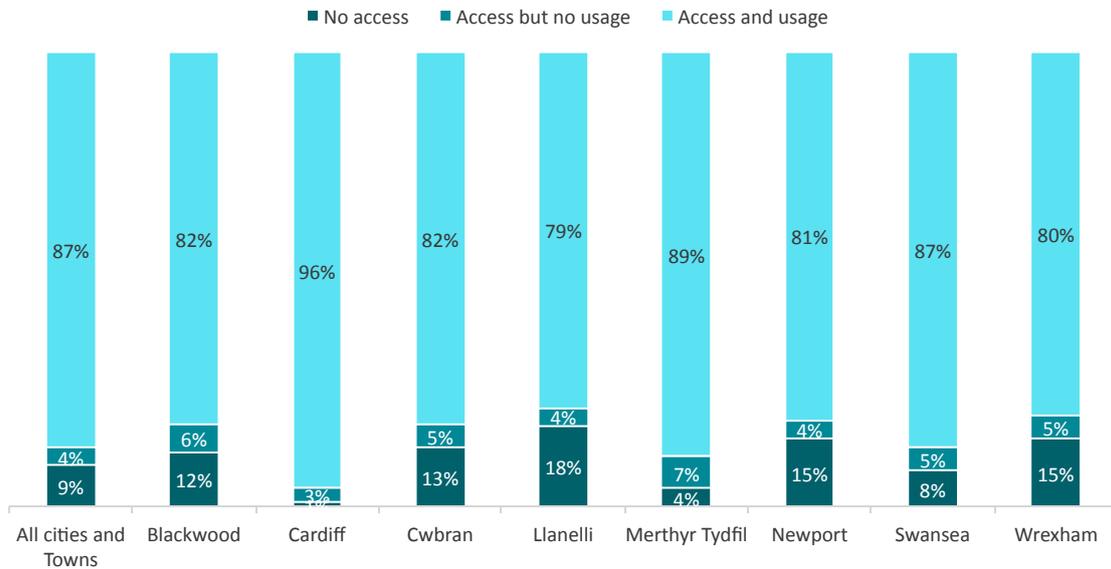
Source: The British Population Survey, April 2016 to March 2017 – all Welsh towns and cities 1357; Blackwood 94, Cardiff 240, Cwmbran 453, Llanelli 79, Methyr Tydfil 82, Newport 151, Swansea 135 and Wrexham 164.

Access to the internet is high across towns and cities in Wales; 89% of people use the internet

and 91% have access to it. Llanelli and Newport have the lowest proportion of people with access

to the internet – this may be linked to the relatively high numbers of retired people within these towns.

Figure 4.13: Access to and use of the internet



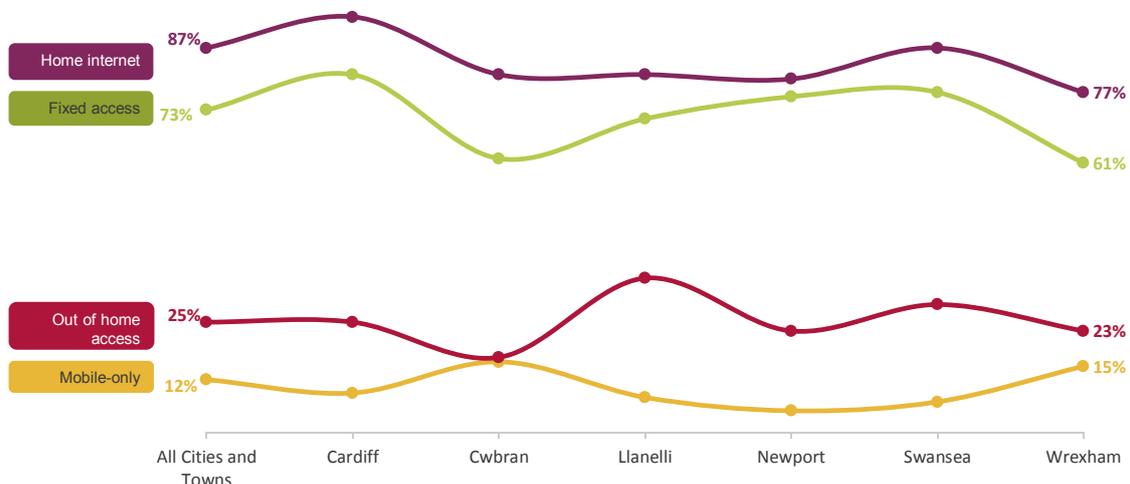
Source: The British Population Survey, April 2016 to March 2017 – all Welsh towns and cities 1357; Blackwood 94, Cardiff 240, Cwmbran 453, Llanelli 79, Merthyr Tydfil 82, Newport 151, Swansea 135 and Wrexham 164.

Across all Welsh towns and cities, 87% of people with access to the internet can access it at home or via a mobile device. This increases

to 94% in Cardiff and falls to 77% in Wrexham and 81% in Cwmbran. In both these towns, about 15%

of people are dependent on their mobile device for internet access; this is a significantly higher proportion than in Cardiff.

Figure 4.14: Access to the internet, by location



Source: The British Population Survey, April 2016 to March 2017 – all Welsh towns and cities 854; Cardiff 211, Cwmbran 278, Llanelli 72, Newport 66, Swansea 83 and Wrexham 113.

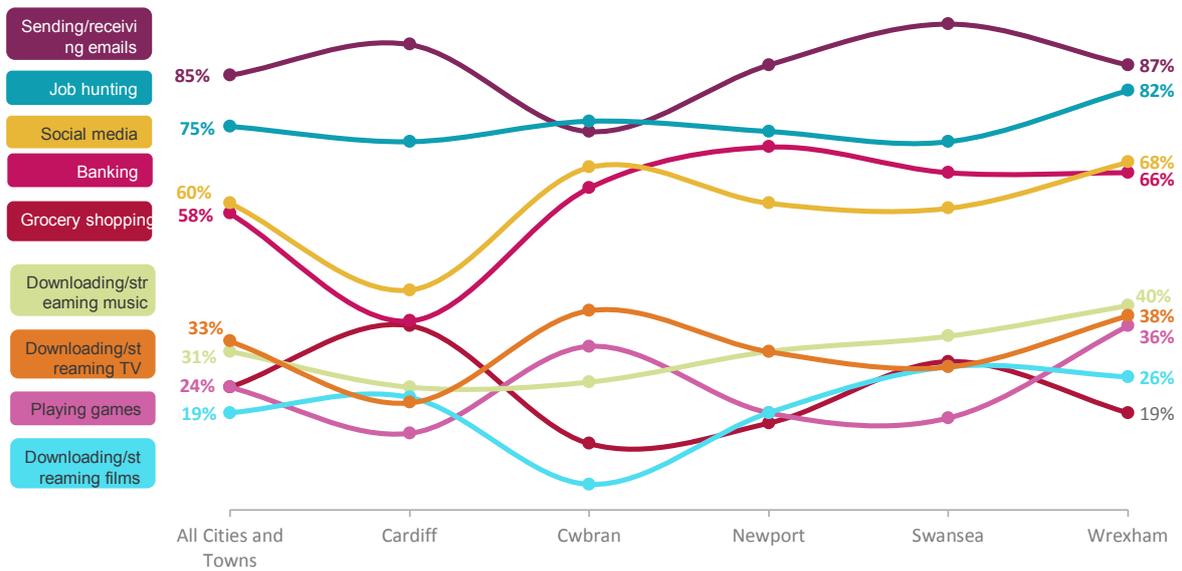
4.5.3 Use of the internet

Among people who use the internet, there are some differences by town in how they use it. People in Cwmbran appear to have a more entertainment-focused approach to the internet, and use it more than

those in other towns for playing games and social networking. Similarly, people in Wrexham access the internet significantly more for playing games and downloading music than those in other towns.

In contrast, a greater proportion of people in Cardiff send emails and purchase groceries, but fewer do online banking, play games or do social networking than those in other towns.

Figure 4.15: Use of the internet, by service



Source: The British Population Survey, April 2016 to March 2017 – all Welsh towns and cities 1357; Blackwood 94, Cardiff 240, Cwmbran 453, Llanelli 79, Methyr Tydfil 82, Newport 151, Swansea 135 and Wrexham 164.

4.6 Fixed-line broadband speeds

In order to monitor the performance of residential fixed broadband connections, Ofcom maintains a panel of broadband users whose connection speeds and other performance metrics are recorded by a hardware measurement unit connected to their broadband router.¹

This measurement unit reports the performance of the line in certain tests to Ofcom's technical partner

in the research, SamKnows Ltd, and these are then compiled into UK and devolved nation averages.

There is some availability of cable broadband services in rural areas of Wales: 14% of Welsh rural lines are provided using cable, while 65% use ADSL technology and the remaining 21% use fibre-to-the-cabinet. In urban areas, 16% of lines are cable, 59% ADSL and 25% fibre-to-the-cabinet.

We report on the availability of broadband by technology in Ofcom's *Connected Nations: Wales* report.²

The table below shows how average speed in Wales varies by technology and by urbanity. The three metrics provided are average download speed, average upload speed and how long it takes to download a generic page.

Figure 4.16: Average fixed broadband speeds by technology and urbanity, November 2016

	Wales	Urban	Rural
24 average download (Mbit/s)	32.81	38.41	13.58
ADSL	8.48	9.72	5.32
FTTC	42.27	43.25	38.92
Cable	115.11	115.11	
24 average upload (Mbit/s)	4.30	4.80	2.61
ADSL	0.78	0.84	0.61
FTTC	9.75	10.05	8.74
Cable	9.65	9.65	
24 average time to load webpage (milliseconds)	891	762	1334
ADSL	1275	1132	1643
FTTC	318	297	387
Cable	277	277	

Source: Ofcom, using data provided by SamKnows

In the November 2016 fixed broadband speeds analysis, there were 344 panellists who lived in Wales. Of these panellists, 32% (110) lived in cities and owns with more than 10,000 people, 43% lived in rural areas (148) and the remaining 25% (86) lived in smaller towns and villages.

¹ <https://www.ofcom.org.uk/research-and-data/telecoms-research/broadband-research/uk-home-broadband-performance-2016>

² https://www.ofcom.org.uk/_data/assets/pdf_file/0032/95882/CN16-Wales.pdf