Connected Nations

Summer update 2023

Welsh translation available

Report

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Section

Overview

This is the second interim update to our December 2022 annual Connected Nations report[1]. It is based on mobile coverage and fixed broadband availability across the UK as of April and May 2023.

Summary of key findings

- **Number of homes able to get gigabit-capable broadband is up** to almost 22.4 million homes (75% of all UK homes), up from 21.9 million (73%) since our last update.
- **Full fibre coverage, for the UK as a whole, has passed the halfway threshold for the first time up to** 52% from 48%, an increase of 4 percentage points in the four months between January 2023 and May 2023.
- **Superfast broadband coverage across the UK** overall remains at 97%, but with Northern Ireland seeing an increase of one percentage point to 97%.
- **The number of premises unable to get access to decent broadband**, when factoring in fixed wireless and fixed line networks, has dropped from 68,000 to 62,000 premises since our Spring 2023 report[2].
- **Mobile coverage remains stable** for 4G, with around 93% of the UK landmass predicted to have good outdoor 4G coverage from at least one operator, and this area includes nearly all of the premises in the UK.
- **5G coverage continues to edge forward steadily** with 85% of premises being able to get a 5G signal outdoors, from at least one mobile network operator (figures reported with a high degree of confidence).
- **The switch-off of the 3G network has started** and we recently produced specific data in the 3G "not-spots" file

As with previous updates, we have published an interactive report that has both the latest and historical data.

We have also used the data collected for this report to update our broadband and mobile coverage checker.

[1] https://www.ofcom.org.uk/research-and-data/multi-sector-research/infrastructure-research/connected-nations-2022
[2] https://www.ofcom.org.uk/research-and-data/multi-sector-research/infrastructure-research/spring-2023

Key findings – Fixed broadband

Gigabit-capable broadband: the availability of broadband capable of delivering gigabit[3] speeds for consumers continues to improve at a rapid pace, with nearly 22.4 million UK homes[4] (75%) now able to access these faster services, up from 21.9 million (73%) and an increase of 1.6 percentage points since our Spring 2023 update. This has been driven by the continued rollout of full fibre broadband.

Full fibre deployment: Over half of UK homes (15.4 million or 52%) now have access to full fibre services, an increase of 15 percentage points in one year and 4 percentage points since our Spring 2023 update. This is driven predominantly through deployments by the larger fibre infrastructure operators but supported by a number of smaller providers across the UK serving individual communities and regions. Some of these deployments benefit from a range of public sector funding schemes which we outline below.

Superfast broadband (download speeds of at least 30 Mbit/s): Superfast broadband rollout across the UK continues to grow although at a reduced pace (coverage remains at 97% of UK homes). This may be due to the additional difficulty in reaching the final 3% of properties, although more recent publicly funded schemes may improve this.

Decent broadband (at least 10 Mbit/s download and 1 Mbit/s upload speed): the vast majority of UK properties can access decent broadband. The number of properties (both residential and commercial) that cannot receive a decent broadband service from a fixed line stands at around 428,000 (1.3% of premises), having decreased from 433,000 since our Spring 2023 report[5].

Broadband services are also available from Fixed Wireless Access (FWA) networks, provided via mobile networks or through Wireless Internet Service Providers (WISPs). If managed well, FWA networks can deliver a decent broadband service, and can be used as an alternative network technology where consumers do not have access to a decent broadband connection over a fixed network. We continue to collect data from WISPs and based on the coverage reported by these providers, the percentage of premises able to receive a decent broadband service from a WISP has increased slightly to 8%. FWA coverage from mobile networks capable of providing decent broadband remains at 95% of premises.

Factoring in the coverage estimates provided by FWA providers, we estimate that at present there remain around 62,000 premises that do not have access to a decent broadband service from a fixed network or an FWA network. This has fallen from our estimate of 68,000 in our Spring 2023 report.

Of these, just over 50,000 premises are not expected to be covered by rollout of publicly funded schemes within the next twelve months, down from 54,000 in our Spring 2023 report. These premises may be eligible for the broadband Universal Service Obligation (USO) product subject to further checks and confirmation by the universal service providers (BT and KCOM).

The above figures show the availability of broadband services across the UK, and key figures are noted in the dashboards below; we shall report on take-up of broadband services in more detail in our annual Connected Nations report for 2023.

[3] Gigabit capable networks include full fibre networks as well as any network that is able to offer at least 1Gbit/s download speeds (such as the latest version of Virgin Media O2's cable network technology – DOCSIS 3.1).

[4] Note that we report on residential properties (homes) for full fibre, gigabit capable and superfast coverage, but report on both residential and commercial properties for 'decent' broadband.

[5] Connected Nations update - Spring 2023

Key findings – Mobile

We measure mobile coverage in a way that reflects the likely experience of people using their mobile phones[6]

There has not been a significant increase in coverage since our last update, but the industry continues to develop its coverage footprint.

4G: Coverage of 4G mobile networks across the UK has not seen significant changes over the last reporting periods. Around 93% of the UK landmass is predicted to have good outdoor 4G coverage from at least one operator, and this area includes nearly all of the premises in the UK. This is expected to rise to 95% by end of 2025 as a result of the SRN[7]. Coverage for both Scotland and Wales is currently significantly lower. Individual MNOs are committed to achieving between 85% and 88% coverage in Wales by 2027[8] under the UK Government's SRN investment, and between 82% and 85% in Scotland from a combination of this and Scotland's 4G infill programme. Since our last update the 4G coverage for in-vehicle road coverage has increased in Scotland to 67-81% across the range of MNOs.

4G not-spots: The UK has both geographic and road not-spots (that is, areas where good 4G services are not available from any mobile operator). Geographic not-spots have dropped slightly since our Spring 2023 report from 8% to 7%. Road coverage remains largely the same with just 4% of all roads estimated to be an in-vehicle not-spot. This varies significantly across individual nations, particularly in Scotland and also in Wales.

Calls and text coverage: Predicted coverage for calls and text services remains largely unchanged over the previous reporting periods. The range of predicted coverage by MNOs varies from 85-93% of the UK landmass, depending upon operator. In addition, 99% of all UK premises are predicted to have coverage for outdoor voice calls from all MNOs.

Calls/text not-spots: Areas where people are unable to make a call or send a text from any operator (not-spots) is similarly unchanged, with around 4% of the UK geography estimated as a not-spot, and around 2% of the UK's roads estimated to be a not-spot for calls and texts made or received in vehicle. As with 4G, there are marked variations for individual nations; for example, geographic not-spots across Scotland remain higher than for the rest of the UK, at around 10%.

5G: We continue to report on 5G coverage (outdoor premises) from 'All MNOs' and from 'At least one MNO', with coverage confidence levels ranging from high to very high. Coverage from 'At least one MNO' now ranges from 76% (very high confidence) to 85% (high confidence) of premises outdoors, up from 73% and 82% respectively when we reported in our Spring 2023 update.[9]

Schemes across the UK and Nations supporting broadband & mobile network deployment

The UK Government has an ambition to get gigabit broadband to at least 85% of premises by 2025 and over 99% by 2030. While the majority of the UK telecoms operators are expected to deliver gigabit broadband on a commercial basis, public schemes play an important part in connecting more remote, rural premises. The UK Government is investing £5 billion to build to hard-to-reach

[6] Detailed definitions are available in [Connected Nations 2022: Methodology (ofcom.org.uk)]
[7] [SN07069.pdf (parliament.uk)]
[8] This has been revised for 2026.
[9] We note that work to validate MNOs' new 5G predictions remains ongoing.

premises[10]. As of June 2023, the UK Government had launched 30 procurements totalling £1.4 billion, aiming to cover 895,000 premises.[11]

The UK Government targets for mobile include a target of 95% UK geographic coverage for 4G, and in April 2023 it published the Wireless Infrastructure Strategy[12] where it announced a new ambition for the UK to have nationwide coverage of standalone 5G to all populated areas by 2030.

The UK Government's **Gigabit Broadband Voucher Scheme** provides vouchers worth up to £4,500 for eligible customers to contribute towards the costs of installing gigabit-capable broadband. As of June 2023, 89,000 vouchers had been used to connected premises to gigabit-capable broadband, and a further 28,000 vouchers had been issued.[13]

England: Since our last Connected Nations publication in May 2023, the UK Government has announced the award of a further three contracts under Project Gigabit in Norfolk, Suffolk, and Hampshire which will deliver gigabit-capable broadband to 218,000 more rural homes.[14]

Scotland: The Scottish Government's Reaching 100% (R100) Programme[15] - with £641m of investment committed to date, including £49.5m from the UK Government - aims to enable superfast broadband connectivity (30Mbps) to all homes and businesses in Scotland.

The programme is separated into three strands of activity. The first strand is R100 contracts, delivered by Openreach, across three geographical areas (North, Central and South). Around 99% of the connections being delivered through these contracts are full-fibre, capable of delivering speeds of 1,000 Mbit/s.[16] The remaining strands of the R100 programme are the Scottish Broadband Voucher Scheme (SBVS) and commercial coverage.

Scottish Government data provided to Ofcom outlined that, as of 31 July 2023, over 27,400 premises have been connected through the R100 contracts. This represents around 24% of the approximately 114,000 premises which the R100 programme aims to connect by March 2028. Furthermore, as of 1 August 2023, over 3,300 premises – with a further 600 in the pipeline – have used the SBVS to improve their broadband connection.

The Scottish Government's 4G Infill Programme – a £28.75m initiative delivering 4G infrastructure and services across up to 55 remote and rural "not spots" in Scotland – is nearing completion.[17] As of July 2023, 54 mast sites have been built, of which 53 have already been activated. All 55 mast sites are scheduled to be completed and active by the end of this autumn.

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[10] https://www.gov.uk/government/news/government-launches-new-5bn-project-gigabitGovernment £5bn Gigabit programme

[11] UK Government, Project Gigabit progress update, June 2023, 30 June 2023.

[12] UK Wireless Infrastructure Strategy - GOV.UK (www.gov.uk)

[13] Project Gigabit progress update, June 2023

[14] Major broadband boost for 218,000 rural homes and businesses in Norfolk, Suffolk and Hampshire

[15] Digital Scotland, *About R100*, https://www.scotlandsuperfast.com/r100-programme/about-r100/

[16] Scottish Parliament, Written Question – S6W-19328, https://www.parliament.scot/chamber-and-committees/questions-and-answers/question?ref=S6W-19328

[17] Scottish Government, Scottish 4G Infill Programme: Progress Update, https://www.gov.scot/publications/scottish-4g-infill-programme-progress-update/#progmastsites

The UK Shared Rural Network[18] initiative is also continuing to bring mobile coverage to rural and island communities across Scotland, including Ae and Loch Head in Dumfries and Galloway[19], and the Isle of Colonsay in the Inner Hebrides.[20]

Wales: The Welsh Government has released its Q1 2023 progress update on the £52.5m Phase 2 Superfast Cymru contract with Openreach, which confirms that a total of 36,869 extra premises (up from 35,770 in Q4 2022) have now gained access to its gigabit speed FTTP broadband ISP network.

Openreach's latest progress update on its £210m investment to deploy a FTTP broadband ISP network across Wales notes that it has now covered over 700,000 premises as of July 2023.

Meanwhile, Ogi started work on its £200 million first phase plan to bring ultrafast full fibre connectivity to traditionally underserved communities across south Wales two years ago. The initial phase plan committed to bringing gigabit-capable speeds to 150,000 premises within the decade, and two years in, the rollout has now passed over a third of those premises, with work continuing in nine local authority areas.

Northern Ireland: Full fibre broadband is now available to 90% of premises across Northern Ireland. This is the result of early and ongoing commercial FTTP rollout and the continued progress of the Northern Ireland Government's broadband improvement scheme – Project Stratum. Project Stratum was developed by the Department for the Economy (DfE) to improve connectivity for premises unable to access broadband services of 30 Mbps or greater, primarily across rural areas of Northern Ireland. Fibrus Networks was appointed as the contractor in November 2020 to deliver gigabit-capable broadband to 76,233 premises. In January 2022, DfE secured funding to include an additional 8,500 premises into Project Stratum, again mainly in rural areas of Northern Ireland. As a result of this public intervention, some 85,000 eligible premises will have access to gigabit-capable broadband. To date, Fibrus Networks has completed infrastructure deployment work to over 70,000 premises and remains on target to complete deployment to all 85,000 premises by March 2025.

DfE, in partnership with Building Digital UK (BDUK), has also commenced preparation for the rollout of Project Gigabit in Northern Ireland. The Project Gigabit Open Market Review (OMR) consultation with telecoms infrastructure providers launched on 9 December 2022 and closed on 27 January 2023.

Data collection and reporting

We continue to collect coverage data from many operators to improve the accuracy of the data we publish; data from 22 FWA providers (WISPs and MNOs) and 59 fixed line operators was used in the compilation of this update. We also continue to gather coverage data every four months and usage information once a year.

[18] Shared Rural Network, https://srn.org.uk/

[19] Vodafone News Centre, *Vodafone brings 4G to two rural Dumfries and Galloway communities*, 3 August 2023, https://www.vodafone.co.uk/newscentre/press-release/srn-4g-two-rural-dumfries-and-galloway-communities/

[20] Three Media Centre, *Three builds 100th Shared Rural Network site, transforming coverage across the UK*, 7 August 2023, https://www.threemediacentre.co.uk/content/three-builds-100th-shared-rural-network-site-transforming-coverage-across-the-uk/

Dashboards

Fixed broadband

Access to full fibre	May 2022	September 2022	January 2023	May 2023
UK	37%	42%	48%	52%
England	36%	41%	47%	51%
Northern Ireland	83%	85%	89%	90%
Scotland	36%	41%	46%	49%
Wales	36%	40%	45%	50%

Access to Gigabit-capable services	May 2022	September 2022	January 2023	May 2023
UK	68%	70%	73%	75%
England	69%	71%	75%	76%
Northern Ireland	85%	87%	90%	91%
Scotland	63%	64%	68%	69%
Wales	49%	52%	57%	60%

Access to superfast services	May 2022	September 2022	January 2023	May 2023
UK	96%	97%	97%	97%
England	97%	97%	97%	97%
Northern Ireland	93%	94%	96%	97%
Scotland	94%	94%	95%	95%
Wales	95%	95%	96%	96%

Access to at least 10 Mbit/s services	May 2022	September 2022	January 2023	May 2023
UK	99%	99%	99%	99%
England	99%	99%	99%	99%
Northern Ireland	96%	97%	98%	98%
Scotland	97%	97%	98%	98%
Wales	98%	98%	98%	98%

Fixed Wireless Access

Since our last update we have continued to collect data for Wireless Internet Service Providers (WISPs) providing a Fixed Wireless Access broadband service. The following shows premises, both residential and commercial, where decent broadband is obtainable via FWA.

Fixed Wireless	May 2022	September 2022	January 2023	May 2023
UK Mobile Network Operators (MNO)	95%	95%	95%	95%
UK Wireless Internet Service Providers (WISP)	7%	7%	7%	8%

Note 1: For WISPs the difference between January 2023 and May 2023 is 0.3%, but due to rounding is reported higher.

4G coverage

Premises (outdoor) – coverage range across MNOs	May 2022	September 2022	January 2023	April 2023
UK	99-c.100%	99-c.100%	99-c.100%	99-c.100%
England	99-c.100%	99-c.100%	99-c.100%	99-c.100%
Northern Ireland	97-99%	98-99%	97-99%	98-99%
Scotland	97-99%	97-99%	97-99%	98-c.100%
Wales	96-99%	96-99%	96-99%	96-99%

Geographic area – coverage range across MNOs	May 2022	September 2022	January 2023	April 2023
UK	79-87%	80-87%	80-87%	80-87%
England	92-94%	92-94%	92-94%	92-95%
Northern Ireland	88-92%	88-92%	88-92%	88-92%
Scotland	57-74%	57-75%	57-75%	58-76%
Wales	72-85%	73-85%	74-85%	74-85%

Geographic area not covered by any operator (not-spots)	May 2022	September 2022	January 2023	April 2023
UK	8%	8%	8%	7%
England	2%	2%	2%	2%
Northern Ireland	3%	3%	3%	3%
Scotland	17%	17%	17%	16%
Wales	10%	10%	9%	9%

Coverage of all roads (in vehicle) – coverage range across MNOs	May 2022	September 2022	January 2023	April 2023
UK	78-84%	79-84%	80-85%	80-85%
England	84-88%	85-88%	85-89%	85-89%
Northern Ireland	69-80%	69-79%	69-80%	70-80%
Scotland	65-79%	65-79%	66-79%	67-81%
Wales	70-79%	70-80%	71-80%	72-80%

All roads (in vehicle) not covered by any operator (not-spots)	May 2022	September 2022	January 2023	April 2023
UK	4%	4%	4%	4%
England	2%	2%	2%	2%
Northern Ireland	6%	6%	6%	6%
Scotland	7%	7%	7%	6%
Wales	9%	9%	9%	9%

USO eligibility

The percentage of homes and businesses unable to access a decent broadband service, that is at least 10 Mbit/s download speed and at least 1 Mbit/s upload speed.

Unable to receive 10 Mbit/s download and 1 Mbit/s upload services (potentially USO eligible)	May 2022	September 2022	January 2023	May 2023
UK	0.3%	0.3%	0.2%	0.2%
England	0.2%	0.1%	0.1%	0.1%
Northern Ireland	1.2%	1.0%	0.6%	0.5%
Scotland	0.8%	0.7%	0.7%	0.6%
Wales	0.6%	0.6%	0.6%	0.6%

Note 2: We consider a property to have "full fibre coverage" only if: 1. fibre is deployed in close proximity to the premises, so only a dedicated fibre connection to the property is necessary to provide (end to end) fibre connectivity, and 2.the end user would expect to pay only a published pre-agreed connection charge, if one was to be imposed.

Note 3: This may exclude broadband services available from some smaller providers.

Note 4: Figures for potential USO eligibility are for all (both residential and commercial) properties. Figures for other speeds refer to residential properties only.

Voice and text coverage

Premises (outdoor) – coverage range across MNOs	May 2022	September 2022	January 2023	April 2023
UK	99-c.100%	99-c.100%	c.100%	c.100%
England	c.100%	c.100%	c.100%	c.100%
Northern Ireland	98-c.100%	98-c.100%	98-c.100%	98-c.100%
Scotland	99-c.100%	99-c.100%	99-c.100%	99-c.100%
Wales	99%	99-c.100%	99%	99%

Geographic area – coverage range across MNOs	May 2022	September 2022	January 2023	April 2023
UK	85-92%	85-93%	85-93%	85-93%
England	95-98%	95-99%	95-98%	95-98%
Northern Ireland	89-98%	89-98%	89-98%	89-98%
Scotland	68-82%	68-84%	68-83%	68-84%
Wales	86-91%	86-94%	86-92%	86-92%

Geographic area not covered by any operator (not-spots)	May 2022	September 2022	January 2023	April 2023
UK	4%	4%	4%	4%
England	1%	1%	1%	1%
Northern Ireland	1%	1%	1%	1%
Scotland	11%	10%	10%	10%
Wales	5%	4%	4%	4%

Coverage of all roads (in vehicle) – coverage range across MNOs	May 2022	September 2022	January 2023	April 2023
UK	87-95%	87-96%	87-95%	87-95%
England	90-98%	90-99%	91-98%	91-98%
Northern Ireland	73-94%	73-96%	73-95%	74-95%
Scotland	77-88%	77-90%	78-89%	78-90%
Wales	82-88%	83-91%	83-89%	83-89%

All roads (in vehicle) not covered by any operator (not-spots)	May 2022	September 2022	January 2023	April 2023
UK	2%	1%	2%	2%
England	1%	c.0%	1%	1%
Northern Ireland	3%	2%	3%	3%
Scotland	3%	3%	3%	3%
Wales	5%	4%	5%	5%

5G coverage

Premises (outdoor) covered by at least one operator	May 2022	September 2022	January 2023	April 2023
UK	54-69%	67-78%	73-82%	76-85%
England	56-72%	70-81%	76-85%	79-88%
Northern Ireland	26-34%	37-44%	48-55%	54-60%
Scotland	48-61%	57-68%	62-73%	66-76%
Wales	35-48%	46-58%	49-61%	53-65%

Premises (outdoor) covered by all operators	May 2022	September 2022	January 2023	April 2023
UK	5-13%	11-20%	12-22%	12-22%
England	5-14%	12-22%	13-23%	14-24%
Northern Ireland	2-7%	4-8%	5-12%	5-12%
Scotland	3-10%	6-15%	7-17%	8-19%
Wales	2-6%	4-7%	5-8%	4-8%

Note 5: Thresholds for 5G Service are -110 dBm where we have high confidence in coverage and -100 dBm where we have very high confidence in coverage. Validation work on new 5G predictions remains ongoing.

Note 6: All reported mobile coverage is based on predictions, which the operators continue to update. Consequently, the coverage of mobile services reported may vary due to the models used or the underlying geographic and/or premises information. In some cases, due to reporting of coverage at whole percentages, small changes can result in 1 percentage point changes in reported coverage. The Connected Nations 2022 methodology provides more details on how mobile coverage is calculated.

Note 7: Some of the May 2022 figures, particularly those for premises covered by at least one operator, differ from the ones reported in our Spring 2023 update. This is due to a correction in the coverage calculation after the publication of the Autumn 2022 update, which wasn't reflected correctly in the Spring 2023 report.