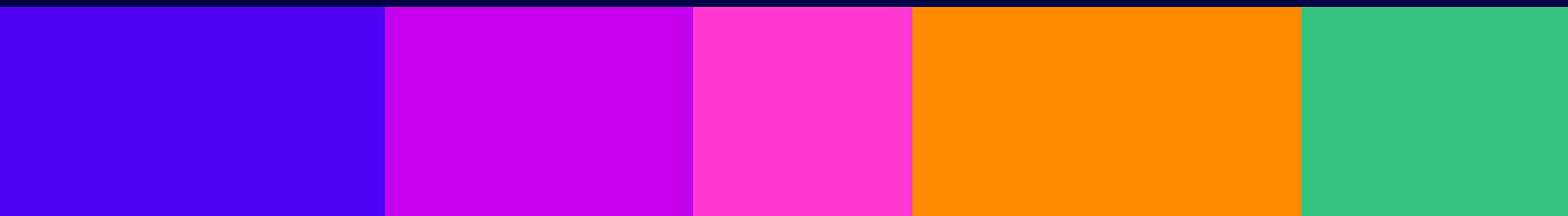
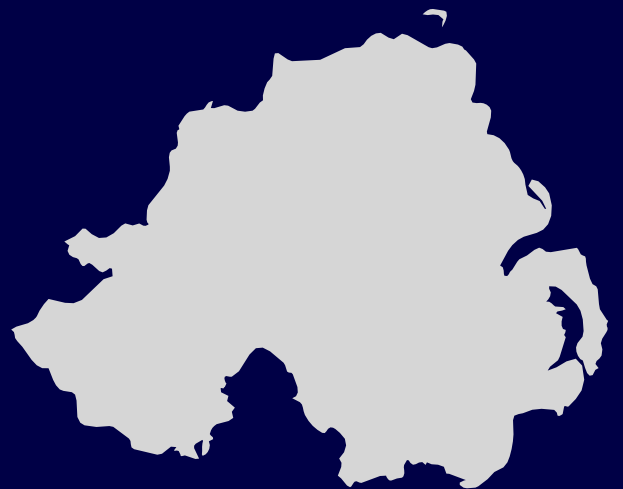




Connected Nations

Northern Ireland Report 2023

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1. Overview

Ofcom's objective is to make communications work for everyone including to promote reliable, widely available and high-quality networks. In this annual Connected Nations report for Northern Ireland, we measure progress on the availability of broadband and mobile services, including the rollout and take-up of full-fibre and 5G networks.

Alongside this Northern Ireland report, we also publish separate reports on broadband and mobile availability for the [UK as a whole](#) and each of its [other nations](#). Our [interactive dashboard](#) allows people to easily access data for different areas of the UK and in relation to specific services.

What we have found

Broadband

- **More than 747,000 homes in Northern Ireland now have access to full-fibre broadband connections;** over 51,000 more than last year. These connections can deliver much higher download speeds than older, copper-based broadband. Among the four UK nations, Northern Ireland (91%) has the highest availability of full-fibre networks, compared to England (56%), Scotland (53%) and Wales (55%). Northern Ireland's full-fibre position is a result of a combination of significant early commercial rollout and publicly funded schemes designed to improve broadband in rural areas.
- **Superfast broadband from fixed lines (at least 30 Mbit/s) is available to 98% of residential premises in Northern Ireland,** four percentage points higher than last year.
- **Take-up of services on full-fibre networks by residential and business customers is rising.** There was an increase of 14 percentage points, from 25% reported last year to 39% this year, in take-up as a proportion of premises where full fibre is available.
- **Average broadband download speeds in Northern Ireland have increased by 50% to 173 Mbit/s,** up from 115 Mbit/s in 2022, and reflects increasing availability and take-up of faster broadband services. Average download speeds are lower in rural areas but have increased to 120 Mbit/s in 2023, compared to 68 Mbit/s in 2022.
- **Average monthly broadband data use in Northern Ireland has increased to 568 GB per connection in 2023, 18% higher than in 2022.**

Mobile

- **5G availability is gathering pace.** A notable increase in 5G coverage has been observed across Northern Ireland in 2023 and now stands at 80% (High Confidence) and 70% (Very High Confidence), up from 44% and 37% respectively in 2022, for areas outside of premises where at least one mobile network operator (MNO) provides coverage.
- **4G coverage continues to provide the backbone of mobile experience for consumers.** Individual operators provide good 4G coverage across Northern Ireland, with geographic mobile coverage ranging from 88-92%, depending on the operator. Coverage from all four operators is available across 81% of Northern Ireland, unchanged from last year.
- **Voice calls are available across 90-98% of Northern Ireland, depending on the operator,** 1pp higher at the lower end of the range compared to a year ago. While coverage from all operators is available across 88% of Northern Ireland, 1pp higher than 2022.

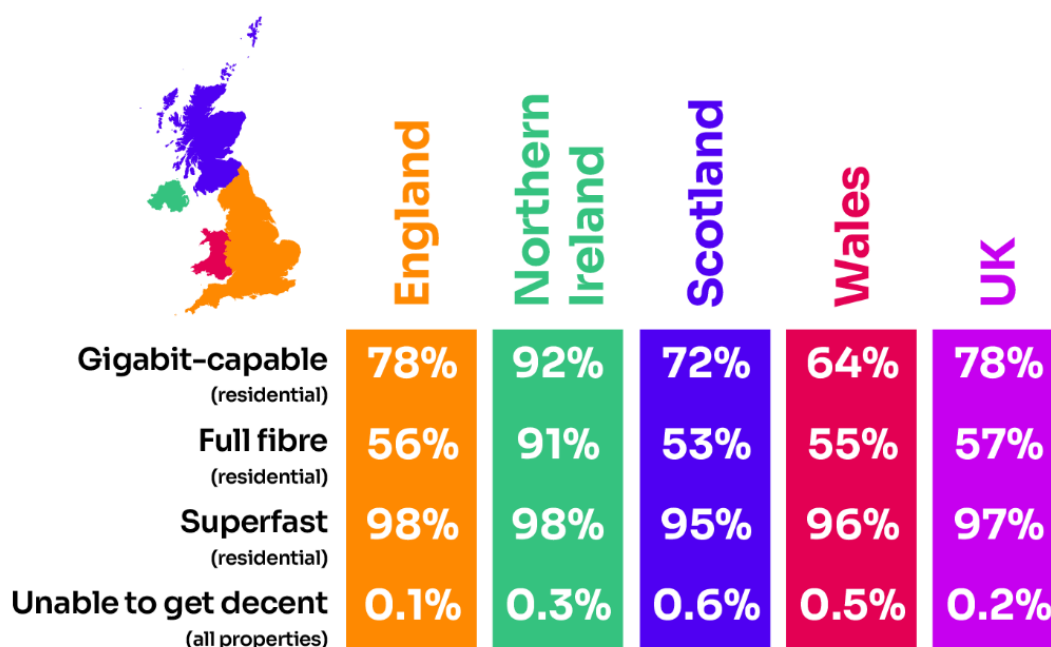
2. Fixed broadband and voice services

Introduction

In this section, we present our findings on the rollout of full-fibre networks in Northern Ireland over the last year, as well the latest numbers on take-up and speeds.

Our reporting on coverage is based on data for September 2023. Figures on data usage and take-up are from May 2023. Throughout this section we generally report data for residential premises unless stated otherwise. However, for reporting of premises not able to get decent broadband which may be eligible for the Universal Service Obligation, we report all premises, residential and commercial.

Figure 2.1: Summary of broadband coverage at a fixed location across the UK and nations



Source: Ofcom analysis of operator data (September 2023).

Broadband speeds explained

Fixed broadband connections can be categorised based on the download speed they provide into decent, superfast, and gigabit-capable broadband. There are four primary types of fixed line connections: Asymmetric Digital Subscriber Line (ADSL); Fibre to the cabinet (FTTC); Hybrid fibre coaxial (HFC) cable; and full fibre or 'fibre to the premises' (FTTP).

- **Decent broadband** - can provide at least 10 Mbit/s download and 1 Mbit/s upload speeds.¹ It can be delivered by ADSL, FTTC, HFC cable or full fibre. Decent broadband provides sufficient speeds for making a high-definition video call. Over decent broadband, downloading a one-hour HD TV episode (1 GB) would take almost 15 minutes.

¹ The UK Government defines a decent broadband service as one that delivers at least 10 Mbit/s download speed and 1 Mbit/s upload speed. This is the level of connection currently deemed necessary for consumers to participate in a digital society.

- **Superfast broadband** - can provide download speeds of at least 30 Mbit/s and can be delivered by FTTC, HFC cable or full fibre. Superfast broadband provides sufficient speed for one person streaming 4K/UHD video. Downloading a one-hour HD TV episode would take under four and a half minutes and several devices can work simultaneously.
- **Gigabit-capable broadband** - can provide download speeds of 1 Gbit/s and above. It can be delivered by HFC cable or full fibre. With gigabit-capable broadband, it is feasible to download a full 4K film (100 GB) in under 15 mins, or a one-hour HD TV episode in eight seconds.

The availability of fixed broadband services continues to increase

There has been a further increase in the availability of high-speed broadband services in Northern Ireland over the last year, on the back of continued commercial and publicly funded investment in fibre networks.

The Northern Ireland Executive's broadband scheme - Project Stratum - which is aimed at rural areas is making good progress, while the main network operators - Openreach, Virgin Media and Fibrus - continue to invest in commercial deployments of full-fibre footprints to urban and semi-rural areas.

As of October 2023, Project Stratum has delivered gigabit-capable broadband to over 70,000 of the 85,000 eligible premises targeted by the scheme. These are premises that were previously unable to access a superfast service of at least 30 Mbit/s.²

The Department for the Economy (DfE) is now preparing for the implementation of Project Gigabit in Northern Ireland, which will look to serve premises not within the scope of Project Stratum and which are outside of indicated commercial deployment plans.³ A public review has been held, and infrastructure operators have submitted their plans for the rollout of gigabit services across Northern Ireland to the department. DfE is presently assessing the responses to the public review and is developing a target intervention area for the project. If intervention is required, the Department will launch a procurement early in 2024, and aims to let a contract by Autumn 2024.⁴

The combination of commercial investment and public intervention is expected to result in near ubiquitous gigabit connectivity for Northern Ireland.

² Department for the Economy, [Project Stratum](#).

³ Department for the Economy, [Project Gigabit](#).

⁴ Source: Department for Economy (DfE).

Northern Ireland has the highest coverage of full-fibre networks in the UK

Northern Ireland’s improving broadband infrastructure is underlined by the fact that more than **nine in ten residential premises (91%) are now able to access full-fibre networks.**

Full-fibre services are delivered by fibre only networks, whereas gigabit-capable services can be delivered through both full-fibre networks and upgraded hybrid fibre coaxial (HFC) infrastructure (such as that employed in parts of Virgin Media O2’s network).

Gigabit-capable networks can deliver speeds in excess of 1 Gbit/s and, as such, are capable of delivering more high demand services as these are developed.

The total number of residential premises with access to full-fibre networks is now 747,000, over 51,000 more than last year.

Among the four UK nations, Northern Ireland has the highest availability of full-fibre networks (91%), compared to England (56%), Scotland (53%) and Wales (55%).

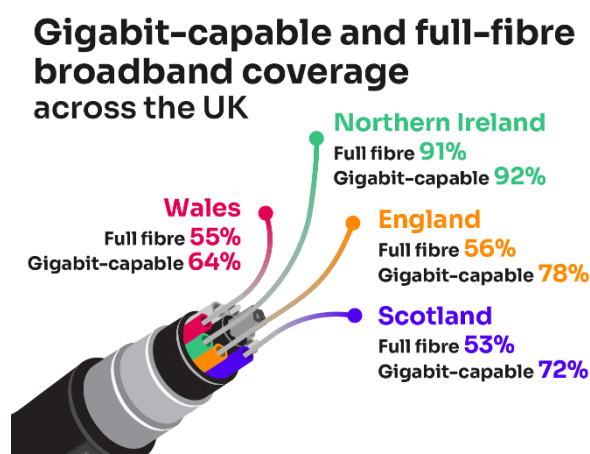


Table 2.1: Coverage of full-fibre broadband

Nation	% of premises (residential)	Percentage point change since 2022
UK	57%	+15pp
England	56%	+15pp
Scotland	53%	+12pp
Wales	55%	+15pp
Northern Ireland	91%	+6pp
Urban	95%	+1pp
Rural	82%	+17pp

Source: Ofcom analysis of operator data (September 2023).

Nine in ten residential premises have access to gigabit-capable networks

Gigabit-capable networks were available to 92% of residential premises in Northern Ireland in September 2023. This is the highest of the UK nations and some five percentage points higher than a year ago.

Table 2.2: Coverage of gigabit-capable broadband

Nation	% of premises (residential)	Percentage point change since 2022
UK	78%	+8pp
England	78%	+7pp
Scotland	72%	+8pp
Wales	64%	+12pp
Northern Ireland	92%	+5pp
Urban	97%	+1pp
Rural	82%	+17%

Source: Ofcom analysis of operator data (September 2023).

Superfast broadband from fixed lines is available to 98% of residential premises and more than nine in ten in rural areas

Superfast broadband services (≥ 30 Mbit/s) are available to 98% of premises in Northern Ireland. As with other metrics, this increase reflects continuing publicly funded and commercial investment and is four percentage points higher than a year ago.

Broadband speeds and superfast broadband availability are lower in rural areas. While networks that deliver superfast speeds are available to 98% of residential premises across Northern Ireland, superfast broadband is available to 93% of premises in rural areas. This is, however, 11 percentage points higher than a year ago.

These figures highlight the impact that Project Stratum, which is aimed at premises that didn't previously get superfast speeds, is having on access to higher speed services in rural areas especially.

Table 2.3: Coverage of superfast broadband (≥ 30 Mbit/s)

Nation	% of premises (residential)	Percentage point change since 2022
UK	97%	-
England	98%	+1pp
Scotland	95%	+1pp
Wales	96%	+1pp
Northern Ireland	98%	+4pp
Urban	99%+	+1pp
Rural	93%	+11pp

Source: Ofcom analysis of operator data (September 2023).

More people are upgrading to higher speed services and new technologies

Take-up of services from full-fibre networks is rising sharply

As the rollout of full-fibre networks progresses, more customers are using this new technology as it becomes available.

We estimate that the take-up of services on full-fibre networks, is around 39% of premises where it is available in Northern Ireland, following a significant increase of 14 percentage points over the last year.

Table 2.4: Estimated take-up of services on full-fibre networks as a percentage of premises where full-fibre networks are available: 2022 and 2023

Nation	2022	2023
England	25%	27%
Northern Ireland	25%	39%
Scotland	23%	28%
Wales	28%	31%
UK average	25%	28%

Source: Ofcom analysis of provider data (May 2023).

Take-up by local authority area

When we look at take-up levels amongst the ten UK local authority areas with the highest coverage of full fibre, we see a range of take-up rates as a proportion of all premises from 21-63%.

Kingston upon Hull has both the highest level of coverage (98%) and the highest level of take-up (63%) as a proportion of all premises, of all the local authorities in the UK.

Some of the local authorities on this list with comparably lower levels of take-up are in urban areas, such as Belfast (26%), Worthing (21%) and Coventry (32%). Some of the more rural local authorities on this list have comparably higher levels of take-up, such as Ards & North Down (44%) and Mid & East Antrim (40%).

Six of the ten local authorities on this list are in Northern Ireland, which has led the UK nations in terms of rollout of full fibre.

Table 2.5: Full fibre take-up in the ten local authorities with the highest levels of coverage

Local authority	Nation	Coverage of full fibre (% of all premises)	Take-up (% of all premises)
Kingston Upon Hull	England	98%	63%
Coventry	England	95%	32%

Local authority	Nation	Coverage of full fibre (% of all premises)	Take-up (% of all premises)
Ards and North Down	Northern Ireland	91%	44%
Antrim and Newtownabbey	Northern Ireland	90%	35%
Lisburn and Castlereagh	Northern Ireland	90%	35%
Newry, Mourne and Down	Northern Ireland	90%	37%
Milton Keynes	England	90%	42%
Belfast	Northern Ireland	90%	26%
Mid and East Antrim	Northern Ireland	89%	40%
Worthing	England	89%	21%

Source: Ofcom analysis of provider data (May 2023).

Excludes local authorities where coverage is <20%.

Take-up of superfast broadband has also increased

Overall, we estimate that for those residential premises that are able to take superfast broadband services (98% of all premises in Northern Ireland), around 74% of them do so.

Table 2.6: Estimated superfast take-up as a percentage of residential premises where superfast services are available: 2022 and 2023

Nation	2022	2023
England	73%	75%
Northern Ireland	73%	74%
Scotland	71%	73%
Wales	71%	73%
UK average	73%	75%

Source: Ofcom analysis of provider data (May 2023).

Average download speeds in Northern Ireland have increased by 50%

The average download speed delivered to residential premises in Northern Ireland is 173 Mbit/s. This has increased from 115 Mbit/s last year and reflects the increasing availability and take-up of services on full-fibre networks.

Average download speeds are lower in rural areas (120 Mbit/s), though this too has increased significantly from 68 Mbit/s in 2022.

Meanwhile, average monthly data usage in Northern Ireland has increased by 18% from 481 GB last year to 568 GB this year.

Table 2.7: Average download speeds and monthly data usage

Northern Ireland	Average download speed (Mbit/s)	Average monthly data usage (GB)
Northern Ireland	173	568
Urban	195	613
Rural	120	458

Source: Ofcom analysis of provider data (May 2023).

Local authority coverage data

This sub-section provides an overview of some of the data available at local authority level in Northern Ireland. More detailed information on this, as well as Westminster and Northern Ireland Assembly constituency level data, is available via the interactive portal on our website.

There has been significant improvement in the availability of faster broadband services right across Northern Ireland in recent years and especially in rural areas.

The rise in full-fibre coverage is especially notable in mainly rural local authority areas. In Fermanagh and Omagh, full-fibre coverage now extends to some 85% of residential premises, up from 71% a year ago. Full-fibre coverage in Mid Ulster is now 88%, up from 75% a year ago.

As discussed above, the DfE's Project Stratum and Project Gigabit initiatives are aiming to push Northern Ireland towards 100% full-fibre availability.⁵

Table 2.8: Coverage of superfast and full-fibre broadband by local authority (% of premises)

Local authority	Superfast (>=30Mbit/s)	Change since 2022	Full fibre	Change since 2022
Belfast	99%+	+1pp	93%	+3pp
Ards and North Down	99%	+3pp	94%	+5pp
Lisburn and Castlereagh	98%	+2pp	93%	+7pp
Antrim and Newtownabbey	96%	+3pp	93%	+6pp
Derry City and Strabane	98%	+4pp	93%	+6pp
Mid and East Antrim	96%	+2pp	91%	+4pp
Armagh City, Banbridge and Craigavon	99%	+5pp	92%	+8pp
Causeway Coast and Glens	95%	+2pp	87%	+3pp
Newry, Mourne and Down	98%	+6pp	92%	+8pp

⁵ Department for the Economy, [Project Gigabit](#).

Local authority	Superfast (>=30Mbit/s)	Change since 2022	Full fibre	Change since 2022
Mid Ulster	97%	+9pp	88%	+13pp
Fermanagh and Omagh	94%	+8pp	85%	+14pp
NI	98%	+4pp	91%	+6pp

Source: Ofcom analysis of operator data (September 2023).

There has been a big drop in residential and commercial premises unable to access decent broadband

Despite the current and planned investment in broadband networks in Northern Ireland, some hard-to-reach premises still do not get access to a decent fixed line broadband service.⁶ Of those premises that do not have decent broadband via fixed lines, some will be able to access decent broadband via fixed wireless access (FWA) services offered by mobile network operators (MNOs) or wireless internet service providers (WISPs). More detailed analysis of these technologies is provided in the Connected Nations UK report. We estimate that around 3,000 of all premises, residential and commercial, in Northern Ireland do not have access to decent broadband from either a fixed or FWA network. These premises may be eligible for the broadband USO.



The broadband universal service obligation (USO)

The broadband USO provides everybody with the right to request a broadband connection with a download speed of at least 10 Mbit/s and an upload speed of 1 Mbit/s (as well as a number of other specific technical characteristics).⁷

Where an affordable service with these characteristics is not available, or due to become available in the next 12 months under a publicly funded scheme, the customer is eligible for the USO if the costs

⁶ This is defined by the UK Government as a connection capable of delivering a download speed of at least 10 Mbit/s and an upload speed of 1 Mbit/s.

⁷ In particular these are: a contention ratio of no more than 50:1; latency which is capable of allowing the end user to make and receive voice calls effectively; and the capability to allow data usage of at least 100 GB a month.

of providing the connection are below £3,400.⁸ Where the costs are above £3,400, the customer has the option to pay the excess costs to get a USO connection. BT is the universal service provider for the UK (excluding Hull), and KCOM for the Hull area. They are required to provide the USO and to report at six monthly intervals on delivery.⁹

As of October 2023, BT had received 87 orders in Northern Ireland. Each order may require network build that can serve multiple premises, and therefore will lead to full-fibre connections being built that can serve 723 premises in Northern Ireland that do not have access to decent broadband.¹⁰

The migration from legacy voice services to digital voice continues

The UK's traditional landline voice services are undergoing a substantial transition as network operators retire their legacy systems (referred to as the Public Switched Telephone Network, or 'PSTN') and replace them with modern systems.

BT and Openreach aim to retire BT's PSTN network and the Openreach wholesale services that deliver PSTN by the end of 2025. Other providers using the same legacy technology as BT are following a broadly similar timescale. As of 5 September 2023, Openreach has stopped new sales of the wholesale services delivering the PSTN across the UK, an important step in the PSTN switch off process.¹¹

To make sure landline services continue to be available in the future, providers currently using legacy telephony networks will deliver landline calls over a digital technology called Voice over Internet Protocol (VoIP) over a broadband connection.¹²

We published [advice for consumers](#) in January 2023 on what the switch-off means for landline and our expectations of providers. For more information, see in our [Connected Nations 2023 report](#) for the UK as a whole.

⁸ When the USO was launched (in March 2020), we specified in the USO conditions that an affordable service was one that costs £45 per month, rising annually by CPI. This has now risen to £54 per month in line with CPI.

⁹ BT, [USO Reports](#). KCOM, [USO Reports](#). To date KCOM has not received any eligible USO orders.

¹⁰ While conducting final accuracy checks for the purpose of our report, BT informed us that the implementation of a new data model might have impacted on their reporting of total USO orders and premises passed by resulting build. We are following this up with BT and will publish corrected data if necessary.

¹¹ Openreach, [Openreach puts the stopper on copper](#).

¹² When discussing VoIP in this context, we are referring to managed voice services in which the voice service provider can control and manage the quality of the service over the broadband connection. This does not include general 'VoIP' calls made using personal online communication services such as Skype or WhatsApp, potentially over a range of different devices.

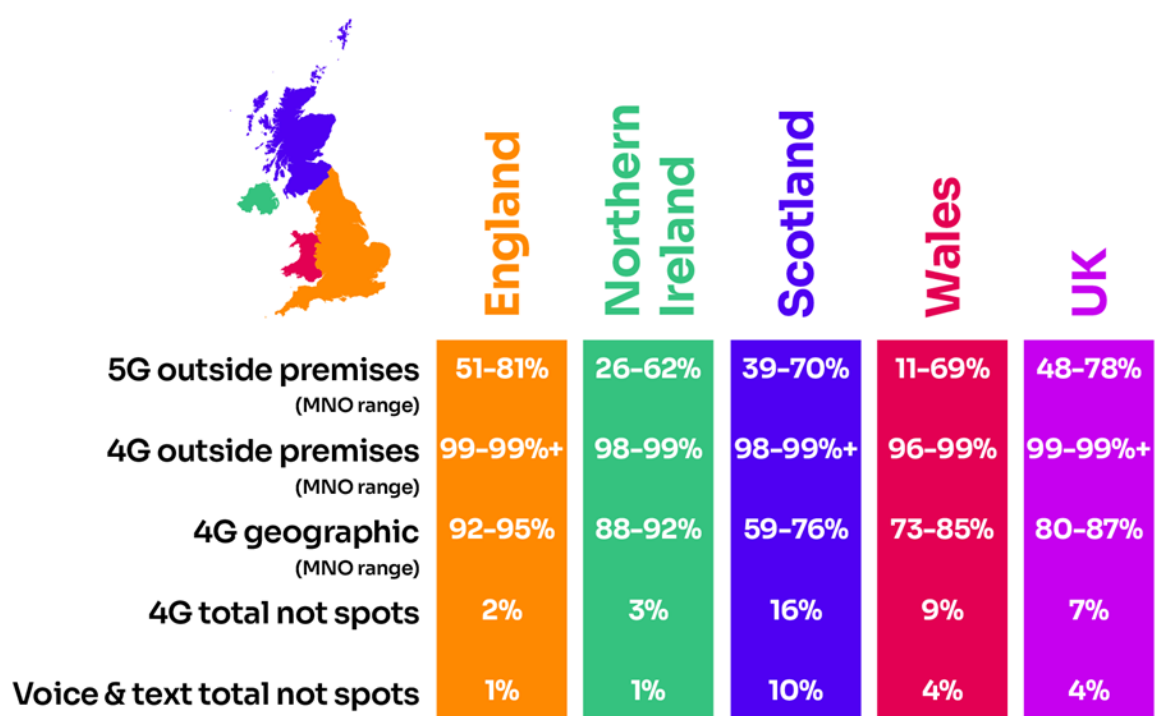
3. Mobile, data and voice

Introduction

In an increasingly interconnected world, mobile services are becoming even more integral to our daily lives – whether it's enabling seamless communication on the go, providing internet access, or powering wireless connectivity for devices like smart meters.

In this chapter, we provide information on the deployment of 5G networks, as well as the broader availability of 4G mobile coverage, outside/outdoor and inside/indoor premises across Northern Ireland.

Figure 3.1: Summary of mobile coverage across the UK and nations



Source: Ofcom analysis of operator data (September 2023).

5G coverage predictions

When mentioning mobile 5G availability predictions, we refer to confidence ranges² reflecting the likelihood of on the ground coverage for consumers as:

High Confidence associated with a signal strength (-110 dBm), to equate to at least an 80% confidence level.

Very High Confidence associated with a higher signal strength (-100 dBm), to equate to a circa 95% confidence level.

5G availability is gathering pace in Northern Ireland, though it varies across MNOs

A notable increase in 5G coverage has been observed across Northern Ireland in 2023 and now stands at 80% (High Confidence) and 70% (Very High Confidence), up from 44% and 37% respectively in 2022, for areas outside of premises where at least one mobile network operator (MNO) provides coverage.⁵ The 'All' MNO footprint, representing the places where all four MNOs provide coverage, remains at a significantly lower level. But it has increased, reaching outside 18% of premises at High Confidence, and 8% at Very High Confidence, up from 8% and 4% respectively last year.

Landmass coverage for 5G across individual MNOs in Northern Ireland is steadily increasing. But it still remains relatively low overall, ranging from 2% to 41% of the landmass at High Confidence, and 1% to 32% at the Very High Confidence level (up from 2% to 11% and 1% to 9% respectively since last year).

Across individual MNOs, 5G coverage outside premises varies across UK nations as follows: 51-81% for England; 39-70% for Scotland; 11-69% for Wales; and 26-62% for Northern Ireland (all based on our High Confidence level).

Virgin Media O2 (VMO2) has the most extensive 5G coverage at the Very High Confidence level, reaching over 32% of the Northern Ireland landmass and extending to at least 51% for areas outside of premises coverage. Meanwhile, Three has the most extensive 5G coverage when measured at the High Confidence level, reaching over 41% of the Northern Ireland landmass and extending to more than 62% for areas outside of premises coverage.

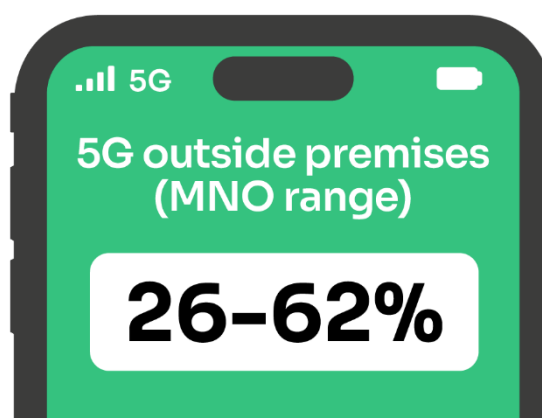


Table 3.1: MNO 5G coverage outside of premises, at Very High and High Confidence levels

	Very High Confidence	High Confidence
BT/EE	22%	26%
Three	35%	62%
VMO2	51%	57%
Vodafone	20%	29%

Source: Ofcom analysis of MNO predictions (September 2023).

Overall premises coverage

Even as 5G coverage continues to increase, voice and data services continue to be most widely available (and accessed) through older technologies. In particular, the 4G services offered by MNOs continue to provide the backbone of most consumers' experience. We therefore highlight below the

latest 4G coverage available from individual MNOs, alongside an update on the 2G and 3G coverage and switch-off plans.

Outdoor premises coverage remains high in Northern Ireland

In line with recent years, individual operators continue to provide good 4G coverage outside (98-99%) of Northern Ireland premises. In addition, 96% of premises have outdoor 4G coverage from all four MNOs, which is unchanged from last year.

Coverage for voice and text services is very high: MNOs each provide coverage for outdoor voice calls in the vicinity of 98-99%+ of premises, while 98% of Northern Ireland premises also have coverage for outdoor voice calls from all MNOs.

There continues to be a difference between coverage in urban and rural areas. Individual operators' 4G coverage outside rural premises ranges from 93-96% and 99-99%+ outside urban premises. Outdoor voice coverage levels across Northern Ireland range from 98-99%+ and range from 94-99% across individual MNOs for rural premises, rising to 99%+ for urban premises.

Indoor mobile coverage is widely available

A number of factors affect the coverage people receive indoors, including the thickness of walls, building materials, and where in a building people are using their phone. As a result, some premises may see differences between operators' predicted indoor coverage data and the actual coverage experience.¹¹

For indoor 4G coverage, the percentage of premises served ranges from 86-91% across individual MNOs. This is up by one percentage point at the bottom of the range compared to last year (85-91% across individual MNOs in 2022).

The availability of indoor voice calls is estimated to be consistent with last year, ranging from 89-99% across individual MNOs.

There continues to be a significant difference between indoor coverage in rural and urban areas. MNOs provide indoor 4G coverage to 69-76% of premises in rural areas (compared to 66-75% in 2022), whereas this figure is 91-98% for urban premises (90-98% in 2022). Voice coverage also varies indoors, ranging from 73-95% across individual MNOs for rural premises (71-96% in 2022).¹³ This compares to a range of 96-99%+ for urban premises (unchanged from 2022).

Where indoor coverage is poor or unreliable, other solutions can improve user experience. These include broadband-based voice / video calls on services such as WiFi calling, online communications services such as WhatsApp, or femtocell.¹² All MNOs offer WiFi calling, although not all phones are configured to support this. The percentage of voice over WiFi calls reported by MNOs in the UK range between 3% and 16% across individual MNOs, aligning closely with the figures observed in 2022 (ranging from 2-17%) and 2021 (ranging from 2-16%).

4G geographic coverage levels are stable

Overall, 4G geographic coverage across Northern Ireland is stable compared with 2022.

¹³ We note a reduction in voice coverage impacting indoor and roads voice coverage percentages, and we are engaging with MNOs to validate figures.

From the data reported to us, we can see that coverage by each MNO is the same as in 2022 for BT/EE (88%), Virgin Media O2 (90%), Three (92%), and Vodafone (92%). Therefore, the Northern Ireland landmass covered by individual MNOs ranges from 88-92% (unchanged from 2022).

Among the UK nations, geographic coverage is highest in England (92-95%), followed by Northern Ireland (88-92%), Wales (73-85%) and Scotland (59-76%).

Mobile coverage in Northern Ireland by operator

Table 3.2: Mobile coverage by operator in Northern Ireland

	VMO2	Vodafone	BT/EE	Three
Geographic – 4G	90%	92%	88%	92%
Geographic – voice	98%	98%	90%	94%
Indoor premises – 4G	91%	91%	86%	86%
Indoor premises – voice	99%	98%	89%	91%
Outdoor premises – 4G	98%	99%	98%	98%
Outdoor premises - voice	99%+	99%+	98%	99%

Source: Ofcom analysis of operator data (September 2023).

Initiatives to improve mobile communications

The Shared Rural Network (SRN)

The Shared Rural Network (SRN) project was agreed between the UK Government and the UK mobile operators in March 2020.¹⁴ The first deadline for the project is June 2024, when operators (under their licence obligations) are aiming to achieve good quality coverage across 88% of the UK landmass. This is due to rise to 90% by January 2027.

In total MNOs have now deployed more than 190 new sites since 2020 across the UK to meet their SRN targets, with 35 new sites added this year. They have also upgraded thousands of sites with a combination of additional spectrum and higher operating power.¹⁵ Three of the four MNOs have added in the region of 1 percentage point of landmass coverage in the last year, and individual MNOs' 4G geographic coverage now stands as: BT/EE (87.5%), Vodafone (83.3%), Virgin Media O2 (81.7%) and Three (80.5%).¹⁶ As a result, 4G coverage from at least one MNO has reached 92.7%.¹⁷

Three MNOs still have substantial progress to make to meet their obligations in the coming months. We note [reports](#) that three MNOs have approached the UK Government to ask for an extension to

¹⁴ Shared Rural Network, [Forecast Coverage Improvements by Region](#).

¹⁵ By higher operating powers we mean bringing the transmit power of the site (which can impact both coverage and capacity) nearer to the limits authorised in operator's spectrum licences.

¹⁶ Note that we are providing MNO coverage levels here to one decimal place, given the relevance of this greater granularity to understanding progress against SRN commitments, and that some of these coverage increases are not apparent where we are reporting to the nearest whole number elsewhere in this report.

¹⁷ We are also providing detail of the 'at least one MNO' coverage to one decimal place in light of the SRN programme's stated objective to deliver 95% 4G geographic coverage on this measure by the end of 2025.

their 2024 deadline. However, we continue to prepare to assess MNO compliance with the 88% threshold and associated nations obligations in summer 2024.

As a result of the SRN, 4G mobile coverage in Northern Ireland is expected, by the end of the programme, to reach 98% from at least one operator, and 85% from all four operators.

The improvements will be felt more in rural areas where mobile coverage is lower presently. See below figures for a breakdown of coverage predictions post SRN, outside of Belfast.

Table 3.3: Forecast for 4G coverage pre- and post-SRN by local authority (excl Belfast)

Local authority	4G coverage from all MNOs		4G coverage from at least one MNO	
	Pre-SRN	Forecast post-SRN	Pre-SRN	Forecast post-SRN
Antrim and Newtownabbey	86%	94%	99%	99%
Ards and North Down	85%	99%	99%	99%
Armagh City, Banbridge and Craigavon	82%	93%	99%	99%
Causeway Coast and Glens	77%	87%	96%	99%
Derry City and Strabane	61%	76%	92%	97%
Fermanagh and Omagh	71%	79%	96%	98%
Lisburn and Castlereagh	88%	96%	99%	99%
Mid Ulster	73%	87%	99%	99%
Mid and East Antrim	81%	88%	98%	98%
Newry, Mourne and Down	67%	80%	94%	98%

Source: Shared Rural Network, [forecast coverage improvements](#).

The 3G switch-off has begun and plans for switching off the remaining 3G networks are underway

All MNOs have committed to switching off their 2G and 3G networks by 2033 at the latest, which will result in improved network efficiency and enable more spectrum to be used for faster 4G and 5G services. The MNOs are continuing to develop their own switch-off timetables for these legacy technologies and this year saw the initial stages of 3G retirement ahead of national 3G switch off:

- Vodafone became the first network to switch off some of its 3G services, starting in Basingstoke and Plymouth in March 2023, followed by Glasgow, Hull and Oxford in July 2023. It expects to complete its switch off in early 2024.
- BT/EE piloted its 3G switch off in Warrington in July 2023 and is planning to switch off its national 3G network in early 2024, starting in January.

- Three expects to complete its switch-off by the end of 2024.
- Virgin Media O2 plans to switch off 3G services in 2025.

Vodafone, BT/EE and Virgin Media O2 have not yet confirmed a date for switching off their 2G networks. We expect they will start making plans for this after their 3G network switch-offs are complete. Three does not operate a 2G service.

Numbers are decreasing, but there is still a residual level of ongoing 2G and 3G usage

Our latest estimates suggest that there are 2.4 million devices in the UK reliant on 2G or 3G networks. The number of these devices has, across the four MNOs, fallen from a previous estimate of 5.5 million reported last year.¹⁸ Of the 2.4 million total, just over half a million are residential customers with a 3G device. Less than 3% of all mobile data traffic is now carried on 3G networks, with 3G data traffic having decreased by an average of 44% year on year.¹⁹

Although 3G is being switched off over the next two years, customers with a 3G device will still be able to use the 2G network for voice calls and texts and many devices will be able to access the internet through a WiFi connection. Ultimately, these older devices will need to be upgraded or replaced.

As Three does not operate a 2G service, it is particularly important for their customers using 3G devices to upgrade, so that they can continue to use voice and data services, as they will only be able to make emergency calls from their 3G device once Three switches off its 3G services.

Careful customer management and support will be necessary, particularly for vulnerable customers

Although the decision, timings and process for switching off 3G and 2G is being led by the MNOs, we want to make sure that consumers are treated fairly and can continue to access the services they need.

In February 2023, we published a [document](#) setting out our expectations of mobile providers during the switch off process. This includes an expectation that MNOs minimise the impact of switch off, so that customers experience the same level of coverage as before 3G and 2G switch off.²⁰

We also highlighted the importance of mobile operators contacting affected customers with sufficient notice, and providing advice to them on the steps they need to take to continue to use their mobile service. Vulnerable customers, and particularly those struggling financially, will need to be given additional support, and we continue to work with mobile operators to ensure that this support is in place.

We have continued to raise awareness through our communications and [in 2023 updated our consumer guidance](#) to help explain what 3G and 2G switch off means to consumers. We have also

¹⁸ Slight changes to reporting methodologies for device totals in 2022 and 2023 make it difficult to make a precise comparison between the two years.

¹⁹ The total of 2.4 million devices includes 3G and 2G devices, both residential and business. Some customers with 4G/5G devices will also require VoLTE activation to continue using voice services once 3G is switched off.

²⁰ BT/EE, Three and Vodafone made it clear to us that they plan to offer broadly the same level of coverage via their 4G networks as they currently offer via 2G and 3G. Once its plans have progressed, we expect VMO2 to offer a similar commitment (to ensure broadly similar coverage after switch-off).

worked with consumer groups to help promote awareness and to ensure any disruption is minimised.

Many devices, other than mobile handsets, will also need to be updated by service providers

In addition to mobile handsets, third party devices that could be impacted by 3G and then 2G switch off include telecare alarms, security alarms and payment terminals. It is expected that many devices will still be able to operate on 2G networks once 3G is switched off, but it is important for service providers that have devices which operate on 2G, or will use 2G following the 3G switch off, to start preparing a migration plan now to ensure continuity of service ahead of the 2G network switch-off in the coming years.

We have been engaging with sectors that could be impacted by the retirement of 2G and 3G, and in September 2023 published [advice](#) to support IoT/3rd party users of these networks. We note that some trade associations have also published guidance tailored to their specific sector and are encouraging other industry sectors to do the same.²¹

The loss of 3G coverage might affect around 1-2% of the small number of telecare alarms that rely on 3G-only roaming SIMs, supplied by a provider outside the UK, and these will need to be upgraded to continue to work.²² In this scenario, there may not be a direct relationship between the device supplier and a UK MNO. Ensuring continuity of service is of paramount importance, so we are working with telecare and other sectors to raise awareness.

The Government is also considering the requirements of key services ahead of switch-off, including smart meters and eCall.²³ The existing smart meters use 3G/2G mobile connectivity provided by Virgin Media O2, mainly in southern England and Wales. These will eventually need replacing, once 2G is switched off, and upgraded to 4G. For eCall, these devices currently rely on a 2G roaming SIM to make an emergency call and will need to transition to 4G in the future.

We will continue to work with government, as well as relevant trade bodies, service providers, and equipment manufacturers to help ensure a smooth transition and support the protection of vulnerable customers.

²¹ Fire Industry Association, [3G is being switched off](#), 17 August 2023.

²² Ofcom, [Switching off 3G and 2G networks: advice for IoT and third-party device suppliers](#), 8 September 2023

²³ eCall is a button in cars that can be pressed in the event of an emergency or can be automatically activated, for example, in the event of an incident when the airbags are deployed. Most cars and vans produced after 2018 have a 2G eCall system installed to meet vehicle eCall related type approval requirements.