

Connected Nations 2022

Northern Ireland report



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1. Overview

This annual report measures progress in the availability and capability of broadband and mobile services in Northern Ireland.

Alongside this Northern Ireland report, we publish separate reports on broadband and mobile availability for the [UK as a whole](#) and [each of its nations](#). Our [interactive dashboard](#) allows people to easily access data for different areas of the UK and specific types of services. This data is also available at Northern Ireland local authority, Northern Ireland Assembly and UK Parliament constituency level.

Key highlights

Broadband

Nearly 700,000 homes in Northern Ireland (695,000) now have access to full-fibre broadband connections; over 155,000 more than last year. These connections can deliver much higher download speeds and are also more reliable than older, copper-based broadband. Among the four UK nations, Northern Ireland (85%) has the highest availability of full fibre services, compared to England (41%), Scotland (41%) and Wales (40%). Northern Ireland's full fibre position is a result of a combination of aggressive commercial rollout and publicly funded schemes designed to improve broadband in rural areas.

Superfast broadband (at least 30 Mbit/s), is available to 94% of premises in Northern Ireland, 3 percentage points higher than last year.

Average broadband download speeds in Northern Ireland have increased by 40% to 115 Mbit/s, up from 82 Mbit/s in 2021, and reflects increasing availability and take-up of faster broadband services. Average download speeds are lower in rural areas but have increased to 68 Mbit/s in 2022, compared to 50 Mbit/s in 2021.

Average monthly broadband data use in Northern Ireland has increased to 481 GB per connection in 2022.

Mobile

5G networks are still in the early stages of deployment. 5G coverage outside of premises in Northern Ireland from individual mobile network operators (MNO) ranges from 21-27% (based on our High Confidence measure).

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, up 2 percentage points on last year.

Voice calls are available across 89-98% of Northern Ireland, depending on the operator. While coverage from all operators is available across 87% of Northern Ireland, unchanged from a year ago.

2. Fixed broadband services

Fixed broadband scorecard – 2022

Table 2.1: Fixed broadband scorecard

Coverage of broadband (% of residential premises):	Northern Ireland	UK
Full-fibre broadband	85%	42%
Urban	94%	43%
Rural	65%	35%
Gigabit-capable broadband	87%	70%
Urban	96%	76%
Rural	65%	37%
Superfast broadband (>=30 Mbit/s)	94%	97%
Urban	99%	98%
Rural	82%	86%
Average download speed	115 Mbit/s	112 Mbit/s
Urban	134 Mbit/s	116 Mbit/s
Rural	68 Mbit/s	83 Mbit/s
Average monthly data usage (per residential connection)	481GB	482GB

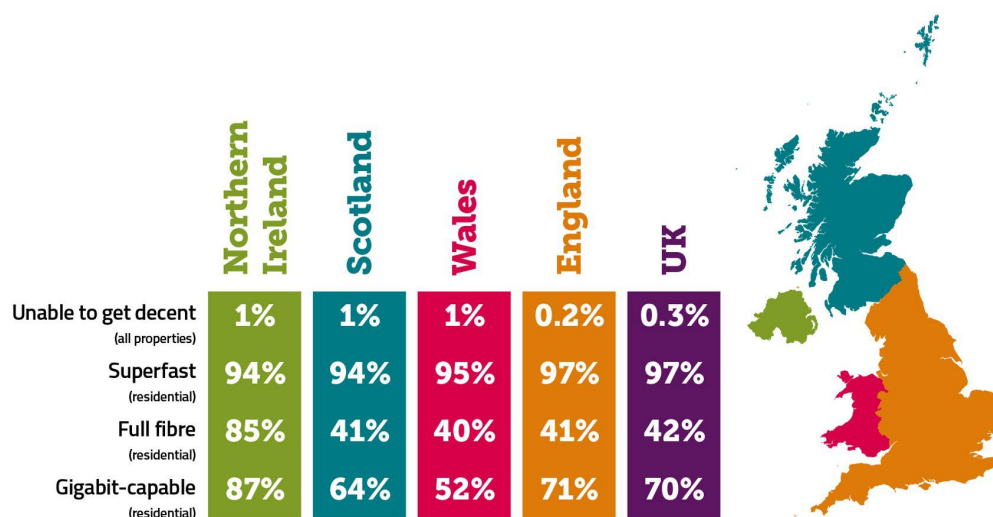
Source: Ofcom analysis of provider data

Introduction

Connectivity in Northern Ireland continues to improve, as existing networks are being upgraded and new fixed infrastructure is being built. We support the investment in gigabit-capable and full fibre networks – as do the UK and devolved governments – which give people fast, reliable and future-proofed connections

Our reporting on coverage is based on data for September 2022. Figures on data usage and take-up are from May 2022. 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 (homes and businesses).

Figure 2.2: Summary of broadband coverage at a fixed location across the UK



Source: Ofcom analysis of provider data (September 2022)

Availability of fixed broadband services

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

The Northern Ireland Executive’s broadband scheme - Project Stratum - which is aimed at rural areas is progressing at pace while Openreach, Virgin Media and Fibrus continue with commercial deployments to urban and semi-rural areas.

As of October 2022, Project Stratum, which aims to provide a full fibre service to 85,000 premises that can't get a superfast service (≥ 30 Mbit/s), had reached the halfway mark, with more than 46,000 premises passed.¹

Earlier this year additional funding was secured to expand the scheme, taking in an additional 8,500 premises that weren't included in the original Project Stratum contract. The extra £32m in funding brings total public funding for the scheme to £197 million. The deployment of the new full fibre network to reach all 85,000 premises will continue across four extended quarters of network build with Fibrus Networks, which is delivering the project, expected to complete deployment by March 2025.²

Elsewhere, the main network providers – Openreach, Virgin and Fibrus – continue to aggressively expand their full fibre footprints in Northern Ireland.

In November 2022, Openreach confirmed it has doubled the number of customers it has connected, via various different UK ISPs (Internet Service Providers), to its full fibre network in Northern Ireland from 100,000 to 200,000 in the space of a year.

Openreach's full fibre network currently covers around 80% of homes and businesses across Northern Ireland.

Fibrus is aiming to pass 350,000 premises in Northern Ireland, including 85,000 which are part of Project Stratum³, while Virgin Media continues to expand and upgrade its network.⁴

Other schemes, though smaller, are also playing an important role in improving the country's broadband infrastructure.

The completion of the £25m Full Fibre Northern Ireland scheme earlier in 2022 saw more than 900 public buildings (police, GPs, council offices etc.) get high speed internet access through newly built full fibre networks.⁵

¹ Department for the Economy, [Project Stratum reaches halfway mark with full fibre broadband roll out](#), 7 December 2022.

² Department for the Economy, [Project Stratum - extension to include 8,500 additional premises](#).

³ Fibre Provider, [Fibrus provides rollout update](#), 17 October 2022.

⁴ ISPreview, [Virgin Media O2 to Expand FTTP Broadband Cover in N.Ireland](#), 12 July 2022.

⁵ UK Government, [More than 900 public buildings in Northern Ireland get broadband boost](#), 30 May 2022.

Northern Ireland has the highest coverage of full fibre services in the UK

Northern Ireland’s improving broadband infrastructure is underlined by the fact that more than **four in five residential premises (85%) are now able to access full fibre services.**

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

They can deliver speeds far 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 these services is now 695,000; over 155,000 more than last year.

Among the four UK nations, Northern Ireland has the highest availability of full fibre services (85%), compared to England (41%), Scotland (41%) and Wales (40%).

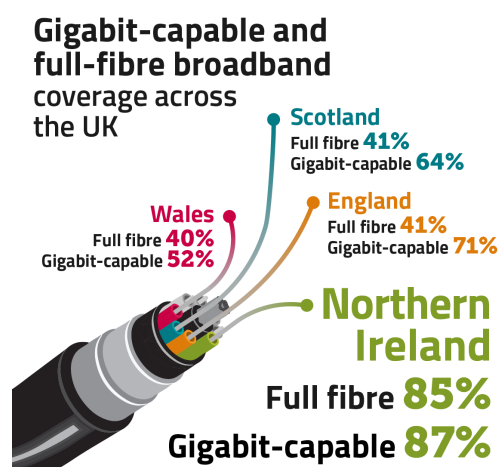


Table 2.3: Coverage of full-fibre broadband

Nation	% of premises (residential)	Percentage point change since 2021
UK	42%	+14 ppt
England	41%	+14 ppt
Scotland	41%	+14 ppt
Wales	40%	+13 ppt
Northern Ireland	85%	+14 ppt
Urban	94%	+9 ppt
Rural	65%	+29 ppt

Source: Ofcom analysis of provider data (September 2022).

Nearly nine in ten homes have access to gigabit-capable services

Gigabit-capable services were available to 87% of premises in Northern Ireland in September 2022. This is the highest of the UK nations and some 11 percentage points (ppt) higher than a year ago.

Table 2.4: Coverage of gigabit-capable broadband (>=1Gbit/s)

Nation	% of premises (residential)	Percentage point change since 2021
UK	70%	+23 ppt
England	71%	+25 ppt
Scotland	64%	+13 ppt
Wales	52%	+16 ppt
Northern Ireland	87%	+11 ppt
Urban	96%	+4 ppt
Rural	65%	+29 ppt

Source: Ofcom analysis of provider data (September 2022).

Superfast broadband is available to 94% of residential premises in Northern Ireland and more than four in five premises in rural areas

Superfast broadband services (>=30 Mbit/s) are available to 94% of premises in Northern Ireland. As with other metrics, this increase is due to the various programmes and investments outlined above and is 3 percentage points higher than a year ago.

Broadband speeds and superfast broadband availability are lower in rural areas. While services that deliver superfast speeds are available to 94% of residential premises across Northern Ireland, these services are available to 82% of premises in rural areas, though this is 12 percentage points higher than a year ago.

These figures highlight the Project Stratum, which is aimed at premises that can't get superfast speeds, is having on rural areas especially.

Superfast broadband coverage across the UK

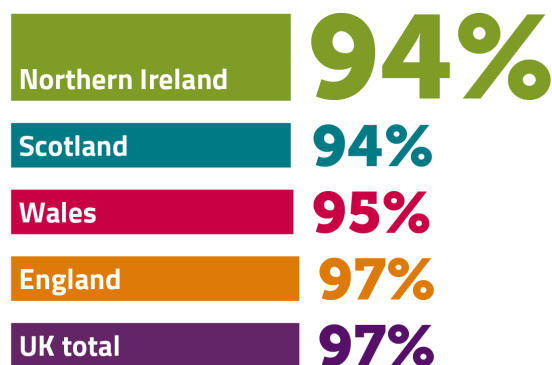


Table 2.5: Coverage of superfast broadband (>=30 Mbit/s)

Nation	% of premises (residential)	Percentage point change since 2021
UK	97%	+1 ppt
England	97%	+1 ppt
Scotland	94%	-
Wales	95%	+1 ppt

Nation	% of premises (residential)	Percentage point change since 2021
Northern Ireland	94%	+3 ppt
Urban	99%	-
Rural	82%	+12 ppt

Source: Ofcom analysis of provider data (September 2022).

There has been a big drop in properties unable to access decent broadband

Despite the current and planned investment in broadband networks in Northern Ireland, some hard-to-reach premises may still not get access to a decent fixed broadband service.⁶ Some of these properties may be served instead by connections from fixed wireless access (FWA) services delivered over the 4G and 5G networks. More detailed analysis of these technologies is provided in the main UK Connected Nations 2022 report. We estimate that around 9,000 (1%) premises in Northern Ireland (down from 17,000/2.1% last year) do not have access to decent broadband from either a fixed or FWA network. These may be eligible for the broadband universal service obligation.

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 service⁸ 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 of providing the connection are below £3,400 or, where the costs are above £3,400, the customer agrees to pay the excess.⁹ 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.¹⁰

BT's delivery of the USO

As of October this year, BT had received 85 orders in Northern Ireland.¹¹ Each order may require network build that can serve multiple premises, and therefore will lead to full fibre connections

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 100GB a month.

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 £48.90 per month in line with CPI.

⁹ In calculating whether the costs are below or above £3,400, the universal service provider (USP) must take into account where costs could be shared by several USO eligible premises.

¹⁰ BT Group, [A Universal Service Obligation](#).

¹¹ BT's public reporting shows a slightly lower number of total confirmed orders, this is because it only covers orders prior to, and during, network build, whereas the 1851 figure also includes orders made once build has completed.

being built that can serve just over 700 premises in Northern Ireland that do not have access to decent broadband.

There are still some premises that may not get connected under the USO

Data analysis by BT indicates that there are a number of premises where the costs to connect them are likely to exceed the £3,400 cost threshold in the USO. In these cases, customers will receive excess cost quotes that may be quite high in some cases. Those premises that are the most expensive to connect and are likely to need alternative solutions. We discuss in the main UK Connected Nations 2022 report how the latest generation of low earth orbit satellite services (which have coverage across Northern Ireland) may offer a good alternative option for customers in hard-to-reach areas who would otherwise face very high costs to install a fixed broadband connection.

Local authority coverage data

This 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.

Full fibre availability is rapidly increasing in rural areas

Broadband services and speeds vary across Northern Ireland between urban and rural areas. This is because properties in rural areas tend to be more dispersed and are more expensive to provide new, faster, fixed line broadband services to.

Consequently, local authority areas with greater numbers of rural premises have lower availability of superfast (≥ 30 Mbit/s) and full fibre services. Conversely, those local authority areas such as Belfast, which are more densely populated, have much greater availability of higher speed broadband services.

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

A rise in full fibre coverage is especially notable in several, mainly rural council areas where coverage had previously been very low. In Fermanagh and Omagh full fibre coverage now extends to some 71% of residential premises, up from just 36% a year ago. Full fibre coverage in Mid Ulster is now 75%, up from 53% a year ago. Indeed, every council area, with the exception of Belfast which already had high levels of coverage, has seen double digit increases in full fibre availability over the last year.

Availability of full fibre services is set to expand further with the Northern Ireland Executive's Project Stratum broadband intervention scheme due to run until 2025. In addition, the Department for the Economy has launched a request for information regarding the implementation of Project Gigabit in Northern Ireland; Project Gigabit will help push Northern Ireland towards 100% full fibre availability.

Table 2.6: Coverage of superfast and full-fibre broadband by local authority (% of premises)

Local authority	>=30Mbit/s (Superfast)	Change since 2021	Full fibre	Change since 2021
Belfast	99%	-	90%	+7 ppt
Ards and North Down	96%	+1 ppt	89%	+7 ppt
Lisburn and Castlereagh	96%	+2 ppt	86%	+15 ppt
Antrim and Newtownabbey	93%	-	87%	+12 ppt
Derry City and Strabane	94%	+3 ppt	87%	+14 ppt
Mid and East Antrim	94%	+4 ppt	87%	+13 ppt
Armagh City, Banbridge and Craigavon	94%	+5 ppt	84%	+14 ppt
Causeway Coast and Glens	93%	+6 ppt	84%	+18 ppt
Newry, Mourne and Down	92%	+4 ppt	84%	+13 ppt
Mid Ulster	88%	+8 ppt	75%	+22 ppt
Fermanagh and Omagh	86%	+18 ppt	71%	+35 ppt
NI	94%	+3 ppt	85%	+14 ppt

Source: Ofcom analysis of provider data (September 2022).

More people are upgrading to higher speed services and new technologies

Take up of full fibre services is increasing

It is important to understand whether consumers are benefiting from higher speed and more reliable broadband services when they are available.

We estimate that the take-up of services using full fibre at any speed, where fibre is available, is around 25% in Northern Ireland.

Our reporting of full fibre take-up may appear lower than expected because networks are deploying at pace and take-up lags behind coverage. This could occur because there is a lag in awareness of availability or consumers need to wait until their existing service contract ends before they can migrate to a new service.

Table 2.7: Estimated full fibre take-up as a percentage of premises where full fibre services are available: 2021 and 2022

	2022	2021
UK	25%	24%
England	25%	25%
Northern Ireland	25%	19%
Scotland	23%	22%
Wales	28%	24%

Source: Ofcom analysis of provider data (May 2022).

Take-up of superfast broadband has also increased

Overall, we estimate that for those premises that are able to take superfast broadband services (94% of all premises in Northern Ireland), around 73% of them do so. Take-up of superfast broadband is highest in England and Northern Ireland.

Table 2.8: Estimated superfast take-up as a percentage of premises where superfast services are available: 2021 and 2022

	2022	2021
UK	73%	69%
England	73%	69%
Northern Ireland	73%	73%
Scotland	71%	68%
Wales	71%	66%

Source: Ofcom analysis of provider data (May 2022).

Average download speeds in Northern Ireland have increased by 40%

The average download speed delivered to premises in Northern Ireland is 115 Mbit/s. This has increased from 82 Mbit/s last year and reflects increasing availability and take-up of faster broadband services.

Average download speeds are lower in rural areas (68 Mbit/s) though this too has increased from 50 Mbit/s in 2021.

Average monthly data usage in Northern Ireland has increased from 455GB last year to 481GB this year.

Table 2.9: Average download / upload speeds and monthly data usage

	Average download speed (Mbit/s)	Average monthly data usage (GB)
Northern Ireland	115 Mbit/s	481 GB
Urban	134 Mbit/s	506 GB
Rural	68 Mbit/s	423 GB

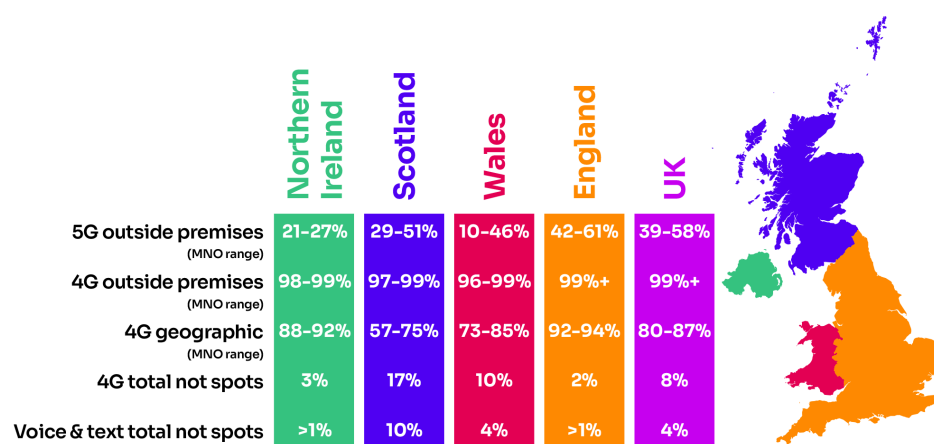
Source: Ofcom analysis of provider data.

3. Mobile, data and voice

Introduction

Mobile services continue to play an ever more central role in people’s lives, from on-the-go calls and internet access to wireless connectivity for smart meters. In this chapter, we provide information on 5G coverage as well as the broader availability of mobile coverage outside and inside premises, across Northern Ireland.

Figure 3.1: Summary of mobile coverage across the UK and Nations¹²



Source: Ofcom analysis of operator data (September 2022)

5G availability continues to grow, extending beyond the busiest urban locations

5G is within reach of a growing number of consumers, with around 20% of mobile handsets now 5G capable (up from c10% in 2021), and significant increases in coverage observed across the UK.¹³

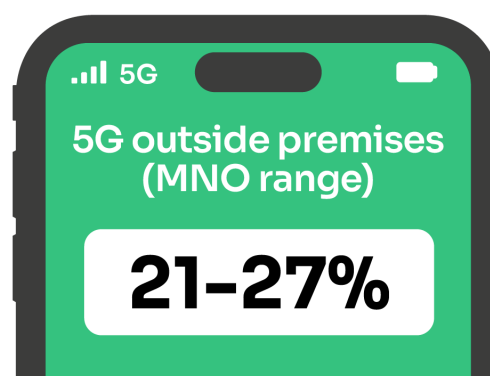
The mobile coverage data in this report is based on predictions provided to us by the mobile network operators (MNOs). To evaluate the accuracy of the information provided to us, we undertake regular testing to ensure the predictions provided are suitable for national and regional reporting. The development of 5G predictions has required new approaches from the MNOs, and in many cases relies upon new iterations of their modelling tools. We have therefore undertaken a 5G-focussed monitoring exercise before publishing these predictions, and we will continue to engage with MNOs, and undertake further monitoring, as networks are rolled out and models are updated.¹⁴

¹² For 5G coverage outside of premises, this individual MNO range is based on our ‘High Confidence’ measure.

¹³ We note that not all 5G capable devices may be enabled with 5G subscriptions.

¹⁴ Measurement data is collected as part of our monitoring activity on a regular basis. Ofcom, [Mobile signal strength measurement data from our spectrum assurance vehicles](#), 26 July 2022.

In 2021, we set out our approach to reporting on 5G availability across a confidence range covering High Confidence and Very High Confidence. These confidence levels reflect the likelihood of coverage predicted by the MNOs matching up to coverage on the ground for consumers in a particular location. We consider a High Confidence, associated with a signal strength (-110 dBm), to equate to at least 80% confidence level, and a Very High Confidence - associated with the higher signal strength (-100 dBm) - to equate to a circa 95% confidence level.



Currently, 5G coverage outside of premises in each UK Nation ranges across individual MNOs as follows: 42-61% for England; 29-51% for Scotland; 10-46% for Wales; and 21-27% for Northern Ireland (all based on our High Confidence level).

Table 3.2: 5G outdoor premise coverage in Northern Ireland by mobile operator

	Very High Confidence	High Confidence
EE	11%	19%
Three	7%	14%
Virgin Media O2	15%	20%
Vodafone	14%	26%

Source: Ofcom analysis of MNO predictions, September 2022.

Overall premises coverage

Even as 5G coverage increases, voice and data services continue to be most widely available (and accessed) via older technologies. In particular the 4G services offered by each of the MNOs continues to provide the fundamental backbone of most consumers’ experience. We therefore highlight below the range of 4G coverage available from individual MNOs, alongside measures for voice coverage (where 2G and 3G also play a role).

Outdoor premises coverage remains at a high level

As we have reported in recent years, individual operators continue to provide good 4G coverage outside more than 98% of premises in Northern Ireland. In addition, 96% of premises have outdoor 4G coverage from all MNOs.

Individual MNOs each provide coverage for outdoor voice calls in the vicinity of more than 98% of premises, while 97% of Northern Ireland premises have coverage for outdoor voice calls from all MNOs.

There continues to be a significant difference between coverage in urban and rural areas. Individual operators' 4G coverage outside rural premises ranges from 93-96%, up from 90-96% in 2021, while each MNO continues to serve 99+% of urban premises.

There has been a small improvement in outdoor voice coverage, which ranges from 94-99% across individual MNOs for rural premises, up from 93-99% in 2021. This rises to 99+% across individual MNO for urban premises.

Indoor coverage

There are a number of factors which affect the coverage people receive indoors. These include the thickness of the walls, the building materials used in construction, 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.

For indoor 4G coverage, this year we find that the percentage of premises served in Northern Ireland ranges from 85-91% across individual MNOs. This is a change since last year (from 78-92% across individual MNOs in 2021). The availability of indoor voice calls ranges from 89-99% across individual MNOs (up from 86-98% in in 2021).

We continue to see a significant difference between rural and urban areas for indoor coverage, though there have been small improvements this year. Individual MNOs provide indoor 4G coverage to 66-75% of premises in rural areas (compared to 59-76% in 2021), compared with 90-98% of urban premises (2021: 85-99%).

Indoor voice coverage is somewhat higher, ranging from 71-96% across individual MNOs for rural premises (up from 69-93% in 2021). This compares to a range of 96-99%+ for urban premises, which is a slight improvement on 2021 - 93-99%+.

Where indoor coverage is poor or unreliable, there are other solutions which can improve user experience. These include broadband-based calls on services such as Skype/WhatsApp, femtocells and WiFi calling. All MNOs offer WiFi calling to their customers - although not all mobile phones are configured to support this feature. The percentage of calls in the UK made using voice over WiFi by MNOs has remained largely stable this year, ranging between 2% and 17% across individual MNOs (compared with between 2% and 16% in 2021).

4G geographic coverage

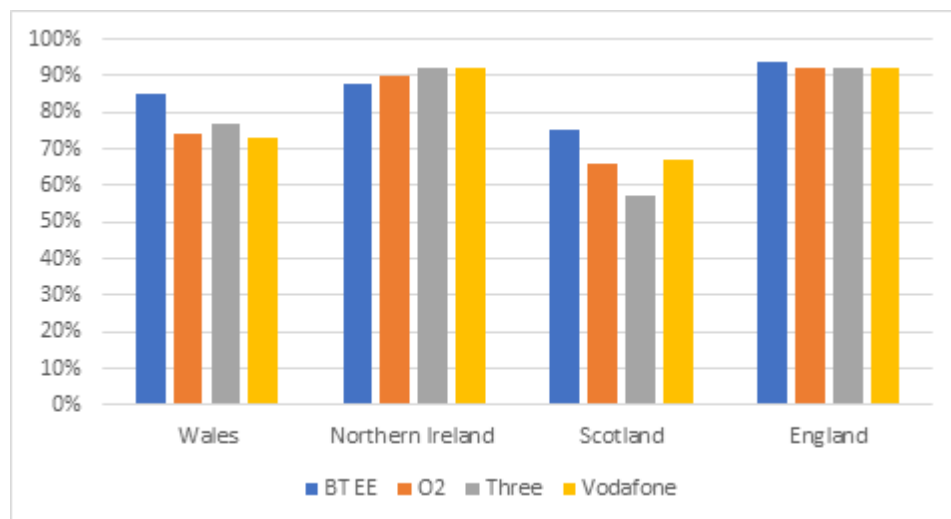
There have been small improvements in geographic coverage in Northern Ireland of some operators this year.

From the data reported to us, we can see that BT EE has increased its 4G geographic coverage by c1% to 88% of Northern Ireland; Virgin Media O2 has increased its coverage by c1% to 90%; coverage from Three and Vodafone remained stable at 92%.

Therefore, the Northern Ireland landmass covered by individual MNOs ranges from 88-92% (up from 87-92% in 2021). As the majority of the Northern Ireland landmass is rural, rural coverage levels are similar, with significantly higher urban geographic coverage.

Among the UK nations, geographic coverage is highest in England (92-94%), followed by Northern Ireland (88-92%), Wales (73%-85%) and Scotland (57%-75%).

Figure 3.3: Differences in 4G geographic coverage in Wales, Northern Ireland, Scotland and England (2022)



Source: Ofcom analysis of MNO predictions (September 2022).

Mobile coverage in Northern Ireland by operator

Below, we compare coverage of voice and 4G services in Northern Ireland from the four main operators – Virgin Media O2, Vodafone, EE and Three. In recent years, there has been increased consolidation and sharing of masts between Virgin Media O2 and Vodafone, and between EE and Three, which has seen coverage between sharing network providers converge.

There are also more than 30 virtual network operators. These operators, such as Sky, Virgin Mobile, iD Mobile, Tesco Mobile, giffgaff and others, are each carried on one of the main networks and will have similar coverage to its host network.

Table 3.4: Mobile coverage by operator in Northern Ireland

	Virgin Media O2	Vodafone	EE	Three
Geographic – 4G	90%	92%	88%	92%
Geographic – voice	98%	98%	89%	94%
Indoor premises – 4G	91%	91%	85%	85%
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.

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.

Work has continued throughout 2022 on a range of fronts towards the delivery of the SRN, with operators' licence obligations to achieve good quality coverage across 88% of the landmass falling due in June 2024, and 90% of the landmass to be covered by January 2027. The UK Government also expects that as a result of this activity there will be good 4G coverage available across 95% of the UK landmass by the end of 2025 (based on the 'At least one MNO' measure).

For Northern Ireland it means 4G mobile coverage is expected, by 2026, 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.

Mobile Action Plan for Northern Ireland

In June 2022, six NICS Government Departments, working with local government and other stakeholders, published a Mobile Action Plan for NI (MAP NI) to help enable better, faster and more consistent mobile coverage across Northern Ireland.¹⁵

It identifies five barriers to progress and specifies actions to be taken to address them:

1. Perception of mobile technology - to address public perceptions of mobile technology, myth bust where needed and explain the benefits of connectivity to the NI economy.
2. Planning - to ensure NI local and central government look at ways to ensure the planning system supports better digital connectivity and the economic and societal benefits this brings, balanced with the need to keep environmental and amenity impacts to a minimum. Explore the potential for Digital Champions and engage with industry in the preparation of Local Development Plans to address important planning considerations for new telecommunication infrastructure.
3. Costs - to be mindful of the commercial costs of improving coverage in sparsely populated or hard to reach areas.
4. Public asset availability - to explore the possibility of public assets being used for mobile infrastructure.
5. Keeping pace - to ensure that local and central government keep up to date with advancements in technology and continue to collaborate with each other and the industry through the formation of the NI Barrier Busting Taskforce to maintain momentum for mobile connectivity improvements.

¹⁵ Department for the Economy, [Mobile Action Plan for Northern Ireland \(MAP NI\)](#), 23 July 2022.

2G & 3G coverage and switch off

Plans for switch-off of 3G networks, and eventually 2G networks, are progressing

In December 2021, the MNOs confirmed to the UK Government that they do not intend to offer services on their 2G and 3G networks past 2033 at the latest.¹⁶ 2G and 3G services launched in the 1990s and 2000s respectively, and running these networks alongside newer 4G and 5G services involves increased operating costs, as well as a less efficient use of spectrum and energy. Moving away from these older technologies will improve network efficiency and enable more spectrum to be used for 4G and 5G services.

MNOs are developing plans to switch-off their 3G networks first, with each MNO setting its own timetable. Vodafone is starting the switch-off of its 3G network in early 2023 and has been contacting affected customers to advise them of the steps they need to take ahead of switch-off to ensure that their services are not disrupted. EE plans to start its 3G switch-off in early 2024, and Three expects to complete its switch-off by the end of 2024. Virgin Media O2 has yet to confirm a planned date for switch-off of its 3G network.

Vodafone, 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.

There are a range of users whose needs will require careful management

We are actively monitoring the implementation of switch-off and working closely with the MNOs to understand their progress and plans, in particular to ensure that affected customers and services are adequately informed. Early next year we plan to publish a document setting out our expectations of mobile providers as they implement switch-off, in particular the measures they should be taking to ensure that customers are protected and disruption is minimised.¹⁷

Based on the latest estimates from MNOs, there are likely to be nearly 5.5m¹⁸ customers across the UK using devices reliant on 2G and 3G connectivity which will ultimately need to be upgraded or

¹⁶ UK Government, [A joint statement on the sunset of 2G and 3G networks and public ambition for Open RAN rollout as part of the Telecoms Supply Chain Diversification Strategy](#), 8 December 2021.

¹⁷ We have already published a guide on our website. Ofcom, 2022, [Switching off the UK's 3G mobile networks: what you need to know](#), 3 August 2022.

¹⁸ This number excludes 2G/3G Smart Meter devices supported by Virgin Media O2 in the southern half of England.

replaced.¹⁹ Some customers will continue to be able to use these devices after 3G switch-off as they can carry on using the 2G network for voice calls in particular.²⁰

In addition to mobile handsets, affected devices include those that offer machine-to-machine and Internet of Things (IoT) type applications, such as care alarms, security alarms and payment terminals. Many of these rely on roaming SIMs (non-UK SIMs which are used on a permanent basis in the UK and which roam to the best available network), where there may not be a direct relationship with a UK MNO and will not be captured by the total device estimate above. Given this, raising awareness of upcoming switch-offs across all affected stakeholders will be essential. As part of our monitoring activity, we are engaging with government and other relevant stakeholders, such as service providers and equipment manufacturers, to help support a smooth transition.

Our data has not yet shown a change in the levels of 2G or 3G coverage available across the UK, however we expect we will start to see a decline in 3G coverage levels from later next year as the MNOs start to progress their plans. We will monitor this closely but envisage that any impact on coverage will be negligible, given MNOs are taking steps to ensure that their 4G coverage is improved ahead of switch-off, particularly in any areas which might be reliant on 3G currently. Three, for example, has committed that by the time 3G switch-off happens, it will have updated its 3G sites to 4G as a minimum, or ensured that coverage is provided from neighbouring sites.²¹

¹⁹ Last year we reported an estimate of c.4m devices relying on 2G and 3G connectivity. This was an under-estimate and we consider the updated estimate this year is more accurate for a number of reasons, including: (i) MNOs have now undertaken a more detailed analysis to identify all the potentially affected devices; (ii) it now includes some devices that are 4G capable but not VoLTE-enabled and which are outside of the period of handset support for the software upgrades needed to enable VoLTE (therefore these devices will continue to be reliant on the 2G/3G network to make voice calls); and (iii) it also includes estimates relating to machine to machine devices reliant on 2G/3G – some MNOs did not include these in the figures reported last year. We are continuing to monitor this with MNOs and expect to see the overall number of devices decrease next year as more customers upgrade and update their devices ahead of upcoming 3G switch-offs.

²⁰ Three does not have a 2G network, so the network will not be able to offer native circuit switched calling once it switches off its 3G network, though roaming based solutions for emergency calling will still operate where other networks are present.

²¹ Three, [Our plans to switch off 3G](#).