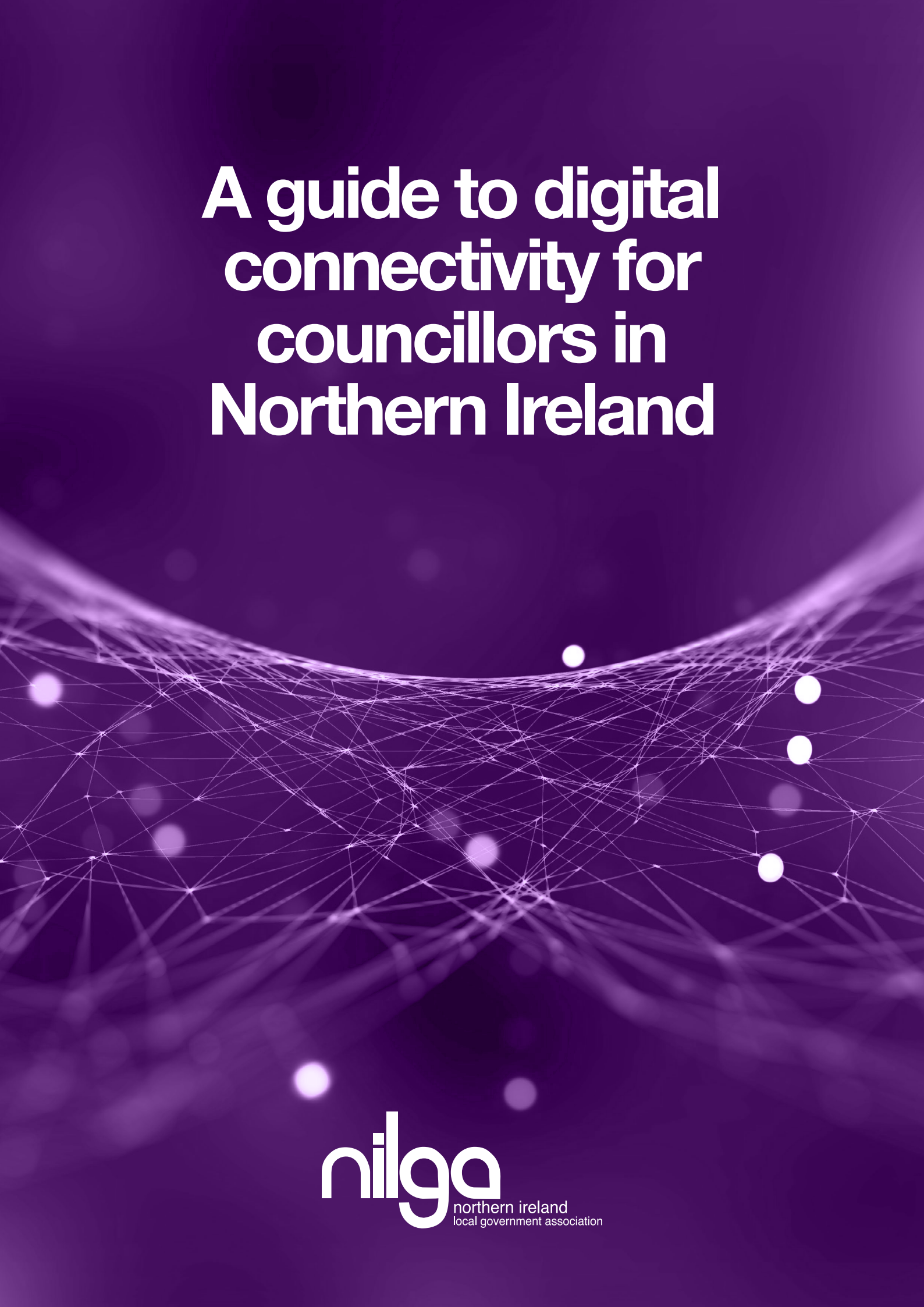
A guide to digital connectivity for councillors in Northern Ireland



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Introduction

Digital connectivity is an all-encompassing term used to describe mobile or fixed connections to the internet. With better access to high-speed and reliable broadband and mobile connections, local communities can access public services more conveniently and purchase goods & services online.

Governments across the world have ambitions to improve connectivity and have supported the rollout of broadband connectivity and mobile telecoms infrastructure.

In Northern Ireland, local councils are leading on the delivery of the City & Growth Deal plans, all of which involve investment in digital connectivity projects, for example Augment the City, Design Smarter Digital Twin Centre, Advanced Manufacturing Innovation Centre, Momentum One Zero, i4C Innovation and Cleantech Centre.

While most people in Northern Ireland can access high speed broadband connections, there remain some pockets without. In December 2024, Ofcom reported that 93% of Northern Ireland has full fibre coverage, the highest of the UK regions[1].

Many areas of the country benefit from the existence of ever-present, high-quality mobile connectivity but coverage gaps are more often found in rural communities, where residents can experience partial mobile coverage. The networks continue to upgrade and extend coverage to rural areas to cover 'not spots', where a mobile phone will not be able to make a call on any network. In Northern Ireland these 'not spots' count for less than 1% of the landmass[2]. In addition, the situation can be more complex near border areas, when users may inadvertently roam onto Irish networks. Ofcom has rules in place to protect customers from unexpected bills due to roaming, and many operators offer special tariffs to include Ireland as UK usage[3]. However, in areas where demand for data is increasing rapidly, capacity gaps emerge which require upgrades to existing infrastructure and the installation of new technologies capable of adding greater capacity.

As technology continues to evolve, it is vital that all local areas have the digital infrastructure able to meet the demands of consumers and businesses both today and in the future.

For any queries relating to this guide please email **office@nilga.org**

This guide is structured to provide councillors with key information on digital connectivity. It explores the main issues and challenges facing our local areas and outlines the range of uses of connectivity. Finally, it sets out the vital role councillors can play in this area by:

- *promoting the benefits of faster, greater capacity, and more reliable connectivity;*
- *encouraging engagement between operators and communities in relation to the need for telecoms infrastructure; and*
- *working in partnership with other councillors, officers and other internal and external stakeholders to consider the role your council can play in helping to improve communities' digital connectivity.*

1 Connected Nations Northern Ireland Report 2024
2 Ofcom Connected Nations 2024, Northern Ireland Report
3 https://www.ofcom.org.uk/phones-and-broadband/bills-and-charges/new-roaming-alerts-for-uk-holidaymakers/

Why does digital connectivity matter?

As more of us use faster broadband and mobile services, we have more choice about how and when to make voice and video calls, watch on-demand TV, access online services, stream music, play games or study / work from home. It is equally important for businesses too with business owners relying on a broadband connection for their work. Investment in broadband and mobile, and increased connectivity has a positive relationship with economic growth and productivity as well as social benefits. The digitisation of public services also offers an important opportunity to support sustainable local services, especially in remote settings with the public keen to use more services online.

Councils themselves can also benefit from better connectivity in the delivery of public services. With greater adoption and use of digital technologies and processes, there are opportunities to meet the challenges of funding constraints and increased demand for access to online council services. Better digital infrastructure can enable local government to fully utilise advances in technology and data analysis to better understand local areas and deliver services more effectively. The transformation of public sector assets such as rooftops and street furniture into “smart infrastructure” means they can now supply public access to mobile infrastructure as well as public wifi (explained later in this guide); support environmental monitoring such as air quality or flooding; or even monitor pedestrian flow or parking spaces.

Why do we rely on advanced digital connectivity?

These use cases highlight the broad impact of advanced connectivity, which enhances everyday life, business operations, and technological advancements. This list is not exhaustive, and future use cases may also emerge:

Personal

Entertainment

- Streaming Services: Seamless video streaming in ultra-high definition (4K/8K) with low latency.
- Virtual Reality (VR) and Augmented Reality (AR): Powering real-time experiences for gaming, simulations, or virtual events.

Home Automation

- Smart Homes: Appliances, lighting, and security systems are interconnected and can be controlled remotely for convenience and efficiency.
- Voice Assistants: Devices like Alexa and Google Assistant connect to various smart gadgets, making homes smarter and more efficient.

Working from home

- Cloud Computing: Teams can access files, work on documents, and collaborate in real-time from anywhere in the world.
- Video Conferencing: Remote teams can meet, collaborate, and work together smoothly using tools like Zoom, Teams, etc.

Education

- Remote Learning: Students and teachers can connect in real-time for lessons, discussions, and assessments.
- Virtual Classrooms: Advanced connectivity allows virtual field trips and interactive learning experiences with global experts.

Financial Services

- Mobile Payments: Secure and fast mobile payment options are enabled through advanced connectivity, allowing users to make transactions on the go.
- Blockchain and Cryptocurrencies: Connectivity supports fast and secure peer-to-peer transactions, with real-time data exchange.

Industry

Healthcare

- Telemedicine: Doctors can remotely diagnose and treat patients using video consultations and real-time data sharing.
- Remote Patient Monitoring: Wearable devices collect health data (like heart rate or glucose levels) and send it to doctors for ongoing care.
- Robotic Surgery: Surgeons can control robotic tools remotely with high precision, often with minimal physical presence.

Manufacturing

- Digital Twins: Virtual replicas of physical assets or systems help in monitoring performance and troubleshooting in real-time.
- Robotics and AI: Smart robots perform repetitive tasks with high accuracy, while AI processes vast amounts of production data for efficiency improvements.
- Smart Factories: Machines and systems are interconnected to increase efficiency, monitor performance, and predict maintenance needs.
- Supply Chain Optimisation: Sensors and real-time data help track goods, manage inventory, and reduce delays.
- Predictive Maintenance: Machines self-monitor and alert technicians when parts need servicing or are about to fail.

Agriculture

- Precision Farming: Sensors monitor soil, weather, and crop health, allowing farmers to optimise irrigation and use resources efficiently.
- Drone Monitoring: Drones capture real-time data on crop health, enabling better decision-making for harvests.

Autonomous Vehicles

- Self-driving Cars: Vehicles communicate with each other and infrastructure to avoid collisions, optimise routes, and ensure safe operation.

Place shaping

Smart Cities

- Traffic Management: Real-time data from traffic sensors and cameras help to reduce congestion and optimise traffic flow.
- Public Safety: Advanced connectivity enables faster emergency response and crime detection through surveillance systems and alert systems.
- Energy Efficiency: Smart grids optimise power distribution, reducing energy waste.

Understanding broadband

Broadband is the 'always-on' way of connecting a computer or electronic device to the internet using a copper, cable, fibre or wireless connection. Although there is no universally accepted definition of different types of broadband, it is often defined by its download speed i.e., the speed at which a device can receive information (data) from the internet. A broadband connection's upload speed i.e. the rate at which data, such as your photographs or videos are sent to the internet, is also a vital component of ensuring a high-quality online experience.

The majority of NI premises can access full fibre broadband connections, where the fibre optic cable extends all the way to the customer premises which are capable of delivering very high-speed services. Wireless broadband services come in two types – fixed and mobile. Fixed Wireless Access (FWA) services connect to an antenna usually sited on the customer premises. Mobile broadband uses the mobile phone network to deliver services.

For any business, internet connectivity is essential. With superfast broadband, businesses can communicate with customers and colleagues using video conference platforms and run e-commerce operations. But the more employees a business has, the faster its connection needs to be. Businesses also rely on fast upload speeds to send documents & tenders and save information in cloud services.

The broadband marketplace comprises many different companies which supply a range of services to businesses, consumers, or other broadband providers. There are four types of broadband provider.

- Digital infrastructure providers - those that only build broadband infrastructure and do not deal with consumers directly, e.g. Openreach
- Internet Service Providers (ISPs) - those that only supply a broadband retail service to consumers and do not build infrastructure – e.g. Sky, BT and many others
- Those that build broadband infrastructure and use it to supply a broadband retail service to consumers – e.g. Virgin Media & Fibrus
- Those who provide broadband over a mobile signal (Fixed Wireless Access) or satellite e.g. Starlink.

How does NI fare for broadband connectivity?

Each year, Ofcom publishes a Connected Nations report, measuring connectivity across the UK. The 2024 report shows that:

- More than 760,000 homes in NI now have access to full-fibre broadband connections;
- Among the four UK nations, Northern Ireland (93%) has the highest availability of full-fibre networks – this is a result of a combination of significant early commercial rollout and publicly funded schemes designed to improve broadband in rural areas; and

- Around 2000 premises in Northern Ireland cannot access a decent fixed broadband service[4] and 47% of the homes and businesses who have access to superfast, or better, broadband don't subscribe to these services.

Ofcom's website has lots of useful information to help consumers diagnose problems with their broadband and wifi, and information on how to report faults or make complaints to their provider[5].

What is public wifi?

Public wifi enables devices to connect to an unrestricted broadband signal if they are within range of the access point. They are operated by many different providers and can be found in public buildings, on public transport, as well as in businesses.

Understanding mobile phone networks

Mobile phone networks allow devices containing a SIM card or eSIM to make calls, send and receive messages, browse the internet, stream audio and video and use apps on the move. At the time of publishing this document, they are provided and operated in the UK by four main commercial providers, known as Mobile Network Operators (MNOs): BT-EE, Virgin Media O2 (VMO2), Three and Vodafone[6]. In addition, there are more than 60 Mobile Virtual Network Operators (MVNOs) which use the networks owned by the MNOs. These include Giffgaff, Sky Mobile, Tesco Mobile, Lebara and others. When you take out a mobile service, it is vital to check the mobile coverage each MNO provides in the places you live, work and visit as each will be different.

How do mobile phone networks work?

A mobile network involves several different pieces of equipment to broadcast a mobile signal. Mobile signals are broadcast from antenna which are mounted on ground-based masts, rooftops and other existing structures (the macro network) at a height that provides a clear signal. Smaller antenna systems (small cells) provide a signal to areas which are difficult to reach or where additional capacity is needed, such as high-usage urban areas to ease congestion (e.g. train stations, stadiums etc).

The design of antenna and the location of masts or towers vary for all sorts of reasons:

- to accommodate the number of people and devices that will be using them – they will be smaller in cities and bigger in the countryside
- because of local geography such as tall buildings, hills or valleys, which interfere with radio waves

4 Connected Nations Northern Ireland Report 2024
5 Broadband and landline faults and problems - Ofcom
6 Three & Vodafone are expected to merge in 2025

- where the base station can be sited, especially its height above the ground. This can be affected by planning considerations such as conservation areas which may impact the installation of base stations, access to electricity to power the radio transmitter and the layout and height of nearby buildings.
- the location of neighbouring mobile infrastructure whose radio transmissions could cause interference.

Lots of factors limit mobile connectivity, either slowing it down or stopping it altogether:

- simply having too many people trying to connect in the same cell at the same time can make it difficult to connect due to capacity constraints in the network
- phones and tablets don't always have access to the latest range of frequencies and can be limited by the size of their receiving antenna, so thick walls, hills, or other buildings can interfere with their ability to send and receive a signal to the mobile mast.
- distance from a base station can mean that a device is unable to connect due to the strength of the signal which degrades the further away a device is (although mobile phone networks do not require a line of sight)

What is mobile coverage like in NI?

Ofcom's latest 'Connected Nations 2024' report shows that almost 99% of premises in NI are able to access a 4G signal from at least one mobile operator. 5G coverage continues to roll out and 71% of Northern Ireland's landmass is now covered by at least one operator. Coverage figures tend to mask the disparity between coverage in urban and rural areas. A lack of coverage and capacity can lead to dropped calls – when your mobile call unexpectedly cuts off or prevents your device connecting to the internet. Individual operators' 4G coverage outside rural premises ranges from 94-98%, while in urban areas, each operator provides near total coverage. Each network provides a different service and has its own coverage checker. Ofcom also has a coverage checker available to allow consumers to compare mobile coverage in their area across all providers. Mobile and Broadband checker - Ofcom.

The UK's mobile networks are gradually retiring their 2G and 3G networks. All the mobile providers have confirmed that they do not plan to offer their 2G and 3G services beyond 2033, with some operators having already done so for 3G services. By retiring 3G and 2G, these radio frequencies can be repurposed for faster, more energy-efficient 4G and 5G services. 5G is ten times more energy efficient than 3G and offers customers better, faster and more reliable services.

For further information see Switching off the UK's 2G and 3G mobile networks: what you need to know - Ofcom. Further information is also available at 2G/3G Switch Off | Mobile UK.

What is being done about coverage in rural areas?

Mobile Network Operators (MNOs) admit that improving coverage in rural areas is complicated, especially in hilly or extremely remote locations. In addition to the practical difficulties of installing and maintaining network equipment in these locations, making the commercial business case to build new mobile infrastructure in areas of low population density and in which fewer 'paying customers' work and reside, can be very challenging.

In 2020 the UK Government and Mobile Network Operators (MNOs) signed an agreement to deliver the Shared Rural Network (SRN). The programme aims to make 4G mobile coverage available to 95% of the UK. The MNOs have invested to extend their coverage by upgrading their existing 4G networks, working together on shared infrastructure and building new sites. In Northern Ireland, where the programme has now completed, 4G coverage has risen to 98%, up from 97% from at least one MNO and to 85% (up from 75%) from all four MNOs since the programme was agreed. Further information on the Shared Rural Network can be found at Mobile coverage obligations - Ofcom.

5G & 5G Standalone

5G is the fifth generation of wireless technology and the next generation of mobile networks after 4G. It can deliver faster, more reliable, and have lower latency than previous generations of wireless technology. Data requirements have increased 40% every year for the last decade, 5G is the only way mobile networks will be able to keep up with this demand. By providing extra capacity, 5G is essential for economic growth and achieving regional balance.

5G's increased speed and capacity allows more devices and users to access the internet at the same time. Non-standalone basic 5G which uses existing 4G infrastructure was launched in 2019 and coverage continues to extend across the UK. Average download speeds will range from 70 – 205Mbps. Theoretically speeds could evolve to 10-50Gbps in time. All modern 'smartphones' support both 5G services and applications including:

- faster mobile broadband, greater capacity and a more consistent experience in congested areas with a very high number of devices
- industrial applications, enabling businesses to improve their productivity, for example through predictive maintenance and real-time analytics
- Internet of Things (IoT) services, many of which will help the public sector and businesses deliver services more efficiently.

Transitioning from basic non-standalone 5G, mobile operators have begun deploying standalone 5G (5G SA) which is the next evolution of 5G networks. Unlike Non-Standalone 5G (NSA), which uses 5G radio access but still relies on a 4G core, 5G SA requires the deployment of a 5G core. This allows for significantly more functionality and benefits, including improved reliability, lower latency (near-instant communications), better security, and stronger indoor signal. The UK government has a stated ambition to deliver nationwide coverage of standalone 5G to all populated areas by 2030.

One of the key features of 5G SA is "network slicing," which allows operators to offer multiple virtual, dedicated networks to individual customers or groups of customers. This enables a dedicated quality of service for specific network quality requirements leading to a number of use-cases and opportunities which are noted below.

There are already some examples of how 5G standalone is already benefitting the NI economy:

- Belfast Harbour is harnessing 5G-led innovations to accelerate the digitisation of port operations including automatic bulk freight handling and safety improvements.
- Queen's University is harnessing 5G via Building Information Modelling (BIM), Digital Twin technology and AR (Augmented Reality) to support the design and construction of a £100 million, state-of-the-art Advanced Manufacturing Innovation Centre.

5G standalone, which has been deployed by some mobile operators in Belfast presents numerous opportunities for all of the public sector in Northern Ireland to improve public services, stimulate economic development, and enhance the quality of life for residents. By embracing these opportunities and investing in 5G infrastructure and initiatives, councils can play a key role in shaping the future of their communities. Some of the use cases for councils are:

- Smart Cities Initiatives: Smart city projects aimed at improving infrastructure, transportation, energy efficiency, and public safety can all be enhanced by 5G.
- Enhanced Public Services: 5G enables faster and more reliable communication networks, allowing enhance public services such as healthcare, education, and emergency response.
- Supporting Small Businesses: 5G can enable small businesses to adopt advanced technologies such as augmented reality (AR), virtual reality (VR), and Internet of Things (IoT) applications.
- Tourism and Economic Development: Enhanced connectivity in tourist areas can support augmented reality (AR) experiences and enable innovative digital marketing campaigns.
- Environmental Monitoring: The public sector can use 5G networks to deploy environmental monitoring systems for air quality, water quality, and noise pollution.
- Remote Working and Digital Inclusion: 5G can facilitate remote working initiatives by providing high-speed internet access to rural and remote areas where traditional broadband infrastructure may be lacking.

Are any councils using 5G standalone?

The partners in the Belfast Region City Deal have received funding to accelerate the development of innovative projects, from proof-of-concept right through to widespread adoption, to enable key sectors in the region to exploit 5G and benefit from the transformative effect of advanced wireless connectivity[7]. 5G standalone will be rolled out across MNO networks and will be accessible to users of those networks.

7 Belfast 5G Innovation Region – £3.8m wireless innovation funding – Smart Belfast

The Augment the City Challenge Competition – Smart Belfast, led by Belfast City Council's City Innovation Office and funded by the Belfast Region City Deal, is enabling local businesses to develop ideas, proof of concepts and prototypes using immersive technologies such as augmented reality (AR), virtual reality (VR) and mixed reality to enhance visitor attractions.

Several City and Growth Deal Regions here are considering Digital Enabling Infrastructure type projects, that may utilise Advanced Wireless and 5G technology. Separately, BT Group trialled the first real-world deployment of 5G Standalone network slicing capabilities over the EE mobile network, launched to support faster and more resilient mobile payments at Belfast's Christmas Market in 2024[8]. During the two-week trial, a dedicated slice of the EE 5G network was partitioned for use in the renowned Lavery's Beer Tent to support its eight mobile payment terminals, enabling superfast card and mobile payments for thousands of customers – even during the market's busiest periods. It marks the first time that a business has benefitted from access to a partitioned slice from EE's public network and live 5G Standalone core.

The current 5G roll out saw MNOs re-use existing sites to install the new infrastructure but to widen coverage further, they also need to install small cells. These can even be on street furniture such as lampposts and benches.

For more information on 5G, please see the Commons Library Briefing - 5G in the UK - House of Commons Library.

8 BT Group brings 5G network slicing to Belfast Xmas Market

The role of councils in digital connectivity

The role of councils in promoting good connectivity in their area is derived from their role as placeshapers – they wish to encourage the most up to date standards of connectivity in their area. In their role as planning authorities they have a vital and practical part to play in ensuring that planning policies are sympathetic to the needs of residents and businesses as well as environmental considerations and that existing rollout work is done efficiently. Equally, all public sector organisations' physical assets such as buildings and street furniture could be used to host electronic communications network equipment.

While there is currently no policy in place on the use of publicly owned assets to host mobile infrastructure, their suitability very much depends on the type and size (physical and power output) of the infrastructure itself and the availability of power, backhaul and the size and structure of the asset e.g. a building with a flat roof could be suitable while a building with a pitched roof may not. Any proposed use of publicly owned assets will be subject to any government policy in place at the time of application and planning considerations. Site acquisition, access or lease agreements are a commercial matter that must be negotiated with the landlord. Some examples of the types of publicly owned assets that may be suitable are:

Bike Hire Stations
Cemetery Car Parks
Community Centres
Council Owned Car Parks
Leisure Centres
Park Estate
Recycling Centres
Bowling Green Estate
Civic Amenity Sites
Council Office Buildings
Council Owned Depots
Museums
Playground Estate
Sports Pitches and Playing Field Estate

NI Central Government/ Arms Length Bodies Owned Assets:
Land
Buildings
Footways

Planning

The objective of the planning system, consistent with Part 1 Section 1 of the Planning Act (NI) 2011 is to secure the orderly and consistent development of land whilst furthering sustainable development and promoting or improving well-being. Responsibility for planning in Northern Ireland is shared between the 11 local councils and the Department for Infrastructure (DfI). Since 2015, councils have responsibility for the following key planning functions:

- Local development planning (plan-making) – creating a plan which will set out a clear vision of how the council area should look in the future by deciding what type and scale of development should be encouraged and where it should be located.

- Development management (decision-taking) – determining the vast majority of planning applications.
- Planning enforcement – investigating alleged breaches of planning control and determining what action should be taken.

DfI is responsible for making planning legislation and setting regional strategic planning policy, as well as the determination of regionally significant and called-in planning applications. It also provides oversight and guidance for councils and support to help monitor performance management.

Why is planning important?

Planning is about furthering sustainable development and creating places and resilient communities which flourish and enjoy a shared sense of belonging, both now and into the future. Fundamentally, the planning system should positively and proactively facilitate development that contributes to a more socially, economically and environmentally sustainable Northern Ireland. Planning authorities should therefore simultaneously pursue social and economic priorities alongside the careful management of our built and natural environments for the overall benefit of our society.

Delivering mobile telecoms infrastructure also relies on planning policy. Planning permission is required for all new ground-based telecoms masts in Northern Ireland. Planning rules for telecoms masts aim to strike a balance between meeting the growing demand for high-speed connectivity and ensuring the protection of the environment, public health, and the visual landscape.

New Build Homes

As the 2020s approached, it became apparent that the standard of digital connectivity provided to some new build homes in England was below par and didn't reflect the Government's national ambition to roll out world class digital infrastructure across the country. The Government in Whitehall took the view that without future-proofed full fibre ready infrastructure being installed as standard, residents would be unable to feel the benefits of decent connectivity such as the ability to work from home, stream on demand or make video calls. The Building etc. (Amendment) (England) (No. 2) Regulations 2022 came into force on 26 December 2022 and introduced gigabit broadband ready infrastructure and connectivity requirements for the construction of new homes in England. It is not currently understood if a problem exists in Northern Ireland to any similar extent. Further investigation of this matter, including resource implications, would need to be completed before any proposals mandating broadband connectivity at all new builds could be considered by the NI Executive.

Councils therefore do not have the same regulatory requirement as England to ensure developers' properties are connected. Nonetheless developers should be mindful of their site's need for access to communications services that will meet end users' needs and it is in everyone's interests that councillors engage with developers to influence the provision of fast broadband services.

How can councils support digital connectivity?

Having a digitally well-connected place can help councils deliver their wider ambitions – inclusive economic growth, removing digital exclusion and delivering services more effectively are some of the priorities of local councils. Some councils may have developed digital infrastructure strategies to encourage and facilitate the deployment of full fibre and mobile networks, all councils collaborate with NI departments and the private sector to support deployment. Some of the initiatives that councils can undertake include:

- **Identifying a digital champion**, in line with DSIT guidance. This champion could engage with all stakeholders and could be a single point of contact for Mobile Network Operators, Industry and community groups / residents.
- **Ensuring that different departments collaborate** with each other to make it easier for telecoms companies to install and upgrade their kit. As part of the Mobile Action Plan for NI a Barrier Busting Task Force has been established to improve collaborations and to address identified barriers to deployment. Councils can establish internal barrier busting working groups to make it easier to coordinate the rollout of fixed and mobile networks. These working groups could be made up of representatives from estates, legal, planning, IT, marketing and economic development sections and in place to speed up issues such as wayleaves and access to buildings for survey on installation of fixed and mobile infrastructure.
- **Setting up partnerships with other local public sector bodies** e.g. Full Fibre NI Consortium laid the foundations for significant Digital Transformation across 887 local council and Health Trust sites in NI, providing the infrastructure to assist with SMART City /places applications. FFNI continues to take this collaborative approach for Fibre and other related projects e.g. the Digital Transformation Flexible Fund (DTFF). Councils are encouraged to work collaboratively and on a consistent basis to make it easier for mobile network operators to operate across different Council areas.
- **Collaborating with telecoms companies** to ensure that local communities can feed their requirements back to the industry and to enable a collaborative approach between councils, communities, local businesses and the companies.
- **Considering making council buildings and assets available** to companies rolling out fixed-line or mobile networks. The NIBBT is investigating the use of publicly owned assets for use by telecoms companies. The Government advice on this includes advice on mapping public sector assets[9]; advice on different commercial models[10]; an overview of access agreements[11]. Councils can also consider how the Government's Digital Infrastructure Toolkit[12] can be applied to their buildings.
- **Training officers and elected members** on the benefits and importance of mobile connectivity and the issues relevant to the provision of digital connectivity.
- **Ensure that Local Development Plans (LDPs) take account of the changing nature of mobile telecoms solutions and ensure policies are future-proofed and regularly reviewed in line with mobile telecoms industry developments.**

9 Mapping public sector assets - GOV.UK
10 Engaging with industry to promote and encourage the use of public sector land and assets for digital deployment - GOV.UK
11 Guidance on access agreements - GOV.UK
12 Digital Infrastructure Toolkit - GOV.UK

Case Study: Councils collaborating to improve Digital Transformation

In 2017, several local councils in Northern Ireland considered submitting an individual funding bid to the Department for Digital, Culture, Media and Sport (DCMS) under the Local Full Fibre Network programme (LFFN) to improve digital infrastructure in their district / borough. After considerable discussion with DCMS and each council, Newry, Mourne and Down District Council (NMDDC) proposed that councils collaborate, recognising that the efforts to drive availability and benefits of digital infrastructure would be more efficiently delivered collectively rather than individually.

The Full Fibre Northern Ireland Consortium (FFNI) was established in 2018, it aimed to implement an exciting cross-council collaborative programme to drive greater investment in fibre infrastructure and digital related projects across the region. Shortly after establishing the Consortium, representatives from NMDDC developed a successful collaborative bid for £15m of funding from the UK Government's Local Full Fibre Network (LFFN) programme to invest in full fibre connectivity services. This bid placed a heavy emphasis on a cross-council collaboration that would help to integrate services to serve the public sector and stimulate further rollout of full fibre to residential areas. This bid was supplemented with a subsequent successful bid for a further £9m of UK Government funds from the Rural Gigabit Connectivity Fund (RGC) with the Business Services Organisation (on behalf of NI Health Trusts) joining the Consortium in 2019.

This FFNI model ensured a consistent approach across all councils:

- This allowed local councils to work consistently together to submit a much larger bid that would operate across all Northern Ireland.
- It facilitated the coordination of councils to maintain an organised and single approach for effective delivery with single points of contact in each council to engage with Communication Providers.
- It provided a knowledge transfer and best practice vehicle across public sector and the commercial sector to maintain a joined-up approach to delivery.
- It coordinated the development of standardised wayleaves, data collection templates and processes throughout the project with all councils, DCMS and Communication providers on a consortium wide approach.
- It allowed FFNI partners to draw on the extensive and collective knowledge, resources and skills base of Consortium Members and internal council working groups to remove barriers to fibre deployment and drive investment.

The concept and project brought together a powerful blend of public sector commitment and local knowledge, with highly experienced specialist technical, commercial and expert digital infrastructure providers.

Working on a joined-up approach under the FFNI Consortium, councils:

- Streamlined the delivery ensuring a consistent approach which worked across every council.
- Delivered next generation Gigabit capable connectivity to 887 sites, vastly improving the robustness, resilience, and future services that councils can offer.
- Enabled a range of longer term socio-economic benefits likely to increase GVA (Gross Value Added) and quality of life which aligns with future council digital transformation strategies and City and Growth deal projects.

Case Study: Belfast City Council, 5G Case Study

Over the next decade, a series of major tourism investments are planned across Northern Ireland, including Belfast Stories.

At the same time, extended reality (XR) technologies and 5G networking are expected to fully mature and begin to play an ever more dominant role in visitor experiences. The planning of these tourism investments well ahead of immersive technologies reaching maturity presents a challenge. The scarcity of information and real-world use cases leads to a risk of these investments not being designed to achieve their full potential.

The Solution

Belfast City Council's Augment the City programme was developed to support local councils and the tourism sector to better understand the transformative potential of cutting-edge extended reality (XR), advanced 5G wireless connectivity and their application in future visitor experiences, including Belfast Stories.

Augment the City was structured across two workstreams:

1) A pre-commercial Research and Development (R&D) competition encouraging the creative digital sector to develop tourism prototypes harnessing XR and wireless connectivity. With support from Digital Catapult UK, the companies worked with the Belfast Stories project team to build prototypes addressing their future storytelling ambitions. This workstream received £930,000 from the Belfast Region City Deal programme of investment (plus match funding from Belfast City Council).
2) A 5G-enabled immersive experience integrated into the existing Belfast City Hall exhibition. This world-class XR experience is a collaborative R&D investment with BT.

The programme was influenced by the Smart Belfast Urban Innovation Framework and Belfast Region City Deal partner ambitions. Elected representatives were consulted and engaged across the programme's development. Stated goals were to:

- De-risk future tourism and regeneration investments by enabling partners to understand the potential of digital technologies.
- Support the region's high-growth creative digital sector through R&D funding and engagement with potential customers.
- De-risk the implementation of future Belfast Region City Deal challenge competitions.

Project Impact

As a forward-focused horizon scan exploring the application of XR and other 5G enabled technologies, Augment the City has delivered transformative and forward-thinking outcomes that will support the planning, procurement and design of future large visitor experiences across Northern Ireland.

Principally, Augment the City has supported the first ever UK public trial of an Extended Reality (XR) service running on Amazon Web Services' Wavelength, streamed over EE's 5G Network. It has demonstrated how 5G streamed cloud-rendered XR can provide "best in class" immersive experiences that exceed what's possible on handheld devices alone.

Further, Augment the City is a truly proactive, pioneering programme that mitigates the challenges of a rapidly changing technology environment by:

- Providing a platform that fuels creative conversations enabling Northern Ireland's wider public service to address forthcoming need in tandem with suppliers, innovators, and technical experts.
- Fostering innovation in the creative digital sector by empowering local small and medium sized enterprises to invest in R&D and to develop their own cutting-edge solutions that can be scaled for competitive advantage in the longer term.
- Successfully leveraging approximately £1 million collaborative R&D investment from BT and £930,000 from Belfast Region City Deal (BRCD); with Belfast City Council providing substantial match funding for both investments.

It is intended that this programme will build upon Northern Ireland's reputation as a creative and digital hub, supporting the sustainable growth of this high value sector through pre-commercial R&D funding, thereby enabling customer/supplier engagement, while nurturing commercial products and a talent pipeline.

Finally, the knowledge and insights from this programme will be widely shared across Northern Ireland's public sector to inform, strengthen and future-proof the development of technical specifications for future capital builds, and to help shape the nature and breadth of future programme design.

Lessons Learned

- The Augmented Reality experience has attracted new visitors to City Hall and enhanced the visitor offering, providing new and interactive ways to explore the stories of Belfast. This has increased opportunities for personalised engagement, user generated social media content, dwell time and engagement with the interpretation.
- A pre-commercial competition provides ample opportunities to refine concepts and gain insights that can be applied across multiple investments.
- Installing a 5G network in a heritage building requires significant engagement with internal and external stakeholders.
- Engagement with elected representatives throughout the programme ensured officers had a clear understanding of their vision which greatly supported content development and technologies deployed.

For more information on this project, please contact Brenda Murphy, Innovation Broker, City Innovation Office, Belfast City Council or visit www.smartbelfast.city

The role of a councillor

Councillors are well placed to identify and understand needs, priorities and strategic actions for their area. They often sit on boards of local schools, community groups and other bodies and act as direct links between council and citizens so can raise awareness of the digital connectivity issues being experienced in their communities. They will be able to use this insight in representing the views of stakeholders to the council and telecoms companies, and also to raise awareness of digital infrastructure issues.

Understanding the digital connectivity in your local area

Residents will often contact councillors to talk about roads being dug up, mobile phone masts being erected, poor connectivity and a host of other issues related with digital connectivity. In your role representing your local area you will need to be an advocate for your residents and businesses or direct them to people who can answer their query.

If your area suffers from poor digital connectivity, you might also wish to contact broadband and mobile providers to understand whether they plan to roll out improved connectivity to your area soon, or whether there are any barriers to this. You can also consult Ofcom's latest connectivity coverage reports[13] to understand the connectivity within your area. Councils may also have digital champions, or officers responsible for economic development of which digital connectivity is an important strand. Contacting them is an excellent first step to better understanding the local digital connectivity context. You might wish to complement this with a formal or informal consultation to gather information to improve your local understanding. For instance, conducting an informal survey of mobile phone networks recording not-spots, collating lists of places where broadband is slow, finding out from local businesses if poor connectivity is hampering their ability to do business and so on. There are many ways to do this, either by knocking on people's doors, holding a public meeting, sending letters or leaflets or using an online service like Citizen Space. You can then use this information to make a case to MNOs and internet service providers who install infrastructure to improve coverage and capacity and to deliver the right services to residents in your ward.

Developing council policy and strategy

If your council needs to improve the broadband and mobile connectivity enjoyed by its residents, it will need to develop clear strategies and policies to do so. As a local councillor you can contribute to this in a variety of ways:

- through the overview and scrutiny function, for example on planning and development committees you are appointed to
- thinking about how digital connectivity is vital for economic, social and environmental gains
- getting involved in advisory and policy groups

13 Connected Nations and infrastructure reports - Ofcom

- talking to other councillors, officers and senior officers and picking up on issues you receive via case work
- through your membership of a political group, using that as a conduit to make party policy
- Advocate for digital champions

Providing community leadership

Councillors can make a real impact in helping deliver good connectivity for the people they represent. They can lend their influence to shape superfast connectivity programmes. They can also play a vital role building awareness and challenging misconception about mobile infrastructure while helping residents to understand about the locations required to build new digital infrastructure, such as a phone mast, to improve residents' and businesses' connectivity whilst conserving local landscapes and myth busting conspiracy theories.

Local communities may not be able to engage and negotiate confidently with all the different organisations involved in rolling out digital infrastructure: MNOs, Openreach, other infrastructure providers, engineering companies etc. There are many things that councillors can do to help their communities:

- **Keep residents informed** about any disruption caused by installation of telecoms infrastructure and make clear that the resulting faster connectivity will provide a longer-term benefit that far outweighs any short-term delays.
- **ensure that telecommunications companies engage properly** with communities in the areas where they are planning to work, e.g. around mast locations
- **hold open and/or public meetings**, inviting residents, local community groups and representatives of telecommunications providers carrying out the rollout of digital infrastructure to ensure views are aired and there is good communication between all sides
- **Raise issues** at community and council meetings
- **Involve your local MLA or MP** so that they can ask a question in the NI Assembly or Parliament, or raise local issues with the relevant government departments
- **Advocate for coordination** on digital connectivity policies, build awareness and identify barriers to the deployment of more digital infrastructure.
- **Establish Internal Connectivity Working Groups** to highlight issues / concerns with fixed and mobile connectivity & promote good news stories.

People you can contact:

- Other councillors on Development / Planning / Regeneration committees
- Council officers – who is responsible will vary from council to council but might be in the digital, strategy, economic development or transformation teams
- NI Departments / Ofcom
- Fibre broadband or mobile Network providers

Asking the right questions

You may be asked to help local residents / businesses. Here are some questions that might help you understand their needs.

	General	Broadband queries	Mobile queries
Residents		• Do you know what broadband connection speed you get? • Is your experience of using your broadband connection satisfactory? • Have you talked to your neighbours about working together to form a consortium under a scheme like Openreach's Community Fibre Scheme[14], to attract a broadband provider to supply your street with faster speeds?	• Can you receive a good mobile phone connection inside and outside your premises or at work? • Have you tried using WiFi calling? • Have you contacted your mobile or broadband provider
Business		• Do you understand how a faster and/or more reliable broadband and mobile connection could help your business grow? • Have you talked to other nearby businesses about forming a consortium to attract investment? • Have you considered applying for the Government's Gigabit Broadband Voucher's Scheme[15] if and where available? • Would you be interested in becoming a broadband hub and connecting other local premises?	• Have you considered letting an MNO install a mobile base station on your premises?

14 Fibre Community Partnership | Openreach
15 Gigabit Broadband Voucher Scheme information - GOV.UK

Council officers	• Have we got a digital infrastructure strategy? • Do we have a responsible officer ready to act as a contact for digital infrastructure providers and break down internal silos where needed?	• Are we doing everything we can to make it easier for residents, businesses or voluntary/ third-sector organisations to get gigabit broadband? • Do we know what percentage of the council area is covered by gigabit broadband?	• Do we know what percentage of the council area is covered by mobile? • Do we have processes in place to work with MNOs? • Have we thought of any innovative approaches to make it easier for MNOs to install their kit?
Telecoms companies	• How can I help you ensure that the council is dealing efficiently with your planning applications? • How can the council help you rollout infrastructure more quickly? • Have you consulted clearly and properly with all the residents and businesses in my ward? • Do you have a Regional Affairs Manager that I could talk to?	• Is your coverage map accurate, and if not, why not? • Will you be reinstating all roads and pavements etc. to their previous state? • Are you sharing your site and other infrastructure with other operators? • Do you meet the Ofcom codes of practice for broadband speed? • Do you have a problem gaining access to all the properties you need?	• Will you ensure that equipment is sympathetically designed and camouflaged where appropriate? • Does your mobile equipment comply with the ICNIRP | RF EMF (100 kHz-300 GHz) guidelines

Developers		• Is the broadband provider connecting your development doing so on an exclusivity basis meaning other providers can't connect the development? Do you recognise this presents a poor retail offer for your future residents? • Are you installing gigabit broadband to your premises? • Are you talking to the owners of neighbouring buildings to see if you can act as a hub for gigabit broadband?	• Have you engaged Mobile Network Operators (MNOs) on how they will supply mobile connectivity to your development and/the potential effect of your development on other areas mobile connectivity i.e. might a tall building block mobile signal for a community • Are you making your new premises available to MNOs to install mobile base stations? • Will the design of your new building restrict mobile signals inside? • Have you explored the shadowing effects of the building, particularly if it's high rise, affecting the signal that other residents will be able to receive? • Are you planning to use 5G technology to install Internet of Things sensors to make your building more efficient?

You may also come into contact with utility companies carrying out roadworks. Here are some suggested questions:

- Do you have a policy or procedure for informing other utility companies and broadband/ mobile companies when you are digging up roads to allow them to install digital connectivity infrastructure at the same time? Are you aware of the Northern Ireland Road Authority and Utility Committees (NIRAUC)?[16]
- Would it be a cost saving to join forces with a broadband or mobile company to let them install digital connectivity at the same time as you carry out traffic works?
- What do you see as the main barriers to sharing traffic works with other utility companies?
- What benefits are there for you in making your infrastructure available for sharing?
- What additional incentives would you like to see in place to encourage more sharing?

16 Northern Ireland Road Authority and Utility Committees (NIRAUC) | Department for Infrastructure

Case Study: Ryan McBride Brandywell Stadium

Challenge: An existing mobile telecoms mast, sited on land to the rear of 4-6 Letterkenny Road, required relocation to make way for a planned social housing development, therefore a replacement site was required to ensure 2G, 3G and 4G service to Vodafone and Telefonica (O2) customers in the area could be maintained. The optimal site was located and it was discovered that this was a council publicly owned asset. A local groundbreaking process was required to secure access to maintain mobile service.

Solution: In January 2019 Taylor Patterson, surveyors and planning agent, approached Derry City & Strabane District Council, on behalf of Cornerstone, regarding the potential to relocate a mobile mast within the car park of the Ryan McBride Brandywell Stadium. Initial enquiries to the council did not prove fruitful as no policy was in place to grant telecoms infrastructure providers permission to use council owned assets for commercial purposes. Additionally, the asset was used for multiple purposes by multiple stakeholders including Derry City Football Club, Institute Football Club, Foyle Belles FC, Brandywell Greyhound Track and the Long Tower Youth and Community Centre. Negotiations progressed when Taylor Patterson shared information from the Digital Economy Act 2017 and The Electronic Communications Code (ECC) with the council's legal team who gained an understanding of the council's obligations under the legislation.

Prior to submitting a planning application, face to face engagement took place with central and local government elected members and the Bogside and Brandywell Community Centre.

On 19 August 2019 Planning Application LA11/2019/0715/F was submitted for a 17.5m monopole mast, antennae, dishes and ancillary equipment. As the required supplementary information had been included with the planning application, including the site selection process, compliance with International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidelines, Cornerstone's Pre Application Checklist, maps, drawings and the prescribed fee there was no hold up on progress and the consultation process followed. This included statutory consultees such as NI Water, DfI Roads Service, Council's Environmental Health and also notification to neighbours in and close to the site.

On 6 November 2019 planning permission was granted and the signed decision notice issued on 13 November 2019 allowing work to commence. As you can imagine, with a pilot process involving multiple stakeholders, it took some time to navigate logistics and progress the build. Land and Property Services were engaged to provide a valuation for the lease agreement, wayleaves had to be sought from NIE regarding their substation on the site, building control approval and business as usual access to the site had to be managed along with contractor access. Council Committee required regular updates and assurances on progress and emerging issues including legal implications and any impact on emergency action plans.

Impact

- 2G, 3G and 4G service were made available at the site on 13 May 2021. Connectivity needs have been maintained not just for the site but the surrounding area.
- Although turnstiles are hardwired, reliable mobile connectivity means that centre staff can connect handheld mobile ticket scanners during busy periods to help manage queues.
- Subsequent upgrades to the mast have taken place to help meet capacity requirements during events and council have been updated each time.
- Positive relationships have been forged between those involved which will help future ventures. Learning from the process will help refine necessary arrangements.
- A full and complete planning application and ongoing engagement with agents and surveyors helped answer any questions quickly, enabling a planning determination within 12 weeks which is great news for infrastructure providers. Elected Members took a holistic view, despite any reservations, they balanced the need to relocate the mast to make way for much needed social housing and also supported the council's aspirations to become a digital city.
- The first NI Council ECC Code Agreement has been signed with Cornerstone allowing access to a publicly owned asset for mobile infrastructure. This provides clarity on what has been agreed and sets a precedent for future negotiations. Instead of using a standard wayleave agreement, the ECC Code Agreement offers better protection for landowners.
- A 10 year agreement has been signed. Council receives a rental income from the infrastructure provider for allowing access to the council asset.
- Although broadcasters such as BBC, RTE and League of Ireland TV (LOITV) use their own connectivity currently, there is potential to explore exploiting onsite connectivity if further upgrades take place.

Lessons

A number of lessons were learned throughout the process by industry, council officials and elected members:

- It is possible to receive a timely determination on a planning application providing a full and complete application is received and early and ongoing engagement with stakeholders takes place. A collaborative approach from industry is more effective than demanding compliance with legislation.
- Early engagement with elected members and stakeholders enabled smooth passage through the council planning system. Information was shared to myth bust any concerns which meant, despite high levels of interest in mobile masts as we entered the Covid 19 Pandemic, elected members were able to allay any fears voiced by their constituents.

- With so many stakeholders and interested parties, this being a completely new area of work for council leisure staff and elected members, it would have been useful to have a 'who's who and what do they do' stakeholder list to help streamline engagement. Access to the site had to be negotiated and scheduled and it wasn't always clear what the purpose was or impact would be. A document advising who is likely to come calling, why, in what order and approximately when, would have been very beneficial to help with planning and sequencing. Having no experience in this field, it wasn't known by the council leisure facilities manager that O2 would require access to install equipment while Virgin needed access to provide transmission links or indeed that other parties could require access along with Cornerstone the infrastructure provider. Throw in the power requirements and reparations to footpaths and roads, it was a very busy period managing such a complex stakeholder group while maintaining business as usual during the Covid 19 pandemic on site. The leisure facilities manager had to maintain constant contact with the site caretaker to oversee and organise access whilst chasing Risk Assessment Method Statements (RAMS). Cornerstone have taken this feedback away and have identified a gap in their guide published at Landlord Resources - Cornerstone. They have undertaken to include more information to aid landowners understanding and endeavour to appoint a single point of contact in future.

Role of the Councillor

Elected members played an important role in delivery as they participated in engagement with the planning agent, passed on materials to constituents to help allay any concerns and were supportive of the proposal whilst balancing the needs and views of the community.

Those on the planning committee provided scrutiny and assurance that the best determination was reached while balancing the needs of the local community. A holistic approach was taken and the wider benefits considered.

Contact

For further details please contact **info@derrystrabane.com**.

Picture: Ryan McBride Brandywell Stadium Car Park containing the mobile mast and equipment.

What is the Mobile Action Plan for Northern Ireland?

The Mobile Action Plan for Northern Ireland (MAP NI)[17] was developed by a cross-sectoral working group which included members from central and local government who consulted with stakeholders including industry, UK Government and Ofcom, the UK Telecoms Regulator. Its aim was to identify issues which inhibit the rollout of mobile networks and sought to establish solutions to enable better, faster and more consistent mobile coverage throughout Northern Ireland. Eight actions were identified in the MAP NI:

No	Action
1	The Department for the Economy will lead on delivering a programme of information, in conjunction with industry, to help inform citizens, address any perceived threats regarding new mobile technologies and outline the advantages, opportunities and benefits to the Northern Ireland economy.
2	The Department for Infrastructure will continue to monitor legislative changes in other jurisdictions and 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. Councils will also have a key role to play and should bring forward policies and proposals within their Local Development Plans that address important planning considerations for new telecommunication infrastructure. To assist in that process, the industry is encouraged to proactively engage with councils during preparation of Local Development Plans in relation to market and technological considerations and impact mitigations.
3	The Department for the Economy and the Northern Ireland Local Government Association will consider ways to enhance council and planners' understanding of telecommunication and digital technology, e.g. through an awareness raising programme for elected members and officers, along with the sharing of best practice from other jurisdictions.
4	In line with the Department for Digital, Culture, Media & Sport's recommendations, Northern Ireland Councils will investigate the benefits and feasibility of appointing 'Digital Champions' who could act as a single point of contact for mobile network operators and infrastructure providers, businesses and residents and co-ordinate activities within the council regarding telecommunications infrastructure. Councils will gather evidence and best practice on the use of digital champions in other jurisdictions, and their effectiveness in aiding the roll out of digital connectivity. Councils will also work with relevant Northern Ireland Government Departments on these ambitions.

17 Mobile Action Plan for Northern Ireland (MAP NI) | Department for the Economy (economy-ni.gov.uk)

5	The Department for the Economy will assist local government in their consideration of producing a 'best practice guide' on mobile network development which would be developed in collaboration with industry and relevant government bodies.
6	Northern Ireland Councils and all relevant Departments should engage with Mobile Network Operators and the Department for Digital, Culture, Media & Sport to consider developing plans which may enable the use of publicly owned assets to be considered for the roll out of telecommunication infrastructure.
7	Consideration should be given to the establishment of a Northern Ireland Barrier Busting Taskforce in association with the Department for Digital, Culture, Media & Sport and industry to identify and address the barriers preventing the fast and efficient deployment of mobile connectivity in Northern Ireland. All relevant Departments / Councils should be represented.
8	Northern Ireland Councils should ensure that Local Development Plans take account of the changing nature of mobile telecoms solutions and ensure policies are future-proofed and regularly reviewed in line with mobile telecoms industry developments.

The Northern Ireland Barrier Busting Taskforce (NIBBT) was established in December 2022. Several organisations including NI departments and local councils have various responsibilities in overseeing telecommunications matters in NI, therefore the NIBBT is a cross-sector group including the mobile industry and Ofcom. The Taskforce has been structured into an Oversight Group, meeting quarterly and chaired by the Department for the Economy (DfE), and three subgroups dealing with specific themes and MAP NI actions, namely:

- Communication Subgroup – MAP NI actions one, three and four;
- Planning Subgroup – MAP NI actions two, five and eight; and
- Publicly Owned Assets Subgroup – MAP NI action six.

More information on the delivery of MAP NI actions and the work of the NIBBT can be found here MAP NI implementation progress | Department for the Economy.

What are digital champions?

Each council in Northern Ireland has appointed a Digital Champion / Coordinator although the roles and responsibilities differ among each council. Due to the financial pressures on councils, it is unlikely that dedicated staff resources will be available for this role in the absence of government funding. Relevant Directors will be able to signpost you to your council's Digital Coordinator. Roles and remits of digital champions vary, but encompass some or all of the following responsibilities:

- Advising on the council's digital infrastructure strategy
- Engaging with government departments, planning, IT, legal, economic regeneration and key stakeholders
- Promote collaboration across the council and government departments to minimise time and costs to install mobile networks and broadband
- Understanding the connectivity requirements and issues in the local area
- Champion the benefits of improved connectivity to residents, businesses and the council

Mobile UK has published research[18] which suggests that councils which have prioritised digital connectivity and appointed digital champions have had significant success in speeding up rollout and improving relationships with telecoms companies. The same research notes that planning approval rates tend to be higher where councils have put in place digital champions or schemes to promote wireless connectivity. It is important to note that due to the division of responsibilities of councils and government departments in this field, the landscape in Northern Ireland is more complex to navigate.

18 Building Mobile Britain: The Case for Local Authority Digital Champions

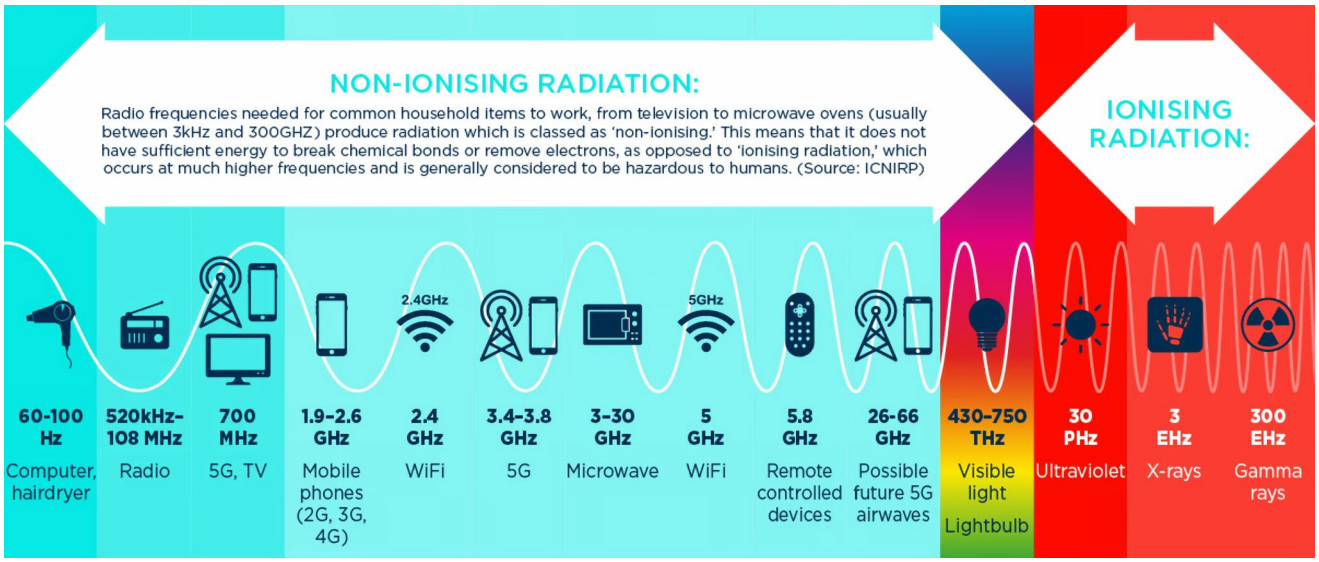
Health effects of mobile infrastructure

Some residents may have concerns around the health risks posed by new mobile infrastructure. In Northern Ireland, the Department of Health and the Public Health Agency (PHA) has a long-standing memorandum of understanding with the UK Health Security Agency (UKHSA) which includes arrangements for the provision of specialist technical advice on a range of matters, including radio frequency electro-magnetic fields (RF EMF). The UKHSA has published a webpage about exposure to the radio waves from mobile phone base stations, including those for 5G networks.[19] It explains the health related reviews and assessments that have been performed, as well as the practical measures that are in place to protect public health. Additional advice regarding 5G technologies is available at this link: 5G technologies: radio waves and health - GOV.UK (www.gov.uk)

Based on the accumulated evidence and reviews, UKHSA advises that the guidelines of the International Commission on Non-Ionizing Radiation Protection (ICNIRP) should be adopted and there is no convincing evidence that radio wave exposures below the ICNIRP guideline levels cause adverse health effects. While a small increase in overall exposure to radio waves is possible when 5G is added to the existing network, the overall exposure is expected to remain low and well within the ICNIRP guidelines.

Ofcom has been measuring electromagnetic fields (EMF) near mobile phone base stations for many years. It takes repeat measurements in Belfast, Cardiff, Liverpool and London. Measurements have shown that EMF levels are well within the general public EMF limits. More information is available at Electromagnetic field measurements near mobile base stations - Ofcom

Mobile UK has produced this useful diagram and further information about health and mobile infrastructure can also be found via Mobile UK's 5G Check The Facts campaign which can be accessed here - https://www.mobileuk.org/5g-and-health



19 Mobile phone base stations: radio waves and health - GOV.UK (www.gov.uk)

Further useful information

This is a useful resource to explain telecoms jargon Telecoms Jargon Buster - Daisy Communications

Responsibilities of Northern Ireland Departments / Councils/ Organisations relating to digital connectivity:

Department for the Economy (DfE) – telecommunications policy is a reserved matter with the Department for Science, Innovation & Technology (DSIT) holding the policy responsibility on improvements to digital connectivity across the UK. The Department for the Economy (DfE) maintains regular contact with DSIT on all telecommunications matters ensuring that all local considerations are front and centre of any policy decisions taken regarding the improvement of digital connectivity in Northern Ireland. DfE operates within UK policy to develop and implement complementary initiatives aimed at encouraging the development of NI's telecommunications infrastructure.

The sector is fully privatised and independently regulated on a national basis by the Office of Communications (Ofcom).

Under the Communications Act 2003 DfE has been given limited powers to intervene where there is evidence of market failure but this has to be undertaken with caution in order to avoid distortion of the market and comply with European regulations. The Communications Act 2003 gives a general power to DfE to make payments to persons engaged in, or in commercial activities connected with:

- The provisions of electronic communications, networks and electronic communications devices in NI;
- Improving the extent, quality and reliability of such networks or services; and
- For example, public investment in broadband services can only take place where, after consulting with industry, there is evidence that commercial intervention will not take place (usually identified via an Open Market Review (OMR).

Department of Finance (DoF) – NICS Office estate management (publicly owned and leased assets), Building Regulations, Land & Property Services (LPS) | Department of Finance (finance-ni.gov.uk) and the Electronic Communications Code (ECC) pertaining to the Business Tenancies (NI) Order 1996 (BTO).

Department of Health (DoH) – responsibility around any health concerns however DoH and the Public Health Agency have a long-standing memorandum of understanding with the UK Health Security Agency (UKHSA) which includes arrangements for the provision of specialist technical advice on a range of matters, including radio frequency electro-magnetic fields (RF EMF).

Other Departments - Department for Communities (DfC), Department of Education (DE) and Department of Agriculture, Environment and Rural Affairs (DAERA) all have an interest based on their statutory responsibilities e.g. the Natural Environment Division (NED) of DAERA's NI Environment Agency has a role in development management and responds to development proposals where there is potential for impacts on the natural and marine environments and fisheries interests and DfC's Historic Environment Division (HED) are statutory consultees on planning applications for development proposals that have potential impacts on built heritage assets that it designates, maintains or records.

NI Councils – have a range of roles and responsibilities in terms of economic development and regeneration within their local districts/boroughs. They lead community planning, numerous City & Growth Deal projects, Planning Development and Local Development Plans to determine planning applications for telecommunications development proposals. Councils often also seek new opportunities to advance digital connectivity through the submission of funding applications designed to deliver Digital and Digital Infrastructure projects either in collaboration with other Councils or within their organisation.

Planning (The planning system and development management | nidirect)

DfI Planning is responsible for making planning legislation and setting regional strategic planning policy as well as the determination of regionally significant and called-in planning applications. It also provides oversight and guidance to local councils, monitors performance and works with councils to bring forward continuous improvements to the planning system. In addition, DfI Roads and Rivers are statutory consultees on planning applications.

NI Councils – Planning Authorities. Each council is responsible in their area for:

- local development plan-making, including the formulation of local policies and proposals in relation to telecommunications development;
- development management, including the determination of all planning applications for telecommunications development proposals that require express planning permission; and
- planning enforcement, including in response to alleged breaches of planning controls in relation to telecommunications development.

Planning Appeals Commission (PAC) – The PAC deals with a wide range of land use planning issues and related matters, including appeals against council decisions on telecommunications development proposals and Independent Examinations to test the 'soundness' of local development plans prepared by Councils.

Statutory Consultees – There are a range of statutory consultees to the planning process as set out in the Planning (General Development Procedure) Order (NI) 2015 ("the GDPO") and these include DfI Roads, DfI Rivers, DAERA, DfC, DfE, NI Water, and Health and Safety Executive for Northern Ireland. Councils and DfI as planning authorities must consult with the statutory consultee in the circumstances outlined in the GDPO.

The Electronic Communications Code

The Electronic Communications Code ('the Code') is the legal framework underpinning rights to install, maintain, upgrade and share telecommunications apparatus on public and private land. It regulates the relationship between telecommunications operators and landowners / occupiers with regards to the deployment of digital infrastructure under, on or over land. Companies that have been granted powers under the Code can be found on the Register of persons with powers under the Electronic Communications Code - Ofcom.

The Code does not give operators unilateral rights to install apparatus on private land. Such rights are normally obtained through negotiation with the landowner or occupier, and any consensual agreement will include relevant terms – including matters such as the financial terms and access arrangements – which will apply to any use of the rights granted. If a mutually acceptable agreement cannot be reached, either party may apply to the courts for the determination of any disputed matter. However, the majority of Code agreements are negotiated on a consensual basis between operators and site providers without the need for the court to intervene.

In circumstances where it is not possible for the parties to reach an agreement, the court will not automatically grant the operator's request. Instead, the court will consider whether the prejudice caused to the occupier of the land is capable of being adequately compensated by money, and weigh up the likely benefit to the public if the right was granted against the prejudice to the occupier. A court may not impose a Code right if it is not satisfied that this test is met. If the court considers that rights should be imposed, they may also prescribe the terms on which the rights can be exercised.

Public Switched Telephone Network (PSTN)

What is it?

The way landlines work in the UK is changing, with providers moving from the old analogue landline network, also known as the Public Switched Telephone Network (PSTN) to new Voice over Internet Protocol (VoIP) technology, which delivers voice calls over an internet connection.

Why is the PSTN being retired?
The PSTN is a privately-owned telecoms network and the decision to upgrade it has been taken by the telecoms industry. The network is increasingly unreliable and prone to failure, with some telecoms companies finding it difficult to source certain spare parts required to maintain or repair connections. Japan, Estonia and The Netherlands have already switched off their PSTN, with countries such as Germany and France soon to follow. Other countries are also proceeding with their upgrade within the next two to three years. The PSTN network is past its serviceable life; in 2024, there was a 45% increase in the number of PSTN incidents reported. PSTN's replacement, VoIP technology, enables communications providers to offer consumers and businesses clearer and better-quality phone calls, improved flexibility, cost savings, and additional features including voicemail to email.

What and who does it impact?
The PSTN provides connectivity for devices beyond residential telephone communication. There are over 300 known use cases for the PSTN, including alarm systems, medical devices and monitoring equipment. Individuals and businesses will therefore need to consider their uses of the PSTN and, where necessary, upgrade their devices to retain connectivity.

When is it happening?
Industry is delivering the upgrade in a phased approach over the next few years, with the network fully upgraded, and PSTN switched off, by January 2027. However, providers have already started the migration process, and some customers will be moved sooner than others.

Who is monitoring the process?
Ofcom and Government are working together with communications providers to ensure consumers and sectors are protected and prepared for the upgrade process. This includes close engagement with the emergency services and critical national infrastructure.

Communication providers and network operators signed voluntary charters in December 2023 and March 2024, ensuring their commitment to protect vulnerable consumers during the PSTN migration. The charter signed by communication providers can be found here: https://www.gov.uk/government/publications/public-switched-telephone-network-charter.

In November 2024 signatories agreed to adhere to further safeguards set out in the non-voluntary migrations checklist before restarting non-voluntary migrations. This checklist is available here: https://www.gov.uk/government/publications/public-switched-telephone-network-non-voluntary-migration-checklist/pstn-non-voluntary-migration-checklist

Major communication providers also signed up to the PSTN Critical National Infrastructure (CNI) charter in November 2024, which sets out steps that the telecoms industry will take to protect critical national infrastructure assets through the migration. This charter can be found here: https://www.gov.uk/government/publications/public-switched-telephone-network-critical-national-infrastructure-charter

What do local councils need to do?

Councils are likely to make significant use of the PSTN for connectivity, both for telephony services and other use cases. Where councils have not already done so, DSIT strongly encourages you to identify the contracts you hold with communication providers and engage with them to audit which devices and services rely on the PSTN and how these can be supported in future. The Government published guidance for councils in November 2024 on how to approach the migration, and guidance for communication providers on how to identify and support vulnerable customers. These steps will ensure that the Government, communication providers and councils work together to ensure that customers are migrated safely. This guidance can be found here: https://www.gov.uk/government/publications/uk-transition-from-analogue-to-digital-landlines-guidance-for-local-authorities/uk-transition-from-analogue-to-digital-landlines-guidance-for-local-authorities

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