imagine

Imagine Non-Confidential Response to:

DECC Consultation on the Digital Connectivity Strategy February 2022

21st July, 2022

Contents

1 Introduction

As a commercial operator providing high speed broadband services covering over 1 million homes in underserved areas for almost 20 years (since 2005) Imagine fully understands the benefits to society as well as the challenges involved in providing a secure, sustainable, and commercially viable service with high standards of performance.

With the level of focus on fibre the importance of wireless networks in supporting digital connectivity is often overlooked. However wireless networks and the spectrum that they operate on is and will continue to be an essential component of any strategy going forward. The value of wireless was summed up very well by Garrett Blaney, Commissioner, in ComReg's Radio Spectrum Management Strategy Statement 2022 – 2024

> *"While the value of wireless networks in our daily lives became ever more obvious, sectors that rely on radio spectrum continue to make a valuable contribution to the Irish economy. ComReg conservatively estimates that the use of radio spectrum directly accounts for €4.2 billion of Gross Value Added and contributes c. €7.2 billion of Ireland's National Income. Radio spectrum is also an important contributor to employment in Ireland and directly supports 19,000 jobs."*[1]

Plum Consulting stated in their 2012 study of the 26GHz band for ComReg[2] that: -

> *"In the coming years, FWA services in Ireland will be composed of existing FWA customers moving to 5G FWA offers and of new residential and business customers attracted by the high speeds offered by 5G FWA services where these services cannot be cost effectively covered by fibre rollouts."*

Imagine fully agree with this statement and welcomes the opportunity to respond to the Digital Connectivity Strategy[3] and share our views on how FWA can support its goals.

[1] ComReg 21/136, Radio Spectrum Management Strategy Statement 2022 – 2024, 17/12/2021

[2] ComReg 21/07a 26 GHz Band 5G Study

[3] The Digital Connectivity Strategy for Ireland, Draft Paper 2022

2 Executive Summary of Imagine's response

Imagine believes the level of the ambitions and overall targets for Digital Connectivity as set out in the Digital Connectivity Strategy are appropriate achievable however this requires that the strategic enablers plus some additional measures, outlined in our response, are implemented in an effective and timely manner.

In Imagine's opinion this requires: -

- Clarity around plans and proposals from DECC and other relevant agencies such as ComReg in terms of the imposition of a USO obligation
- In areas where fibre rollout is not viable for the NBI a fair and reasonable consideration is given to alternatives such as existing FWA Networks that can and do already provide high speed services in the most underserved areas
- As a key enabler to support the roll out of wireless VHCN that mast locations should be considered key locations for the deployment of NBI fibre.
- That a more progressive approach is taken to releasing new spectrum bands such as the 26GHz band.
- Put in place mechanisms to ensure that whilst respecting net neutrality principles also ensure that bandwidth intensive OTT services pay a fair share towards the cost of infrastructure required to delivering them
- Increase visibility of the *new direction and programme of work* of the MPBT
- Put in place measures to help smaller independent operators to cope with the growing level of information and compliance requests.
- Promote research and innovation particularly where such work is targeted towards addressing practical solutions to current challenges in the broadband eco system.
- Support measures to ensure there is access at a national level to cost effective to high bandwidth, uncontended, reliable, and resilient backhaul services to remote areas.
- Continue the provision of education and learning opportunities for all citizens from DECC Digital Skills programme to the digital literacy courses provided by FET and HE sectors up to and including more advanced level courses in areas with key skills gaps.

3 Imagine Responses

3.1 Consultation Question 1: Ambition level of the State's Digital Connectivity Strategy

Is the ambition level set out in the State's Digital Connectivity Strategy appropriate?

Imagine believes the level of the ambitions set out in the Digital Connectivity Strategy are appropriate and agrees with the overall targets for Digital Connectivity as laid out in the document[4]

Overall Targets for Digital Connectivity

- *All Irish households and businesses will be covered by a Gigabit network no later than 2028*
- *All populated areas covered by 5G by no later than 2030*
- *Complete the delivery of digital connectivity to all Connected Hubs and all Schools by 2023*

However, for these ambitions to be met requires the strategic enablers plus some additional measures, outlined later in our response, to be implemented in an effective and timely manner.

Regarding specific actions outlined in the Strategy Summary Imagine has the following observations: -

Introduction of a Universal Service Obligation for broadband

Whilst Imagine has no issue in principle with the concept of USO for broadband it requires a great deal of further discussion and consultation with industry including providing the industry with clarity in areas such as: -

- exactly what DECC and other relevant agencies such as ComReg have in mind in terms of the imposition of a USO obligation
- at what level of service and cost would a USO be set – for example in the UK[5] greater than £48.90 per month for better than 10Mbps DL 1Mbps UL or connection cost greater than £3,400
- how a USO would tie in with the rollout plans of commercial operators and the NBI
- what proportion of the country will be outside both commercial and public policy interventions?

[4] The Digital Connectivity Strategy for Ireland Draft Paper, 2022, page 4.

[5] https://www.ofcom.org.uk/phones-telecoms-and-internet/advice-for-consumers/broadband-uso-need-to-know

- the impact that a USO may have on existing commercial broadband services that already exist in the areas where USO obligations are envisaged
- In areas where fibre rollout is not viable for the NBI a fair and reasonable consideration is given to alternatives such as FWA Networks that can and do already provide high speed services in the most underserved areas and are capable of being categorised as VHCN networks[6].

Immediate deployment of high-speed connectivity towards key locations

Imagine fully supports the deployment of high-speed connectivity towards key locations such as digital hubs, schools, BCPs and Remote Working Hubs. In the last two years Imagine provided connectivity to 55 schools who during the pandemic would have struggled to effectively support remote learning and in addition facilitated these schools' participation in online STEM and robotics events such as VEX IQ Challenge and VEX Robotics Competitions.

Imagine is very pleased to see progress towards the introduction of the NBI Mast Backhaul later this year. As a key enabler to support the roll out of wireless VHCN we believe that mast locations should be considered key locations in the context of increasing the rate and area covered by commercial high-speed wireless and mobile services. In balance however, it must be noted that further investment by commercial operators to provide broadband services in areas planned to be included in state subsidised NBI roll out will be subject to intense diligence to ensure that a commercial rate of return commensurate with the increased risk of competing against state-subsidised competitors will be available.

International connectivity infrastructure

Imagine would be supportive of measures aimed at ensuring the international connectivity is resilient, suitably diverse, and robust. However, a far more immediate area of concern to Imagine is the availability of cost-effective ***national connectivity infrastructure*** that is resilient, suitably diverse, robust and available in the places in which it is required. By far the greatest cause of outages on our network results from issues on our fibre backhaul provider networks and the lack of diverse and resilient infrastructure with sufficient QOS levels at commercially viable rates.

Ensuring 5G Spectrum continues to be released

Imagine would fully agree with DECC ambitions to ensure that:

> "5G Spectrum continues to be released with appropriate coverage and deployment obligations, and continuous monitoring of the use of this spectrum for both indoor and outdoor locations, to ensure it is used efficiently and effectively "

Looking beyond the currently stalled MBSA process Imagine believes that these ambitions should now extend to the timely and progressive approach to commencement of the release of spectrum in the mmWave bands and to push for the conclusion of CEPT and EC work to enable the use of the 3800 – 4200 MHz band.

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[6] BoR (20) 165 BEREC Guidelines on Very High Capacity Networks

Indeed if the DECC ambition is that all Irish households and businesses will be covered by a Gigabit network no later than 2028, two years ahead of the EU target of 2030, then it will be necessary to take a more progressive approach to releasing new spectrum bands such as the 26GHz band.

In its response to ComReg's 21/07 consultation[7] on the 26GHz band Imagine agreed with many of the conclusions of the study however in general Imagine was then and remains now of the view that the opportunity exists for Ireland to take a more progressive approach to releasing the 26GHz band.

ComReg's Radio Spectrum Management Strategy Statement 2022 – 2024[8] states that:

> *"following the completion of MBSA 2021 and subject to demand (e.g. reasoned submissions to responses to consultations, use of any test and trial licences issued, etc.), consult on making one or more portions of the 26 GHz band available"*

Imagine believes that the demand will not become fully evident, or business cases further developed, until such time as interested parties have a more definitive view of the possible timeframe for spectrum allocation and furthermore that its availability would stimulate and drive demand allowing Ireland to follow the lead set by countries such as Italy where 26GHz is successfully being used to provide high speed broadband in otherwise underserved areas.

Imagine notes the following position statement with regard to the 26GHz band in Ireland's May 2021 EU connectivity toolbox roadmap:[9]

25. TIMELY AVAILABILITY OF 5G HARMONISED BANDS	**ComReg awarded 350 MHz of the 3.6 GHz band in June 2017.** **The 700 MHz band is to be award in a multiband award currently underway.** **Following an examination of the possible uses for the 26 GHz band (see ComReg 21/07a) and noting the current lack of any viable business case for the provision of 5G in that band, the Irish National Regulatory Body is not in a position to consider the award of the 26 GHz band at present but will continue to monitor the matter and ensure that the issue is maintained by way of its Radio Spectrum Management Strategy Statement (see ComReg 21/32). This will be reviewed on and on-going basis.**	**End Q1 2022**

This position on 26GHz spectrum, significant portions of which are currently unused, does not appear to be consistent with either the DECC's stated ambition to ensure the release of 5G spectrum or, for example, the best practices detailed in the *EU Common Union Toolbox for Connectivity*[10] for *"timely rolling out 5G and fast broadband"* whose recommendation amongst many things include:

[7] Imagine Non-Confidential Response to: ComReg 21/07, 26 GHz Band 5G Study Information notice

[8] ComReg 21/136, Radio Spectrum Management Strategy Statement 2022 – 2024, 17/12/2021

[9] https://digital-strategy.ec.europa.eu/en/library/connectivity-toolbox-member-states-develop-and-share-roadmaps-toolbox-implementation

[10] https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=75185

> **Section 25 Timely Availability of 5G Harmonised Bands:**
> *"Deployment of 5G networks requires the timely availability of a sufficient part of the harmonized frequency spectrum. The European Union has identified three 5G pioneer bands: low band (700 MHz), middle band (3.6 GHz) and* ***high band (26 GHz).***"

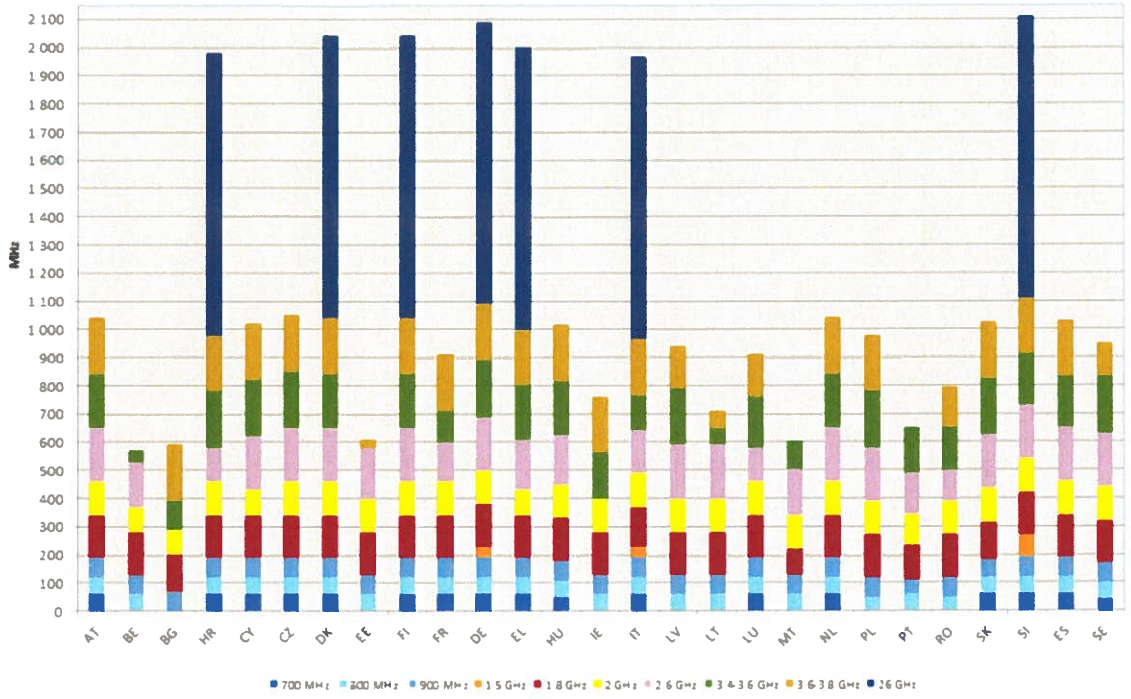
and

> **28. Individual Authorisation Regime For The 24.25-27.5 GHZ Frequency Band**
> *"Member States are encouraged to promote flexible authorisation of the 26 GHz band, with a focus on local licensing and infrastructure sharing.*
> *Authorisation regimes need to take also future use cases into account, be flexible and should enable different network solutions and topologies in order to ensure efficient use of spectrum and the provision of high quality wireless broadband services also for local networks in case there is sufficient demand.* "

According to an August 2021 EU report[11] as shown in *Figure 1. EU Assigned radio spectrum for wireless broadband*, Ireland ranks among the 7 lowest ranked countries in terms of spectrum assigned for wireless broadband whilst the 7 countries ranked highest have all assigned spectrum in the 26GHz band.

[11] EC, Digital Economy and Society Index (DESI) 2021, Digital infrastructures.

Figure 27 Assigned radio spectrum for wireless broadband in harmonised EU bands, 31 August 2021



Source: European Commission

Figure 1. EU Assigned radio spectrum for wireless broadband

3.2 Consultation Question 2: Details of existing or future planned networks

The Department invites commercial operators to submit details of their existing or future planned networks delivering broadband services to premises with at least 1Gbps download speed? Details should include the list of premises that are or will be covered and the expected date by which the Gigabit broadband service will be made available to each premises.

The existing Imagine TD-LTE Advanced network currently provides as standard an up-to 150Mbps broadband product although in many locations peak user speeds of up to 300Mbps are possible. At the current time network coverage comprises 284 high sites providing coverage to 1.23m premises of which approximately 380k fall within the latest NBP Amber area. Imagines network coverage is shown over in *Figure 2 Imagine Coverage Map July 2022*

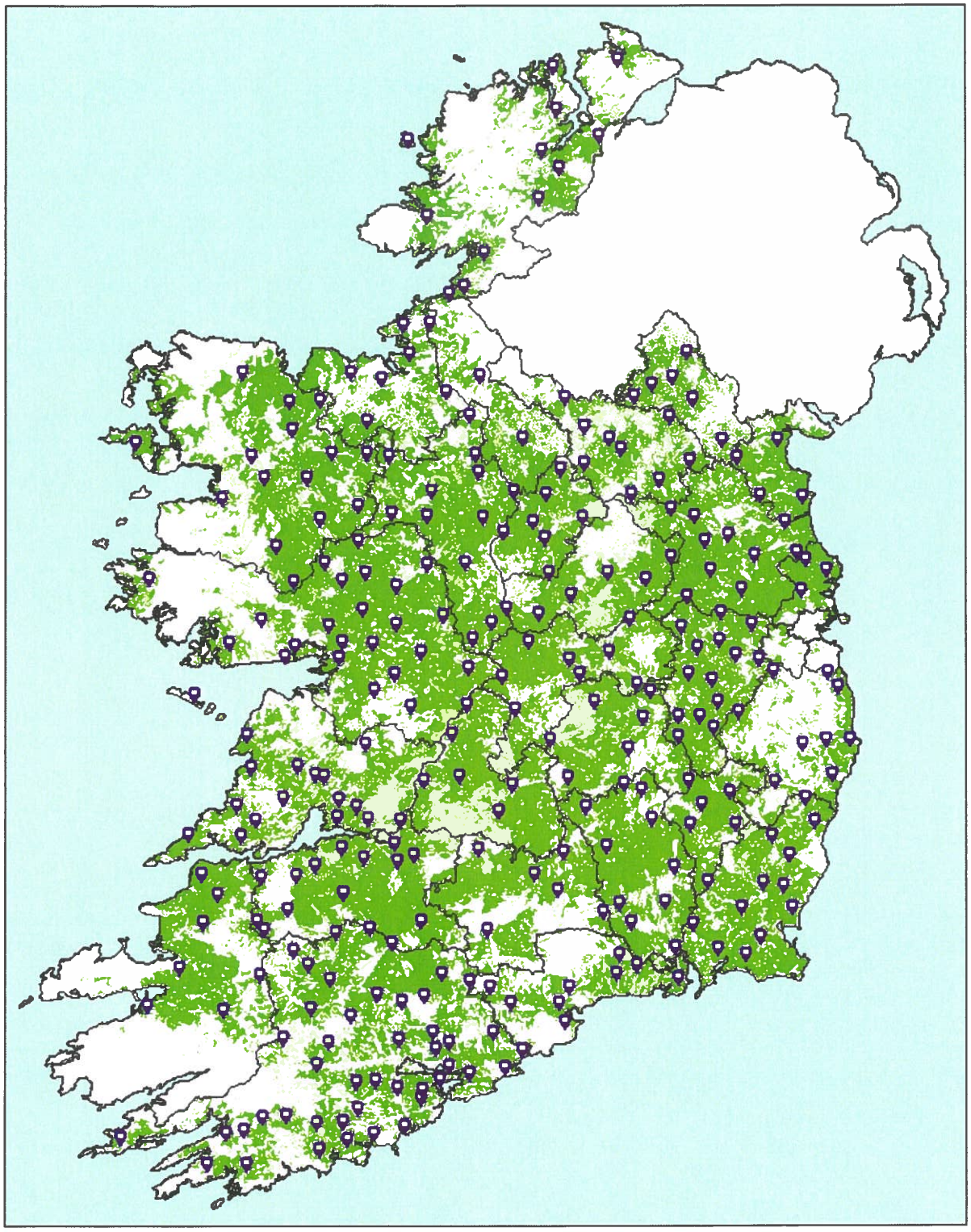


Figure 2 Imagine Coverage Map July 2022

Imagine is in the process of completing detailed planning for the upgrade of its existing 4G TD-LTE Advanced network to 5G having recently completed the successful migration of its 4G core to a new virtualised and converged 4G/5G packet core.

While Imagine has identified the key elements required to support its technical roadmap to deliver Gbps speeds to Fixed Wireless Access customers within the timeframe set out in the Digital Connectivity Strategy it is not possible to share a detailed rollout plan of premises that will be covered by the evolving networks due to the uncertainty of what spectrum may become available to Imagine or when.

In terms of the high-level roadmap this is outlined in *Figure 3 Imagine High Level Technology Roadmap* below.

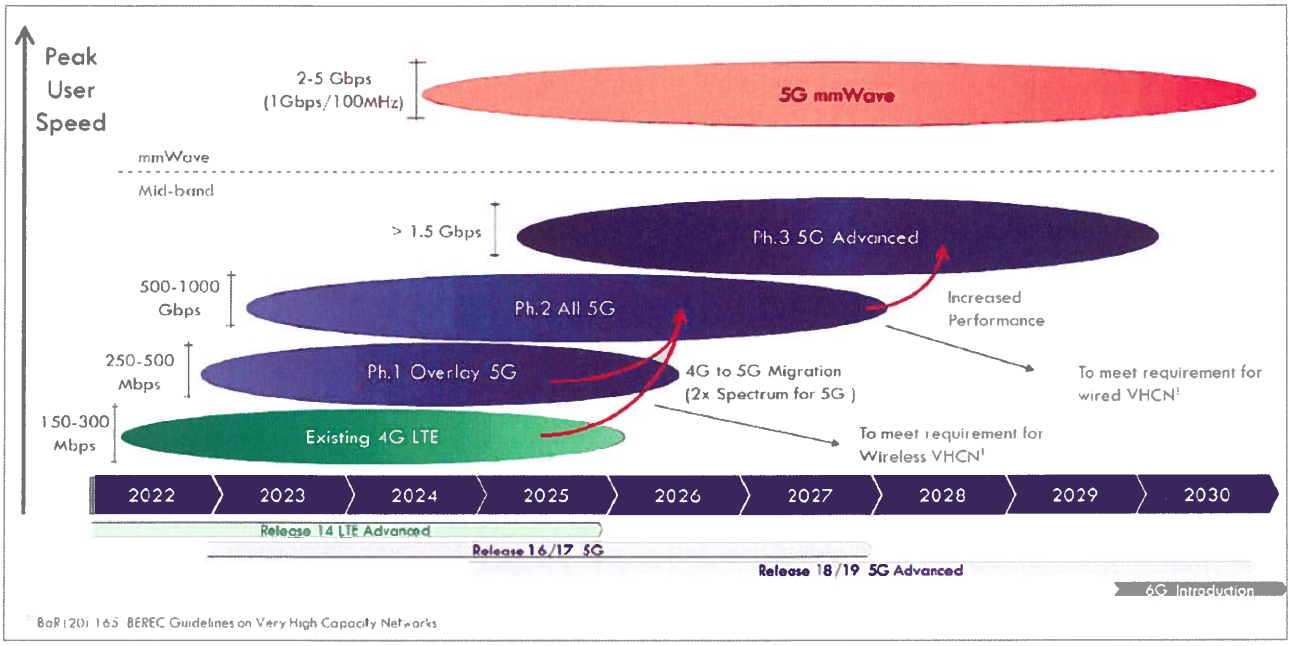


Figure 3 Imagine High Level Technology Roadmap

The key steps in the high-level roadmap are as follows:

- Beyond the current LTE Advanced network, the first phase of 5G will involve the rollout of 5G overlay sites to provide additional capacity and coverage as well as enhanced product offerings.
- In the second phase of 5G deployment key areas will be migrated to all 5G operation allowing further enhancements to the product capability.
- In the third stage of 5G deployment will see the introduction of further performance enhancing features from the 3GPP release roadmap with 3GPP release 18 expected to introduce significant performance improvements.
- In parallel to the evolution of mid band 5G Imagine also hopes to avail of mmWave 5G for several specific scenarios and use cases for rural broadband.

3.3 Consultation Question 3 Appropriateness of strategic enablers

Are the strategic enablers set out in the State's Digital Connectivity Strategy appropriate? Do these strategic enablers need to be amended? Are further strategic enablers, initiatives or measures needed?

Imagine considers that, overall, the strategic enablers are appropriate but would amend and add to the list in areas such as improving the investment climate and enablers that would facilitate and encourage the further deployment of competitive infrastructure – particularly in underserved rural areas.

Commercial Investment in Digital Connectivity

There are many reports and articles available that highlight the difficulties faced by European operators with declining revenues and at the same time needing huge capital investment programmes to satisfy the demand for digital services from over-the-top providers who give little if any contribution to the operators cost to deliver their services. According to ETNO research quoted in one article[12], *titled "European telcos seek network investment from Big Tech and streamers"*, a handful of the well-known video, social media and tech companies account for over 55 per cent of all traffic on mobile and broadband networks costing European telcos between €15bn and €28bn each year. Furthermore, the article goes on to claim that if these providers were to make a reasonable contribution to this cost it would create hundreds of thousands of jobs through increased investment in 5G and fibre.

National Broadband Plan (NBP)

Imagine is very pleased to see progress towards the introduction of the NBI Mast Backhaul later this year. As a key enabler to support the roll out of wireless VHCN we believe that mast locations should be considered key locations in the context of increasing the rate and area covered by commercial high-speed wireless and mobile services.

Mobile Phone and Broadband Taskforce

Imagine was supportive of the goals of the previous taskforce which ran from 2016 to 2019 and noting that it was reconvened in late 2021[13]. Imagine looks forward to publication of the "*new direction for the taskforce once it is agreed*" and seeing the "*ambitious and targeted programme of work.*"

Regulation

Imagine commented extensively in response to Question 1 on the need to ensure 5G Spectrum continues to be released in a timely manner and would add that this should also be on a cost-effective basis to enable greater competition in the market from smaller operators and not just large multinational MNOs.

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[12] European telcos seek network investment from Big Tech and streamers, FT May 2022.
[13] https://www.gov.ie/en/press-release/9cca8-ministers-humphreys-and-smyth-re-convene-the-mobile-phone-and broadband-taskforce/

Imagine would also comment on the growing multitude of information requests across a wide variety of topics which places a significant burden on valuable and scarce human resources within operator companies. Imagine places a high value on timely and constructive engagement with ComReg and other state agencies this burden has increased significantly in the last few years and is set to increase further as the Irish Regulatory Framework is updated to enact the EECC into Irish law. Any measures that would help reduce this burden would be appreciated whether through advanced notice of an overall timetable for different requests, better co-ordination of information requests to avoid duplication of effort, holding information sessions and/or briefings on key topics and upcoming requests etc.

Network Integrity, Security and Modernisation

Imagine fully supports the activities in these areas and compliments the excellent work carried out by the NCSC from incident reporting, alerts and advisories and guidance documents to the development of the TSR in support of the EU 5G toolbox which Imagine was proud to participate in.

Research and Innovation

Imagine agrees with the need to facilitate and promote research and innovation in the sector particularly where such work can be targeted towards addressing practical solutions to both current as well as future challenges in the broadband eco system.

Smart Cities/Towns, Rural Communities and Transport Corridors

Imagine agrees with enabling the development of smart applications and services particularly for very rural communities.

In addition to the above enablers Imagine would add the following: -

Supporting Availability, Diversity and QOS Performance in National Backhaul Services

Ensuring that there is cost effective access to high bandwidth, uncontended, reliable, and resilient backhaul services to remote areas as this will encourage and facilitate faster and wider expansion of 5G networks in rural areas.

3.4 Consultation Question 4: Views on the State structures, agencies, and resources

The Department welcomes any views on the State structures, agencies and resources needed to oversee and ultimately secure the delivery of the Digital Connectivity Strategy?

Imagine has no comments on the State structures, agencies and resources needed to oversee and ultimately secure the delivery of the Digital Connectivity Strategy

3.5 Consultation Question 5: How to ensure a sufficiently skilled workforce

The Department welcomes any views on how to ensure a sufficiently skilled workforce, with the necessary competence and experience, is available to industry and the State so that Digital Connectivity Strategy can be delivered? The Department would welcome suggestions on the State's role in encouraging the development of this workforce?

All technology companies are facing increasing difficulties in recruiting and retaining staff with the necessary competence and experience when faced with a combination of skill shortages and competition from multinational tech giants in addition to other well documented factors that impact on businesses ability to attract highly skilled and mobile talent such as housing, transport, and access to healthcare.

In terms of ensuring that a skilled workforce, with the necessary competence and experience, is available to industry and the State Imagine believes that the measures similar to those identified and outlined in the Expert Group on Future Skills Need report on AI[14] could be applicable across many of the skills and job roles that are needed for the successful delivery of the Digital Connectivity Strategy – these include skills such as analytical thinking, complex problem solving , critical thinking, creativity, originality and initiative and job roles such as Data Analytics and Science, AI and Machine Learning, Digital Marketing and Cybersecurity.

The type of measures that are needed include: -

- Appropriate training digital literacy skills for new teachers and CPD for teachers covering the relevant topics and skills
- Making sure that curricula at all levels cross the spectrum of NFQ awards and qualifications are kept updated in line with technology developments
- Continue the provision of education and learning opportunities for all citizens from DECC Digital Skills programme to the digital literacy courses provided by FET and HE sectors up to and including more advanced level courses in areas with key skills gaps.
- Provision of suitable upskilling and conversion courses to enable existing or retired employees to move into areas of skill shortages.

[14] AI Skills: A Preliminary Assessment of the Skills Needed for the Deployment, Management and Regulation of Artificial Intelligence, EGFSN, May 2022

3.6 Consultation Question 6: Other general observations and views

The Department welcomes any other general observations and views on the State's Digital Connectivity Strategy and how it can be improved?

Imagine is fully committed to growing and enhancing the capabilities of its FWA network that currently provides has high speed broadband to many rural communities who otherwise would have no broadband service capable of satisfying the typical online needs of a modern household whether that be streaming videos to multiple devices, providing Wi-Fi connectivity for mobile devices, video gaming, shopping and remote working.

While not yet providing Gbps speeds the Imagine High Speed Broadband service provides the capability to deliver Imagine customers similar levels of monthly usage demanded by users of fibre networks as shown in the comparison below in *Figure 4 Monthly Data Traffic per Subscriber by Platform,* based on published ComReg data this shows that Imagine customers have the similar usage as FTTP users and only a small percentage less than Cable users.

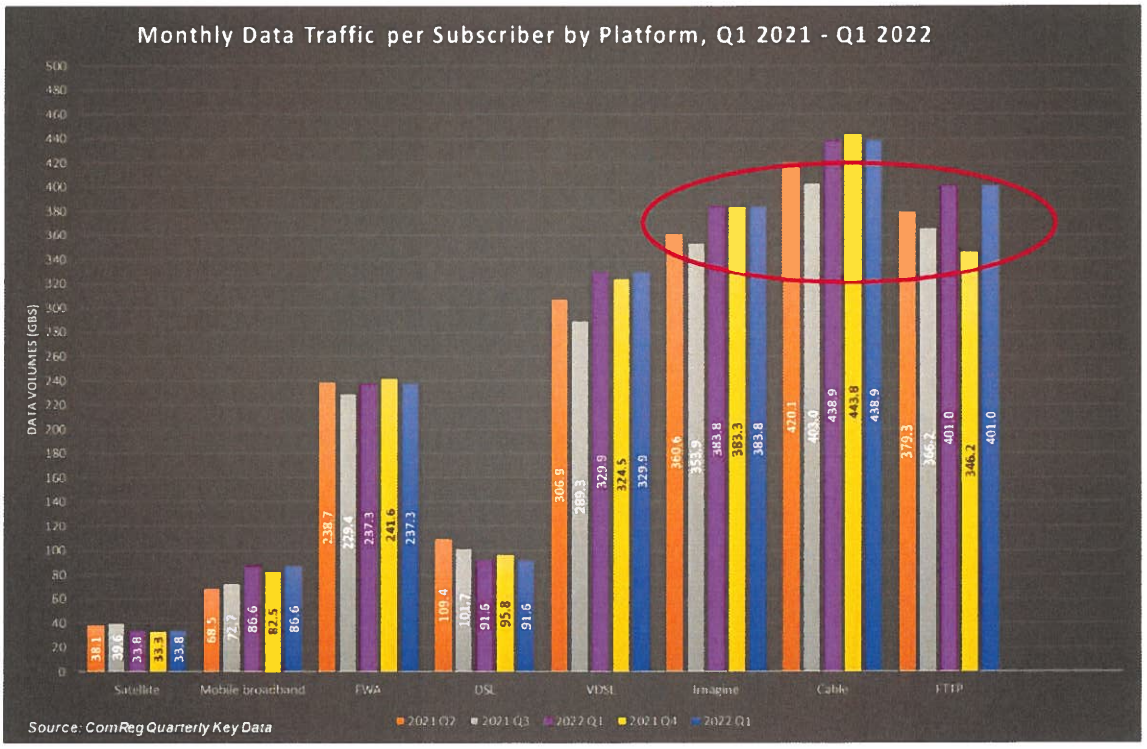

Figure 4 Monthly Data Traffic per Subscriber by Platform

What this demonstrates is that speed alone is not the determining factor in whether a broadband service can meet the demands of users and today typical users can do what they want to, when they want to with speeds of between 30-100Mbps i.e., far less than 1Gbps.

With advances in wireless network architectures and radio technology along with the availability of additional spectrum bands, the speeds available from wireless networks will advance sufficiently rapidly to keep pace with usage demand and outstrip demand for speed and will almost certainly be capable of delivering Gbps speeds in practical real-world deployments well in advance of the EU target of 1Gbps availability by 2030.

Whether as mobile or fixed wireless access, 5G networks will have a significant role to play in meeting this target, particularly in remote rural areas where it will remain uneconomic even for current state subsidised networks to deploy fibre.

Based on its current capabilities and planned technology roadmap Imagine is fully confident that its network will meet the criteria set out in the EU 'Gigabit Communication[15]' namely that by 2025: -

> *"all European households, rural or urban, will have access to Internet connectivity offering a downlink of at least 100 Mbps, upgradable to Gigabit"*

And it will also have the capability to meet the requirement in The Digital Compass Communication[16] which envisages that, by 2030,

> *"all Union households should be covered by a Gigabit network, and all populated areas should be covered by 5G."*, and
>
> *"By 2030, networks with gigabit speeds should become available at accessible conditions for all those who need or wish such capacity"*

If the conditions are right, it should be possible to achieve the DECC ambition that: *"All Irish households and businesses will be covered by a Gigabit network no later than 2028"*

However, there are concerns for future investment decisions if setting or revising upwards of minimum performance thresholds on which state aid intervention is triggered as described in the draft consultation document "Guidelines on State aid for broadband networks"[17] leads to intervention resulting in the overbuild of existing networks already delivering services in excess of current demand, with the ability to meet projected demand in 2025 and ultimately capable of being upgraded to Gbps speeds by 2028-2030, thus not falling into any reasonable definition of market failure.

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[15] Connectivity for a Competitive Digital Single Market - Towards a European Gigabit Society' (COM(2016)587 final)

[16] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee the Committee of Regions of 9 March 2021, '2030 Digital Compass: the European way for the Digital Decade' (COM(2021)118 final).

[17] https://ec.europa.eu/competition-policy/public-consultations/2021-broadband_en: Commission Guidelines on State aid for broadband networks