



[Response to the European Commission exploratory consultation on The future of the electronic communications sector and its infrastructure](#)

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1. Introduction

The symbiotic relationship of mutually beneficial partnerships between Content & Application Providers (CAPs), and Internet Service Providers (ISPs / telecom operators / 'ECNs') benefits the whole digital ecosystem delivering unprecedented value to European consumers.

There is no rationale for new regulatory intervention or network fees to support network deployment in Europe. There is no evidence that there is a problem of Internet connectivity or significant challenge in meeting the ambitious Digital Decade targets that existing market and public sector solutions cannot solve. Nor is there evidence of failure in the IP interconnection market. In addition, the contributions that CAPs make to Internet infrastructure are massive, and so are the resulting benefits and cost savings for ISPs. As BEREC has once again observed, there is not a problem that needs solving.

What there may be a need for is targeted solutions to specific issues. Where countries have identified shortcomings to bringing fast broadband to certain remote areas, specific public policy interventions are readily available such as State Aid. Further, the 'solutions' mooted for this undefined problem raise a number of practical challenges: there are key questions around who pays, how traffic and therefore how fees can be calculated and attributed, who receives the funds and who will 'own' any of the assets that are built.

Google is keen to engage in serious and future-oriented discussions with European Governments, the EC, the telecom industry and the many other stakeholders concerned, about the right policy and regulatory frameworks needed to meet the full set of the Digital Decade targets and digitisation in Europe as a platform for long term growth and consumer welfare.

2. Is there a problem with the Internet ecosystem and its evolution?

Online services are delivered by a complex ecosystem operating at global scale, with numerous active players typically focusing on different parts of the value chain. Within this ecosystem, consumers buy high-speed Internet access from ISPs to reach content and applications. If this content did not exist, consumers would have little need for Internet access. Similarly, content providers are reliant on a connected population for their businesses to work. This has delivered huge benefits to users who enjoy unfettered access to a rich library of online content and useful applications, ensuring media plurality and delivering on the aims of the EU's (Digital) Single Market.

Another major development in the sector will be software defined networks and cloud-based solutions. Already these solutions - developed and/or supported by CAPs - are increasingly used as ISPs seek ways to provide more flexible, performant networks and services that meet customer needs. We'll also likely see increasing uses of the sort of technologies that a company like Google provides to telecom operators, notably AI and edge computing, to support network optimisation and operations, as a way to increase network efficiency and for ISPs to save costs. At the access network level, the physical layer and control functions (hardware and software elements of the network) become increasingly disaggregated. This allows for diversification of business models; the prospect of market entry by new players; and increasing specialisation within the sector.

Elsewhere, a mix of technologies provide opportunities to extend the benefits of fast access to the Internet, including satellites and wireless optical transmissions like [Project Taara](#) that can help make gigabit access a reality even in challenging terrain, particularly useful for underserved areas.

Investment in connectivity will come from both incumbent and newer operators, as well as certain infrastructure providers, such as tower companies, that support them. These non-incumbent operators are increasingly important - in France, for example, they already provide over 70% of capex¹. This is a success of the pro-competition regulatory approach in Europe.

Further, many Internet companies / CAPs are major infrastructure investors in their own right, usually in complementary areas to the traditional networks, such as international subsea-provided connectivity and caching. (CAPs invested €89bn in 2018-2021 in

¹ Arcep: [Observatoire des marchés des communications électroniques](#), 15 December 2022

Europe alone, according to [Analysys Mason](#).)

This may appear like a complex state of affairs. We rather see it as a diverse, rich ecosystem. The traditional model of vertically-integrated incumbent operators is evolving, with the rise of neutral hosts, towercos, wholesale fibre providers, and so on. This presents great opportunities, for example to provide offers across borders while not having to ‘worry’ about deploying infrastructure because it can be leased from other, neutral actors; or the ability to focus know-how on what certain companies are better at, either service or network management. This in turn can benefit both company profitability through economies of scale and consumer choice through a more diversified range of players.

With these expected developments in mind, the overarching objective for the EU should be abundant, affordable, performant connectivity. This is what users want because it enables access to innovative and valuable applications, content and services. An enabling policy and regulatory framework should serve, and provide incentives for innovation and investment to all actors across the ecosystem. This would then provide the business case for further enhancing digital infrastructure, and support greater use of digital applications by consumers and across all types of organisations, which in turn will really drive long term economic growth and other societal welfare.

3. Is there a problem with Internet traffic growth?

A key claim relating to this consultation is that networks are allegedly facing major challenges due to unbridled growth in Internet traffic. This is far from reality for a number of reasons.

2.1. Capacity matters, not volume of traffic; and networks in Europe are already pretty capacious: Networks are built for peak traffic, not for volume. Top-level statistics about traffic are not always meaningful for analysis: they do not show any detail about where any bottlenecks are, and where the investment in additional network capacity may be needed. Yet, experience shows that far from there being a problem, networks in Europe are already capacious and robust; even during Covid lockdowns when there was a spike in peak traffic, networks in Europe were more than able to cope (according to [BEREC](#) and the [recent EC review of the Open Internet regulation](#)), at least in part due to the close cooperation already existing between CAPs and telecom operators.

2.2. Traffic growth is not exponential - it is declining. Not only have networks been able to cope well with increasing traffic to date - but traffic growth is slowing down, not accelerating. A decade ago, growth per fixed line exceeded 30%, but subsequently

trended downwards until 2020. Whilst the pandemic brought a sharp spike in growth, this has since collapsed: the latest average is just 3% in countries like Hungary, according to official data. Turning to mobile traffic, [Ericsson](#) expects growth rates to drop to below 20% around the middle of this decade, compared to rates of over 60% as recently as 2018. Thus for both fixed and mobile networks, traffic is an increasingly marginal driver of telco capex. Rather than being a barrier to achieving the Digital Decade targets, increased traffic is evidence that we are on the way to achieving the targets thanks to increasing consumer demand: the risk instead could be too little traffic growth, such that users do not see the benefit of upgrading to faster connections. Looking forward, there is currently no evidence that [new consumer services](#) such as augmented reality (AR) or virtual reality (VR) applications cannot work under the existing 'best efforts' Internet and would overload networks.

2.3. Thanks to CAPs' investment, applications' bandwidth requirements are ever more efficient: CAPs design services and products in a way that supports ISPs to effectively manage their network and reduce costs. For instance, YouTube compresses video so it can be efficiently transmitted over the Internet. We work tirelessly on increasing the video streaming quality that can be transmitted in as little data as possible, optimising existing compression technology and championing new approaches. From 2018 to 2022, we managed to reduce the amount of data used (per minute of video watched) on phones on 4G by double digit percentages per year. We also tune the bitrate of a video to network conditions, adjusting for when less bandwidth is available to the user. We do not send any more data than is required to optimise the quality of experience for the user's device and connection. We do not "send 4k all the time" as some have claimed. [Recent findings](#) highlight that the rate of video traffic growth is declining significantly across Content Distribution Networks (CDNs) and ISPs, as CAPs continue to optimize encoding bitrates. During early COVID-19 lockdowns, we worked with ISPs to help keep the network uncongested for other Internet services. We are also investing in edge computing for ISPs, R&D for advanced 5G cloud solutions (e.g. RAN), network design tools, and the [Anthos](#) network management tool, that all help ISPs optimize their networks and reduce management costs.

2.4. Caching and CDNs are optimising traffic delivery: Google's network reaches [over 100 interconnection points around the world and we have CDN servers with over 1,000 ISPs in 180 countries](#), with thousands of these servers in Europe alone. This provides significant savings for ISPs by putting CDN and cache servers deep in the network. [According to BT's](#) Chief Architect for example, 60% of core network capacity is offloaded by caching CAP content. Further, CDNs play a huge role in delivering traffic efficiently to end users and more cheaply for ISPs ([WIK for BNetzA](#)).

2.5. Traffic costs are declining: wholesale traffic costs have been steadily declining for over a decade. ISPs confirmed this to investors repeatedly in recent years, stressing that their networks are able to cope with traffic growth, and that the cost of dealing with this traffic has been falling. “*We will keep pace with data traffic growth by driving down cost per gigabyte by 60% in the coming years. [...by 2025...] the reduction in cost to carry data will meet or exceed the data growth.*” ([Vodafone Investor briefing, 2021](#)) Incremental traffic related costs therefore range from approximately 0 (zero) for fixed access to low and declining for transit, core and mobile networks.

2.6. Traffic growth is important for telecom operators: A lack of traffic growth would be a problem for investment in FTTP and 5G. Without applications that motivate increasing consumer demand for higher speeds and more traffic, consumers will have less reason to upgrade their services, limiting ARPU and by extension weakening investment business cases.

4. Is there a problem with network investment and investment by CAPs?

We encourage policymakers to take a comprehensive view of the telecommunications sector and the adjacent Internet ecosystem: they are interdependent and investments in the wider ‘digital infrastructure’ is just as important as in ‘network infrastructure’. Without investment in the rest of the Internet value chain, there would be no supply of digital products and services - therefore no demand for connectivity, and in turn not much for the economy and society to benefit from. Also, comparing infrastructure investment between ISPs and CAPs is not meaningful from a public policy, technical or economic perspective because they are entirely different businesses, with different business models in different parts of the digital ecosystem and serving different, albeit complementary functions.

4.1. CAPs are major investors across the digital value chain: The infrastructure necessary to support the digital society includes, in addition to networks, compute resources and storage; applications to deliver digital services such as operating systems, web browsers, search engines, application stores, cloud platforms and services, AI technologies, security systems and others, which are crucial to supporting today’s lives and economic activities. The Internet industry is the core and main investor in the creation of such online content, applications and services which underpin the entire Internet economy. Over the last three years, Google alone contributed more than \$200 billion to the digital ecosystems². Further, the capex and R&D of five large tech companies reached almost 400bn USD a year in

² [Google earnings call](#) February 2023

2022, or 26% of combined annual revenue, up from 16% in 2015³. (For comparison, telco capex investment is around 15-20% of revenues⁴.)

4.2. CAPs are major investors in network infrastructure: Beyond this leading investment in digital infrastructure, CAPs understand their wider role in the ecosystem and they make complementary (rather than duplicative) investments in network infrastructure, bringing the content up to 99% of the way to the user. They either buy Internet access through IP transit or CDN services, and/or they build their own. As BEREC and others like Germany's Monopoly Commission have concluded, '*there is no evidence of free riding*' on telco networks⁵ - far from it, and some may argue, it is the other way around.

Google is playing its part: our investments include large data centers for storing content; peering and content delivery infrastructure at the edges of the network and beyond where we interconnect with ISPs who carry traffic demanded by their customers the vital last few miles to the user who requested it; purchased capacity from Internet backbone providers to transport the data over long distances; and in 21 subsea cables around the world.

While our network has multiple transit connections to enable universal reachability to all parts of the Internet—and ensures that any interconnection relationship with Google is entirely voluntary for both parties—the vast majority of our traffic is exchanged via direct interconnections between our network and partner networks around the world - either via peering or using our Content Delivery Network platform “Google Global Cache,” a mutually supportive program requested by and deployed with over 4500 ISPs in over 1600 locations worldwide. We're present on over 90 Internet exchanges and at over 100 interconnection facilities in 28 countries. It is worth noting that some of the largest ISPs restrict peering and access to their network (see [BNetzA](#), also for example PeeringDB for Deutsche Telekom ([AS3320](#)) or Orange ([AS5511](#)), but Google has an open, free and voluntary peering policy (see PeeringDB for [AS15169](#)). This means we will interconnect with almost any operator of any size, at any of the Internet Exchanges or interconnection facilities we are present at worldwide.

To illustrate the scale of these contributions, in 2022 we invested over €28.53bn Euros (USD 31.5bn) in capital expenditure⁶ - almost all of which is infrastructure. And we'll continue: for instance, we recently [announced](#) another €1bn investment by 2030 in Germany, including for new cloud infrastructure. From 2018-2021, CAPs increased their infrastructure investment over 50%, rising to more than \$120 bn a year⁷.

³ [The Economist](#), Mastering the machine, 26 March 2023

⁴ ETNO, The state of digital communications, 2023

⁵ BEREC, [Preliminary assessment of the underlying assumptions of payments from large CAPs to ISPs](#), 2022

⁶ Alphabet [annual report](#) 2022

⁷ Analysys Mason, Oct. 2022 : [impact of tech companies' network investment on the economics of broadband ISPs](#)

4.3 CAPs' investment in infrastructure reduces costs for ISPs. As an industry, CAPs are a major investor in network infrastructure: CAPs spent \$883 billion on Internet infrastructure from 2011 to 2021, saving ISPs \$5bn to \$6.4bn a year. Building out our infrastructure portfolio and development of our network provides an alternative to transit, climbing the “ladder of investment” as our users’ needs have scaled, interconnecting with ISPs as close to users as possible - to minimise costs for ISPs, and to provide the best user quality of experience, while respecting Open Internet principles. These significant investments in infrastructure support high-speed content delivery, resilience, and capacity - and they generate significant positive impact in terms of economic growth and jobs in the EU.

4.4 Network needs: Deployment in the EU is going well, at 70% for FTTH ahead of other world regions like the US and OECD average; and already 66% for 5G, in 2021. *“Considerable progress has already been made in the rollout of fixed very high capacity network (VHCN) connections across the EU” [as the Commission put it recently](#).* There are also considerable differences between EU Member States in terms of their progress reaching connectivity goals. There are specific challenges in certain areas, rather than a widespread problem, and a wide range of factors that can affect deployment from country to country. These include: type of housing; population density; labour costs; planning and deployment regulations and practices; availability of ducts; presence of cable network; etc. In Germany for example the Liberal Group in Parliament [explained](#) *“The main limiting factors for the expansion, especially in the fixed network sector, are not financial resources, but above all construction capacities and lengthy planning and approval procedures. The Gigabit Strategy recognises that sufficient financial resources are available. It therefore rightly concentrates on speeding up approval procedures, introducing alternative laying techniques across the board and improving the efficiency of funding procedures in areas that have no economic funding prospects of their own. In addition, new competitors are currently entering the market in both the German mobile and fixed network sectors who want to participate in the self-supported expansion of digital infrastructure. This circumstance shows that there is no market failure such that the network expansion would be uneconomical. Against this background, there is therefore no need for regulatory action”.*

Beyond these factors, the challenge in meeting the EU’s gigabit targets is really about the need to extend the benefits of digital technologies to less economically viable areas - often rural and underserved regions and communities (average urban coverage in the EU27 was already 76% in 2021).

The fact that the challenges are not general, but rather specific to particular regions and their topology and specificities, suggests that any solutions should also be

targeted, rather than approached through a new, broad-brush intervention (which would likely not be needed in the many EU countries that appear on track to meet the Digital Decade targets without any such intervention; See [Eurostat](#)).

4.5 There is no funding gap: significant funding is already available for deploying fast networks in the EU. The sources of funding for networks in the EU are varied, and becoming more so. For gigabit networks, incumbent cable operators and new fibre entrants are all investing. Levels of total capex demonstrate increasing diversity of funding in each market, with incumbents only responsible for 40% or less in most large EU fibre markets⁸. Full fibre access has created an opportunity for substantial market entry by new investors, who have seen the potential for, and realisation of, attractive returns from fibre investments. For 5G, investment comes primarily from the mobile operators in each country, a mix of incumbents and other operators. This is often supplemented by capex from tower operators (who then lease their infrastructure to the mobile operators). These tower operators are often backed by pension funds or private equity, and have become increasingly important.

So there is likely investment capacity for much of the remaining expansion of coverage, and the sustainability of the sector is not in doubt. Listed companies' statements about improving cashflow, solid credit ratings of many ISPs, and growing private investment in the sector all support this conclusion.

Some have claimed that there is a “€300bn investment gap in fibre and 5G”⁹. However, this figure is the *total* capex required, and so doesn't represent a 'gap' ([Frontier Economics](#), [BCG](#)). If we scale to the whole of the EU the ISP capex for the EU4 which totals €41bn per year on the basis of GDP, over the ten years from 2021 to 2030 ('due date' for the Digital Decade targets) the run-rate would imply total telecoms capex of approx. €650bn. Thus even taking the €300bn figure mentioned, it does not look unduly problematic. “*There are no financing gaps in the expansion of the digital infrastructure*” as a German official confirmed ([Bundestag](#)).

In fact, incumbents report that their capex peaks are in the past, and cashflows are improving: Orange has noted that it anticipates a “significant decrease” in capex, because the “*FTTH deployment peak [has] passed*”.¹⁰ Companies earlier in their deployment of FTTH anticipate capex declining soon, eg Proximus “capex reaching its

⁸ Bundesnetzagentur, [Jahresberichte](#), 3 June 2022; Arcep, [Les services de communications électroniques en France](#), 15 December 2022; CNMC, [Telecomunicaciones Anual Datos Generales](#); AGCOM, [Relazione annuale 2022 sull'attività svolta e sui programmi di lavoro](#) - Appendice statistica, 29 July 2022

⁹ ETNO, [Accelerating fibre and 5G roll-out: ETNO unveils new technical and regulatory reports](#), 21 January, 2022

¹⁰ [Orange financial results, H1 2022](#), 28 July 2022. Telefónica also said its “3-year investment programme passed its CapEx peak in FY 21” (Telefónica, [Results January-December 2021](#)). Telia anticipates its capex to fall from 17% of revenue to around 15%, after a peak driven by network modernization and 5G. (Telia, [Q3 Interim report, 2022](#))

peak level over the years 2022-2023, and gradually decreasing afterwards”¹¹. The GSMA also sees declining mobile operator capex, despite the needs of 5G deployment. They predict that capex as a portion of revenues will fall from 22% in 2021 to 18% in 2025¹².

4.6. The supporting role of public funding: government support for broadband deployment is not new, and is generally carefully targeted at underserved areas where there is no prospect of commercial deployment: this avoids crowding out private investment, or subsidising investment that might have happened anyway.

In line with the EC Broadband Guidelines, such interventions are only considered when there is demonstrated market failure. State aid is the preferred, most effective and appropriate method to address any market failure and public policy concern. This is because it contains robust safeguards for the appropriate use of public resources, limits their distortive effects on competition, and can be tailored to address the specific market failure, including that it must be limited to the minimum amount of aid actually necessary for the supported economic activity to occur. The EECC preamble points to existing sources of public funding as *“more cost-effective and less market-distortive than universal service obligations.”* The European Commission further recommended that *“broadband for all should be supported through general taxation since it is a general public interest goal that benefits society as a whole”* adding that *“[t]he high uncertainty of the right to compensation in the present universal service system and the difficult enforcement that led to numerous disputes/litigations are a considerable weakness to be eliminated.”*¹³

There are funds available that are valued at well above €100 bn from which interested stakeholders could benefit: the [Recovery and Resilience Facility](#), for which a total of € 127 billion (or 26%) are meant to contribute to the digital transformation pillar; [InvestEU](#) which aims to significantly strengthen investments in digital infrastructures, technologies, and skills has €372 billion that can be tapped into for 2021-27; other multi-billion euros funds available include the CEF, [European Regional Development Fund / Cohesion Fund \(ERDF\)](#), [Connecting Europe Broadband Fund](#), [Horizon Europe](#), the [IRIS](#) satellite constellation programme with € 2.4 billion from the EU budget to provide access to high-speed broadband for rural and remote areas, etc. On top of EU-level funding schemes, EU Member States have established national financial instruments and dedicated funds for investment in high capacity broadband projects, with €7.8bn of state aid deployed in 2014-2019,¹⁴ and 10 [new programmes approved in 2022](#) alone. Finally, financial institutions also issue funds for the rollout of networks, e.g.

¹¹ Proximus, [Proximus announces ambition to extend fiber coverage to 95% of Belgian premises](#), 29 June 2022

¹² GSMA, [The mobile economy Europe 2022](#), 7 October 2022

¹³ Section 1.1.1.3.1 on Universal Service rules in the [EC’s explanatory note \(Staff Working Document\) for the EECC proposals](#)

¹⁴ EC, [Evaluation of the State Aid rules for broadband infrastructure deployment \(SWD\(2021\) 195 final\)](#), 7 July 2021

the [European Investment Bank \(EIB\)](#) confirmed in May 2021 its [commitment to support TIM](#) in the development of state-of-the-art network infrastructure with two loans totalling €350 million.

4.7 CAPs are already supporting the Digital Decade targets. This consultation reflects the agreement of European institutions that “All market actors benefiting from the digital transformation should assume their social responsibilities and make a fair and proportionate contribution to the public goods, services, and infrastructures, for the benefit of all citizens in the Union.” What is not accounted for in this consultation is the required investment in goods and services that drive demand for Internet connectivity and support digitisation. CAPs are by far the largest investors in developing the products and services that consumers enjoy and that enable ISPs to charge for Internet connectivity. Additionally, only 54% of Europe’s workforce had at least basic digital skills in 2022 — far from the Digital Decade target of 80% in 2030. Since 2015, [Grow with Google](#) has helped 12 million people in Europe adapt and grow their career or business with digital tools and training.

5. Is there a problem with Internet interconnection?

The IP interconnection market has consistently been considered highly competitive and responsible for helping boost the Internet’s global deployment while reducing the costs of carrying data ([OECD](#); [BEREC](#)). It is also a major European success, with the world’s four largest exchanges hailing from Europe.

In common with more than 99.9% of all interconnection arrangements, the vast majority of Google and all CAP interconnection arrangements are done using well-understood industry norms, “on a handshake”, which leads to flexibility, resilience, and low friction in Internet interconnection. These agreements are entered into voluntarily and based on mutual benefit. If either party, ISP or CAP, decides that it is not in their interest to interconnect, then the whole of the Internet remains available over transit.

Indeed, there are multiple ways to obtain CAP traffic demanded by ISP customers, given CAPs’ multiple IP transit connections, use of CDNs, and availability of interconnection at Internet Exchange Points. However there is only one way for users to reach the Internet and that is through their ISP. This creates a termination monopoly, which ISPs [have been known](#) to exploit to the detriment of their subscribers. This suggests that any imbalance in bargaining power is in favour of large ISPs that have significant termination monopolies. As BEREC already explained in both [2012](#), [2017](#) and [2022](#), the risk comes from the potential that incumbent telecom operators would be in a position to assert a ‘termination monopoly’ and force terms onto any party in order to reach ‘their’ subscribers.

This concern over a termination monopoly can be explained by considering the 'Sending Party Pays' model and 'network usage fees' that incumbent telcos are demanding. The experience of using this model for long-distance phone service resulted in 4 to 5 euros per minute for international phone calls. These calls were expensive because phone companies had a monopoly over access to their customers. This allowed them to charge monopoly prices for completing international calls and international carriers had no choice but to pay or be denied access to their end-phone customers. Telcos leveraging their termination monopoly for voice has required 30 years of regulatory intervention in Europe to reduce costs for consumers.

In contrast, IP interconnection has required virtually zero regulatory intervention in the same period. Broadband providers have the same monopoly over access through the 'last mile' to 'their' customers. Introducing legally mandated network usage fees, would allow them to exploit that monopoly when charging content providers for access. In fact, the only exceptional cases of threats to competition in the IP interconnection market have all come from the ISPs, not CAPs. The European Commission has previously recognised the termination monopoly as an issue and in Competition case [M.7000 \(the merger of Ziggo and Liberty Global in the Netherlands\)](#) for example, made it a condition of the merger that the combined entity provide three uncongested IP transit links into their network, to prevent any abuse of the termination monopoly. To conclude, quoting [a recent Telefonica blog](#): "*Internet Interconnection works well, so don't touch it*".

6. There is a problem with ideas for new funding arrangements

6.1. Establishing the exact sources and amounts of traffic is challenging - and will likely cause discrimination and market distortions

Any proposal to charge 'network fees' for traffic above a certain threshold would in itself constitute an obvious discrimination as it would only apply to certain companies, and as such discriminate between different content and applications.

Discrimination would happen elsewhere between those whose traffic can be measured (direct interconnection and first party Content Delivery Networks) and those whose traffic is carried by others (transit, third-party CDNs, etc.). The latter set of CAPs may be able to artificially avoid having their traffic identified by being aggregated with other providers.

ISPs also deliver huge amounts of their own traffic: they are themselves significant CAPs, notably by providing TV and video-on-demand services. This means that the cost of handling traffic at peak times over the network cannot be passed on to CAPs as if the ISPs didn't distribute their own content concurrently to their broadband subscribers - or this would be blatant discrimination, with a lack of equal treatment of traffic between ISPs and CAPs. Additionally, CAPs need to be able to access ISPs' customers to distribute their content, which puts ISPs in a position of market power

over CAPs and with an ability to distort competition in CAPs markets. This would present potential conflicts with competition law as well as with the Open Internet regulation, which is largely designed to prevent ISPs exerting gatekeeping control over the content that end-users can access.

Applying the new charges to cloud providers would result in higher prices and stymie the critical transition to cloud computing and the productivity benefits that come with it: Any new traffic levy would impact a wide swathe of data-driven industries, from SMEs to large businesses who rely on third-party digital infrastructure services (for example, Carrefour is a Google Cloud client, EDF and Veolia use Amazon Web Services.). Similarly, will an online streaming platform be exempt from network fees for the content of the broadcasters that it carries, or will it be required to pass on the new cost onto those broadcasters, who have recently been encouraged by policymakers to do a '[digital switchover](#)' and start 'generating traffic' by delivering their content over the Internet?

6.2. Introducing 'network fees' would be inadequate and unwarranted

Any consideration of network fees needs to take the whole ecosystem - all investments and contributions - into account. As explained above, users drive the Internet, including demand for traffic, and this in turn drives revenue for both CAPs and ISPs. Different actors in the value chain play different roles and contribute according to their different capacities and know-how. CAPs are responsible for investing hundreds of billions of euros in creating and making available innovative technologies and compelling content, applications and services without which the whole Internet economy would not work. This is to the benefit in particular of ISPs, for whom a very large proportion of revenues is directly attributable to these massive investments by CAPs. It could be considered that telecom operators are "free riding" on CAP investments, but there are no calls from CAPs for legally mandated payments to them for access to their investments. CAPs also invest heavily in compressing data to take less bandwidth. CAP commercial partnerships with ISPs generate revenue and save costs for them. These mutually beneficial partnerships and dynamics have delivered massively so far with a well-functioning, robust digital ecosystem. Complementary products and business models should not be tampered with.

Crucially, **there is no evidence of a clear problem or market failure** - as concluded already by many, including [BEREC](#), [Germany's Monopoly Commission](#) and the UK's [Ofcom](#). Investment in network infrastructure remains a profitable business, and the build-out of high speed networks in Europe has progressed strongly in recent years.

No funding gap is apparent, and even if there was one: (i) there is no correlation between it and the counter-factual claim that there is under-investment by certain parts of the ecosystem; and (ii) there is already plenty of public funding available to support deployment of broadband networks where needed.

On a long term basis capex returns are inherently lower in the initial phase of investment in a technology like 5G and fibre, but increase substantially over time. The

allegations of a funding gap are exaggerated, and any genuine need - notably to reach underserved communities - can best be served from existing, well crafted and well-funded public funding schemes.

Additionally, the IP interconnection market is highly competitive and delivering wide-ranging benefits.

Without an identified market failure, we fail to see the need for regulatory intervention ([neither do BEREC](#)). Further, a mandatory payment, or new fund would be effectively a new tax: It would be passed onto consumers and customers in the end - as is universal service, which appears directly on consumers' invoices in some countries.

Policymakers should be focussing not on sourcing additional funds from another sector for unclear reasons, but rather making sure that the funds already available are being disbursed appropriately, in the areas that genuinely require it, and that the relevant local authorities and other stakeholders are aware of and able to access that funding easily. This is the practical conversation we should be having, including other relevant issues such as improving spectrum and infrastructure sharing.

6.3. Introducing 'network fees' would lead to wide-ranging negative impacts

a. Harmful for Net Neutrality and end-user choice: a fee contradicts the principle of net neutrality - end-users' right and freedom to access information and content, and to use and provide applications and services, which are protected under the Open Internet regulations ([EC](#)) and related [Guidelines](#).

b. Harmful for consumers: forced payments could result in inefficient traffic flows; higher costs of data transmission; a decrease in the number and diversity of apps and services as the cost of making them available increase; and a more hierarchical, less resilient network topology - all of which results in lower quality of service and higher costs for Internet users. In Korea where a version of the Sending Party Pays model has been in place since 2016, transit prices were 8.3 times higher than those in Paris and 4.8 times higher than those in New York as of 2021 ([WIK for BNetzA](#)); as pointed out by telecommunications industry association [MVNO Europe](#) "*it is likely that the 'taxed' companies pass on fees to their own subscribers (as appears to be the case in South Korea)*". Higher interconnection costs could ultimately lead to higher prices for consumers to use or access content; this in turn may reduce the take-up of full-fibre and 5G products, at odds with European public policy objectives.

By contrast, the current model of highly competitive IP interconnection has delivered well, with declining prices for transit or CDN services and declining costs of delivering data packets (on a per unit basis ([BEREC](#))). All this has had a positive (downward) impact on consumer prices, and quality of experience, which should be encouraged - rather than threatened with the proposal to add unwarranted 'network usage' costs to the value chain. As the [European consumers organisation BEUC summarised it](#): "*For consumers in particular, the risks or potential disadvantages of establishing measures such a SPNP system would range from a potential distortion of competition on the telecom market, negatively impacting the diversity of products, prices and*

performance, to the potential impacts on net neutrality, which could undermine the open and free access to Internet as consumers know it today”.

c. Harmful for EU telecom competition and connectivity: there is no assurance that payments would go towards providing consumer or other welfare. ISPs could conceivably use the proceeds for other purposes such as acquisitions, purchasing sports rights, or paying shareholder dividends. Any arbitrary guaranteed payments will reduce the competitive incentive for operators to invest in infrastructure over the long term; and introducing this fee under the ‘sender party pays’ model would make termination monopolies a fresh problem - as BEREC warned already. In fact, as [Germany’s Monopoly Commission advised](#) in May 2023 “*such a levy risks significantly harming competition in different markets in the Internet ecosystem.** It would disrupt the steady increase in competition in the sector and remove incentives for private investment in challenger firms, as [MVNO Europe explained](#): “*Organizing financial flows to the largest telecom operators, without any assurance on where and how the funds will be spent, would only end up reinforcing their market position and could lead towards tighter oligopolies or even re-monopolisation of telecom markets.*”

d. Harmful for GDP and businesses across sectors of the economy: Rather than increase the diversity and dynamism of the Internet and the EU's growing digital economy, proposals for content fees (effectively reducing funding or raising prices for online apps, services and platforms) would actually undermine the expected benefits of 5G (which itself could drive revenues and profitability for ISPs). ISPs likely would be incentivized to focus on providing end users with content from firms who have paid them network fees. This would make it difficult for smaller players - and especially promising content creators and developers - to present their work and innovation to local and global audiences.

Additionally, this new traffic charge will negatively impact vertical sectors - from SMEs to larger companies - that now use the Internet as a matter of basic business conduct in the data-driven economy. CAPs’ cloud traffic (sometimes also streaming traffic) includes that of many other companies that would also have to pay. Many European companies will be impacted directly, from broadcasters who deliver their content over the Internet to the automotive industry whose vehicles and supply chains depend increasingly on connectivity. Indeed looking ahead, as 5G networks are used to support innovations such as self-driving cars, any new, incremental traffic is likely to flow to and from BMW or Renault - not the large American companies currently targeted by traffic charges. Network fees would be a new impediment to hopes of ‘Industry 4.0’ taking off in Europe, and the corresponding take-up and investment in 5G, which would defeat the rationale for raising funds to invest in networks.

e. Harmful for the resilience and global nature of the open Internet: The global and open character of the Internet would be fundamentally undermined by introducing the ‘sender party pays model’ through network fees. This is a threat especially because once a new payment mechanism is introduced - even if it’s targeted - there is little to prevent its expansion, both in the EU and in other countries around the world who would be influenced by the EU’s regulatory leadership to introduce a similar scheme,

quite possibly targeting European companies. This would be in stark contrast to the open character of the Internet, which the EU has long championed.

By introducing this new mechanism, any and all online actors would be forced to negotiate with and pay each and every telecom operator in the world for their content to be accessible by users, which would be overly costly for most voices active online, and thus limit their ability to reach a global market and audience. This would have long term repercussions for the viability and vitality of the Internet, digital trade, freedom of expression, and access to information, with users likely unable to access the content of their choice depending on where they're based in the world.

f. Bad for regulators - this will be an extremely difficult proposal to implement and to regulate: it would pose risks of conflict of law, such as with the Open Internet regulation. It would also likely create tensions with competition dynamics in the telecom sector. Further, regulators would face a real struggle in calculating traffic and charges accurately, balancing respecting investments in services and infrastructure, and apportioning fees to the original sender considering the distributed and intermediated nature of Internet traffic.

g. Bad for underserved communities and the digital divide: Adding additional costs to the production of online content and applications would reinforce the digital divide and be counter productive to Digital Decade targets. The vast majority of populations live within range of an Internet connection - but many choose not to connect: as explained by [GSMA](#), a key reason for lack of adoption beside the lack of digital skills and literacy is the “[l]ack of relevant content, products and services that meets users’ needs and capabilities”.

The creation of compelling content and useful applications is the only way to encourage user adoption, but adding a new financial burden on content creators would hinder their incentive and ability to do so. Additionally, local content production is key to the empowerment of underserved and vulnerable communities. Forcing universal service and other payments onto content producers would risk harming the ability for culturally-relevant content to be created and disseminated.

7. The Way Forward

There are other improvements to the telecom regulatory framework in Europe which could strengthen network deployment and the fortunes of the sector, rather than misguided and unnecessary ‘network fees’. The following are just some of the many areas we should discuss and explore further together:

Identify interventions that target the identified problems, and are tied to the sought outcomes: Government grants that are conditional on specified network deployment are an example.

Take a ‘whole industry’ view: Policymakers and regulators should consider both incumbents and newer entrants and technologies as vehicles by which public objectives can be achieved. Existing investment incentives should be available to both, e.g. schemes to encourage deployment of fast connectivity.

Steps to help industry reduce (or avoid) cost: *Copper switch-off* is an example, as would *earmarking spectrum auction proceeds to support network deployment*, especially to hard-to-reach areas.

Support for uptake of next-gen services: the Digital Decade targets specify coverage, but the benefits will actually flow from usage. This will only happen if consumers and businesses are ready to pay for faster connectivity because they want to use compelling applications and services. Higher uptake then improves the business case for deployment. Governments can use an array of mechanisms to promote uptake like voucher schemes, tax deductions for employee-provided broadband, etc. Overall, governments need to foster the creation of compelling applications, in order to unlock adoption and use of ‘gigabit connections’: they should therefore encourage innovations by CAPs, and actively discourage hurdles to their creation - hurdles which could take the form of network fees.

In conclusion, through thoughtful multi-stakeholder dialogue and evidence-based analyses that consider the whole ecosystem, forward-thinking public policy and regulatory systems can be put in place that encourage and strengthen the current virtuous cycle and fruitful commercial relationships, with their positive impact on jobs, innovation, economic growth and long-term investment in digital infrastructure that support a range of economic and social activities. We look forward to contributing extensively and earnestly to this dialogue with policymakers and stakeholders in the years to come, with the ultimate goal of serving European citizens and Europe’s robust digital economy.

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