# CONTRIBUTION TO THE EUROPEAN COMMISSION'S WHITE PAPER

## "How to Master Europe's Digital Infrastructure Needs?"

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## 1. Introduction

The Amsterdam Internet Exchange (hereinafter "AMS-IX") welcomes the opportunity to provide feedback on the consultation launched on 24 February 2024 on European Commission's White Paper "How to Master Europe's Digital Infrastructure Needs?" ("WP").

Interenet eXchange Points ("IXP's") perform a crucial function in supporting efficient and resilient interconnection between Internet networks facilitating multilateral internet data exchange (peering), which contributes to lowering costs, more competitive network dynamics, and increasing service quality for connected networks. This increases interconnection density and route choice, thereby improving the overall resilience of Internet infrastructure and reducing network latency. Organizations providing IXPs are recognized as "Operators of Essential Services" for Digital Infrastructure in the Network and Information Systems Directive (2016/1148) and will be deemed "Essential Entities" in NIS2.

AMS-IX is the largest IXP in The Netherlands and one of the largest in Europe and globally, with more than 1000 connected networks and peak traffic of more than 12 Tb/s. AMS-IX is a member of Euro-IX, the association of European IXP's representing most of the European IXP', whether measured by traffic carried, number of networks served or overall network capacity.

## 2. State of the European electronic communications market

The EU electronic communications framework[1] can be seen as a positive story overall: Europe's connectivity achievements has been remarkable in terms of coverage as well as adoption by consumers and professional users, and also as affordability and inclusion.

[1] Directive 2018/1972 also called European Code for electronic communications ("EECC").

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Although international comparisons should be considered carefully, it is remarkable to note that European FTTH deployment rate is higher than that of the United States[2], while some European countries are recognised international leaders for fibers. According to mid-2022 data released by the OECD[3], the most advanced countries in the world in terms of fibre adoption include numerous EU Member States (such as Spain, Sweden, Lithuania, Latvia, Portugal, Finland, Luxembourg, France, Slovenia, Denmark, Estonia, Slovak Republic, Poland, Hungary) and EEA countries which apply the EU framework (Iceland, Norway). See **Error! Reference source not found.** below.

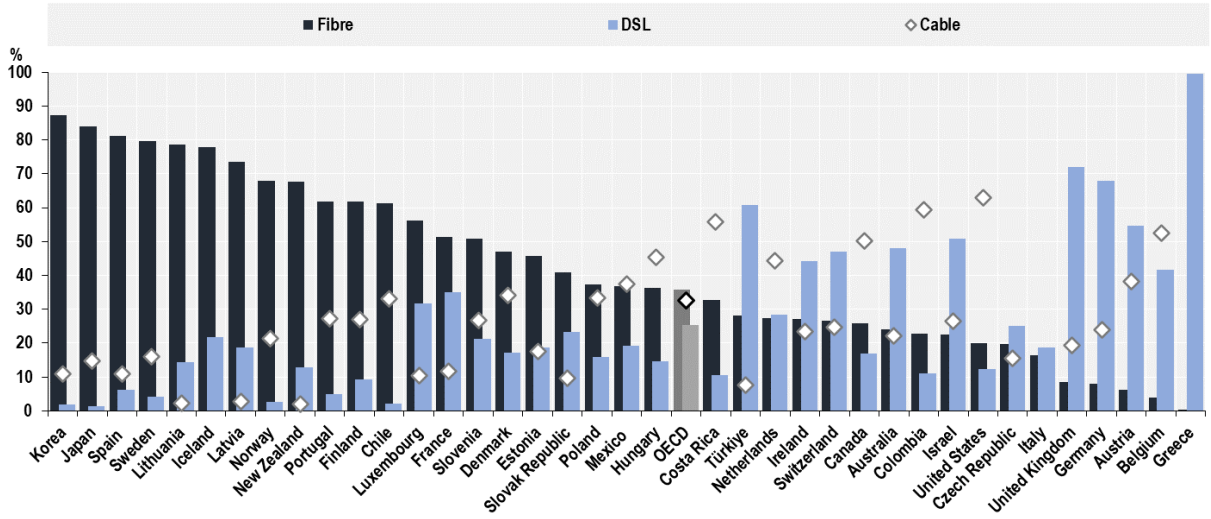


*Figure 1: OECD data on percentage of fibre, DSL and cable subscriptions in total fixed broadband, June 2022 (fibre subscriptions include FTTH, FTTP and FTTB while exclude FTTC and FTTN)*

[2] FTTP in EU household coverage and in US are respectively 55.6% and 43.9%. Source: Report prepared by Analysys Mason for ETNO, available here.

[3] Available here

In addition, EU excels in 5G standalone vis-a-vis US, as it is confirmed by the recent European Parliament Report[4], and several EU Member States are in fact world leaders.

The EU is also leader in the affordability and inclusion of broadband offers: the EU27 has the lowest prices for Triple Play offers among all speed categories and prices for bundles in all speed baskets are lower in the EU27 than in Japan, the USA, Norway, Iceland except those of the UK which has been a full EU Member until 31 January 2020 and has not materially changed the applicable legal framework.

In other words, EU is not performing badly in the most significant segments of the electronic communications sector and, although there are areas where improvements should be done, especially in light of the 2030 Digital Decade objectives to be achieved, the picture is not negative at all.

## 3. Scope of the EECC with regard to network virtualization and cloudification

The dominant WP's leitmotif is the ongoing technological trend consisting in network cloudification and virtualization. According to the Commission, this evolution would drive the whole sector through disruptive changes and would justify a regulatory overhaul. Along the same line, the connectivity markets are seen as facing transformative technological developments, the result of which will be both a converged supply (i.e. network and service provision) as well as a converged demand by end-users. While observing this alleged progressing convergence between electronic communications networks and cloud, the Commission observes that "*yesterday's separation between "traditional" electronic communications networks/service providers and cloud or other digital service providers will tomorrow be superseded by a complex converged ecosystem*"[5] with the result to propose the Scenario 4 focussing on a so-called "*regulatory level playing field*" amongst telecom and cloud providers[6].

In this respect, AMS-IX respectfully observes that network virtualization just implies that management and control functions of network are centralised and softwarized, providing the network operator with enhanced flexibility and innovative capability; while cloudification

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[4] EPRS Report: "A future-proof network for Europe: Full fibre and 5G": *"Although international comparisons are difficult to make due to different indicators, market contexts and regulatory environments, data comparing the EU and the United States (US) seems to show that the EU is ahead in the deployment of full fibre networks (FTTP), particularly when considering FTTH deployment…"* and *"…in the use of full 5G (or 5G stand-alone) – which ensures high reliability and low latency for industrial use cases – the EU currently outperforms North America"*. Available here.

[5] WP, pag. 15.

[6] WP, pag. 36.

basically involves that control and management functions of the telecom core network, together with relevant database, are migrated from the telco's servers up to the platform of a cloud provider[7]. AMS-IX considers that such technological trends should not be seen as "game changers" for the telecom sector, unless it is proven that they imply a substantial modification in related competition and market conditions. The technological neutrality principle, overarching thr EECC, should be regarded as a fundamental criterion to carry out this analysis.

With respect with the above, AMS-IX recalls and agrees with BEREC's recently issued Draft Report on Cloud and Edge services[8] when it states: "*The EECC takes into consideration the functionality provided by the services independently of the underlying technology used. Such general approach for the definition of the services is applied as well on cloud-based networks, in line with the abovementioned recital 14 EECC. Therefore, in general terms, the substitution of physical elements by software elements would not impact the definitions and, thus, the scope of application of the EECC.*"

Indeed, as stated by BEREC: "*Some cloud services fall also under the definition of article 2 of the EECC and, thus, are at the same time ECN/S. Consequently, these particular services need to comply with the electronic communications' regulatory framework. Some examples include ... Communications as a Service - CaaS (real-time interaction and collaboration); Network as a Service – NaaS - (transport connectivity and related network capabilities); Email as a Service - EaaS (email service including related support services such as storing, receiving, transmitting, backing up and restoring email)*".

Fact is, there are no evident cases that would require a review of EECC's scope of application due to network cloudification or virtualization. As a matter of fact, the current competition in the markets is the key factor that enables their evolution. In addition, it is objectively clear that local access and backhaul telecommunications networks constructed and operated on the basis of trenches, manholes/handholes, underground ducts, poles, cables, transmission equipment deployed on cables, and the resulting data transmission services, are not in any way substituted by cloud infrastructure or services, or the providers thereof.

To this purpose, AMS-IX also firmly believes that the conclusions reached by BEREC regarding access to passive network infrastructure in its "*Input paper to the EC on potential regulatory implications of software-defined networks and network functions virtualisation*"[9] remain valid: "*In networks based on SDN and NFV, passive network infrastructure is used in the same way as in the*

[7] A recent business case occured in Germany between Telefonica and Amazon, see https://5gobservatory.eu/telefonica germany-to-move-one-million-5g-customers-to-amazons-cloud-service/

[8] Available here

[9] BoR (16) 97, document dated June 6, 2016.

*networks of today. Therefore, SDN and NFV do not have any impact on the access to passive network infrastructure*".

These technologies can be applied to all kinds of networks regardless of underlying technology be it a full fibre network or a cable one or a 5G network and in this sense the technology neutrality feature of the EECC perfectly captures the regulatory essence of SDN and NFV technologies.

Therefore, AMS-IX conclusively believes that rather than extending the scope of the EECC to the remaining cloud services (having in mind that as stated by BEREC, NaaS, CaaS and EaaS do already fall under the scope of the EECC), policy makers should be focused on existing legislation enacted to deal with the competitive problems encountered with digital platforms of which cloud is an important piece.

As a consequence, AMS-IX objects and asks to reconsider Scenario 4.

## 4. Competitiviness of the IP interconnection market and possible regulatory intervention

While acknowledging that the IP interconnection markets is competitive, the WP reiterates the idea that regulatory intervention may be needed with respect to dispute resolution between ISPs and CAPs as per the costs of interconnection[10]. Without any explicit mention, this assumption is a clear reference to the well-known fair share regulatory intervention which has been already discussed and rebutted in the recent years. In addition, this assumption is clearly in contradiction with the recognition that the IP interconnection market is competitive.

AMS-IX respectfully observes that the fair share model may risk to be detrimental to the correct functioning of the Internet connectivity and peering market and distort competition therein. Citizen's experience in basic business operations, sharing data, accessing cloud services and developing research projects will be negatively impacted.

AMS-IX remains neutral on the question of whether some form of regulatory adjustment is justified to subsidise network investment. We do, however, believe that policy-makers should give paramount priority to protecting the integrity of critical infrastructure: no policy changes aimed at improving investment returns should be considered without complete certainty that they are safe in terms of the Union's and the public's vital interests. The Internet is a complex eco-system, and it is policy-makers who are ultimately responsible for systemic effects resulting from policy choices.

[10] WP, pag. 26.

The current peering market has an exceptionally low-cost base, and a very high proportion of peering relationship are concluded entirely "settlement free". This has enabled the emergence of a broad variety of IXPs serving local markets, from very large IXPs in major regional interconnection centres (often with a pan-European and global customer base) to much smaller IXPs focussed on a single nation or metropolitan area.
Given such an efficient starting point, it appears inevitable that moving to a potential administrative determination with a regulated price (although by way of mandatory litigation) would add considerable costs (including transaction costs) for concluding interconnection agreements.
Reducing networks' propensity to peer could only lead to an aggregate reduction in the number of points of interconnection between access and content networks. This would make Internet connectivity more fragile and less resilient against local equipment failures, with the potential to increase both the frequency and severity of large-scale technical outages, including outages that directly impact end-users and critical services.
Such a systemic change in the aggregate architecture of network interconnection could never be compensated by improvements in the levels of reliability of individual networks, no matter how strict the regulatory requirements laid on individual actors.
Euro-IX believes that European critical infrastructure is well-served by the high level of interconnection density that the IXP community enables. The spontaneous growth of IXPs across Europe in response to interconnection demand from network operators constitutes a major success for the European Union's world-leading regulatory approach.

As a consequence, AMS-IX objects and asks to reconsider Scenario 4.

## 5. Review of the regulatory framework

One understands that the European Commission intends to radically review the current EU regulatory framework, particularly with the purpose to substantially reduce or fully eliminate traditional SMP access regulation, as indicated in Scenario 5 of the WP[11], and that the WP itself is conceived to prepare the ground for such a process. This proposal may lead to a significant reduction of telecom players and ISPs, most of them are members or clients of IXPs, which may not be able to operate in areas where there is no sufficient access availability at competitive terms.

In this context, one should note that Europe's alleged poor picture painted by the Commission's WP (in terms of poor performance in connectivity, VHCN deployment, take up, telecom sector's

[11] WP, pag. 36

investment capacity as a result of poor revenues and profits) is not proven by the facts, as reported above, and therefore should not be considered as a sound basis for a top-down review.

The Commission's WP fails to build a grounded relation between the alleged poor performance and the need for a structural change in the EU regulatory framework. In particular, in the Commission's WP, there is no clear explanation on why and how dismantling the wholesale access regulation contained in the EECC, would help to increase telecom investments in Europe. So far, there has been no empirical evidence to show that a less competitive market with higher profitability levels for few operators would boost the investments by those few remaining big players and overall.

By contrast, the access deregulatory policy proposal of the European Commission (as highlighted in the WP) may significantly impact the future of the European market of which the telecommunications sector is a fundamental and strategic component. Therefore, any initiative in this direction should be carefully reflected and based on a rigorous fact-based approach

Surprisingly, the WP mentions the possibility to extend access and dispute resolution regulation to backbones managed by cloud providers[12], without providing any rationale for that.

Therefore, AMS-IX ask to reconsider any proposal for structural change to the existing regulatory framework along the lines proposed by the Scenario 5 bullet point 2 and asks the Commission not to take unilateral steps towards dismantling a framework which has been working well thanks to its flexibility and capability to adapt in different regions and markets.

In addition, the balance of power provided by EU Regulatory Framework when it comes to the powers of the co-legislator, the Commission and BEREC, is a fundamental element of its functioning and should be preserved. It should not be changed to provide more power to the Commission.

As a consequence, AMS-IX objects and ask the Commission to re-consider the Scenario 5, second bullet.

## 6. Conclusion

In light of the above, AMS-IX objects and ask the Commission to re-consider the Scenario 4 and 5, second bullet.

There are no comments with respect to other scenarios of the WP.

[12] Pag. 15 of the WP.