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IMPROVING THE DIGITAL NETWORKS ACT PROPOSAL

REPORT

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Executive Summary

The European Commission's proposal for a **Digital Networks Act (DNA)** seeks to advance several objectives simultaneously: strengthening the European Single Market, promoting investment in advanced digital infrastructure, facilitating the transition from copper to fibre, and updating the rules governing an open and neutral Internet. These objectives are broadly shared across the European policy debate. The central question is therefore not whether Europe should seek better connectivity, stronger investment incentives or a more integrated telecommunications market, but **how best these objectives should be pursued through regulation**. This report assesses the principal reforms proposed by the European Commission and identifies ways in which the DNA could be improved to better achieve its objectives. Four specific areas are examined: the telecoms Single Market, access regulation, copper switch-off and open Internet regulation.

1. A Telecoms Single Market: harmonisation has benefits, but should not be confused with scale

The European telecoms regulatory framework has **pursued single-market objectives since the 1990s**, principally by opening national markets to competition. While some operators have expanded across borders, the European industry has not evolved towards a small number of pan-European network groups. This is not necessarily evidence of a regulatory failure. **Telecommunications networks differ fundamentally from tradable goods**: network infrastructure must largely be deployed where services are consumed, and most network costs arise from local access and transport infrastructure. This distinction is important for claims that a telecoms single market would close Europe's alleged investment gap. A larger market can generate economies of scale in activities such as R&D, procurement and some core network functions. The available industry structure provides limited evidence of significant economies arising simply from pan-European ownership: locally focused and independent operators continue to compete alongside subsidiaries of large international groups. So far, most investment remains tied to the economics of serving particular national and local markets, although this may change with the virtualisation of telecoms networks and the development of satellite networks.

The **DNA proposal nevertheless contains several measures that could reduce regulatory fragmentation**. These include the choice of a Regulation rather than a Directive, greater use of delegated and implementing acts or greater harmonisation of spectrum conditions. Such measures could lower compliance costs and facilitate cross-border entry or the scaling of existing services. Their impact, however, depends critically on whether regulatory divergence is currently a material barrier to entry. Given the maturity of European telecoms markets and the substantial cross-border activity that has already developed, the structural impact of these measures may end up being **relatively modest**. The proposed **Union harmonised access product** illustrates both the potential and the limits of this approach. Standardisation could reduce costs for access seekers operating across several Member States, but it could also impose implementation costs and reduce the ability of national regulators to tailor remedies to local circumstances. More fundamentally, an individual NRA cannot easily determine whether adopting such a product will generate meaningful scale economies unless other NRAs adopt it as well. Finally, such a proposal does not seem to be supported by evidence of substantial demand from access seekers across a significant proportion of Member States.

More radical proposals to create a telecoms single market warrant particular caution. Proposals to reform wholesale roaming arrangements or to "delayer" vertically integrated operators seek to generate pan-European retail scale or alter the ownership structure of the industry. However, their legal and economic mechanisms remain insufficiently developed, and their effects on prices, investment, market structure and incentives are highly uncertain. In particular, regulation should not prescribe a particular ownership or organisational model in a technologically evolving sector.

Ultimately, "single market" should be treated as a means, not an objective in itself. Each DNA measure should be assessed against its specific expected effects on entry, costs, investment, innovation and consumer outcomes, while taking account of regulatory flexibility and national differences. Measures that reduce unnecessary regulatory burdens or improve investment incentives may be valuable even if they do not produce pan-European consolidation. Conversely, measures should not be assumed to advance the telecoms single market merely because they are presented in those terms.

2. Access regulation: retain the framework, but strengthen its economic foundations

The **DNA largely preserves the existing architecture for asymmetric access regulation**. Markets susceptible to ex ante regulation continue to be identified through the Three Criteria Test (TCT), while regulated undertakings are identified through the Significant Market Power (SMP) test. The principal change is that the European Commission would no longer be required to adopt a Markets Recommendation identifying markets susceptible to ex ante regulation. This could give national regulatory authorities greater responsibility for determining whether the TCT is satisfied in individual national or local markets. Retaining the basic TCT/SMP architecture provides a familiar framework and contributes to legal predictability. At the same time, the removal of the Markets Recommendation makes it particularly important to clarify the substantive and methodological content of the TCT. Without the Recommendation, important existing guidance on market definition, market analysis and application of the TCT could otherwise be lost.

Therefore, we recommend that the **TCT should be clarified in the DNA itself and through a revision of the 2018 European Commission Guidelines on market analysis and the assessment of SMP**. **The test should be more explicitly connected to the economic rationale** for access regulation, i.e. the presence of durable bottlenecks. We propose a **new four criteria test to justify asymmetric regulation**: (i) absence of sustainable retail competition, assessed on a forward-looking and, where appropriate, geographically granular basis; (ii) structural barriers to entry at wholesale level, including the minimum efficient scale required to replicate the relevant infrastructure; (iii) absence of a tendency towards effective competition, taking account of technological developments and alternative legal or contractual access arrangements, and (iv) insufficiency of competition law to address the identified structural market failure effectively and in a sufficiently timely manner.

The report also proposes **removing the existing rebuttable presumption** that a market identified in the European Commission's Markets Recommendation satisfies the TCT in every Member State. The current presumption is difficult to reconcile with the national and local nature of many telecommunications markets because the European Commission cannot realistically perform a robust TCT assessment for every relevant national and local market. As the removal of the presumption could increase the burden on NRAs, the report proposes **integrating the relevant TCT considerations into the SMP analysis**, rather than requiring NRAs to perform two entirely separate exercises.

At the same time, removing the presumption should **not mean removing the European Commission's role in ensuring methodological consistency**. Guidance on market definition and analysis should be transferred and further developed through the European Commission's market-analysis guidelines, while the European Commission's veto powers should be retained. The resulting framework would combine **market-specific assessment with European methodological consistency**. Access regulation would consequently be targeted at genuine and persistent bottlenecks, rather than applied simply because a market has historically appeared in a European Commission recommendation.

The report also identifies a **possible longer-term role for symmetric regulation**. Where bottlenecks become increasingly local and fragmented as fibre networks are deployed, symmetric access obligations may provide a simpler and more adaptable means of addressing bottlenecks than repeated asymmetric market analyses.

3. Copper switch-off: preserve the direction towards fibre, but make migration conditional on local realities

The **transition from copper to fibre is an important and broadly accepted policy objective**. Fibre offers greater capacity, reliability and energy efficiency and is central to Europe's long-term connectivity objectives. The key issue is therefore not whether Europe should move towards fibre, but what the best regulatory approach would be to go to it. The report identifies a significant change in regulatory philosophy. The existing framework seeks to influence investment incentives through market analysis and calibrated access regulation. The **DNA proposal instead establishes a more centrally determined transition towards fibre**, largely based on mandatory switch-off procedures and ultimately a binding deadline.

This raises concerns about **proportionality, technological neutrality, consumer choice and subsidiarity**. The conditions for migration differ considerably between Member States and between local areas. They depend on network architecture, fibre coverage, existing FTTC or cable networks, building characteristics, deployment costs, alternative technologies and consumer demand. A uniform regulatory timetable therefore risks being less responsive to local conditions than a framework in which NRAs determine the pace of migration on the basis of market evidence. We also question whether the European Commission's impact assessment sufficiently isolates the effect of mandatory switch-off itself. The options assessed combine different access-regulation reforms with different switch-off scenarios. As a result, the **marginal contribution of a mandatory switch-off to additional fibre deployment and take-up is not clearly established**. This is particularly important because the benefits of migration cannot simply be inferred from the benefits of voluntary fibre adoption. Consumers who voluntarily choose fibre may differ from consumers who migrate because their existing service is withdrawn. The latter may bear monetary, technical or non-monetary costs without necessarily obtaining corresponding benefits. We highlight the importance of distinguishing **legacy copper from upgraded copper technologies such as FTTC**. Treating all copper-based networks identically overlooks significant differences in performance and in the amount of fibre already incorporated into the network. Moreover, mandatory retirement of FTTC does not necessarily lead to migration to FTTH. Depending on national circumstances, consumers may instead move to cable, fixed wireless access or mobile services.

Therefore, **we propose a more conditional and market-driven approach**. The direction towards fibre should be retained, however, **before introducing any mandatory procedure, the legislation should**

require an assessment of whether a national switch-off plan with objectives and a timeframe compatible with the regulation's goals and supported by appropriate regulatory safeguards already exists or can be established. Only where no such plan exists, cannot be established within a defined period, or is materially breached, NRAs should be able to initiate the mandatory procedure proposed

As for the mandatory procedure, we propose few substantial amendments giving **greater weight to whether premises are actually connected to fibre,** rather than relying primarily on whether they are technically capable of being connected within a specified period. For the unconditional phase to switch-off, the report proposes extending the implementation periods and substantially broadening the circumstances in which an exception would apply. The final deadline should operate as a backstop rather than as an unconditional obligation irrespective of local conditions. In particular, an exception should apply where extensive FTTH deployment is not economically viable or where fibre coverage or connection thresholds are not met. This would reduce the risk that copper is switched off where doing so would simply force consumers into another non-fibre technology.

4. Net neutrality: preserve an open Internet while creating greater room for innovation and differentiation

The fourth area concerns the DNA's proposed incorporation of the existing open Internet Regulation into the new framework. We do not argue for abandoning net neutrality. The fundamental objective of **protecting an open Internet** and preventing unjustified blocking, degradation and discrimination **should remain**. The question is instead **whether the current regulatory architecture adequately reflects the evolution of the Internet since the adoption of the open Internet Regulation in 2015**. The Internet ecosystem now involves a much greater diversity of actors, including large content and application providers, cloud services, CDNs, operating-system providers, AI agents and other intermediaries. Therefore, market dynamics among ISPs and some of the largest CAPs are substantially changed. At the same time, technologies such as 5G Standalone and network slicing create new opportunities for quality differentiation, which should be assessed in a more proportionate way, in order to enhance operators' ability to deploy advanced network technologies and efficiently offer innovative services.

Therefore, **we propose a more proportionate architecture based on three principles: proportionality, a systemic perspective and consumer empowerment**. These principles shape a three-layer Open Internet architecture:

i. an **absolute layer**, containing prohibitions that apply to all offers: certain **practices should remain prohibited irrespective of market circumstances**. These include blocking, deliberate degradation and discriminatory self-preferencing, as well as the substitution of an optimised service for Internet access;

ii. a **guaranteed layer**, consisting of the **application-agnostic Internet Access Service as a default "anchor" product** available to all consumers by default. Consumers should be able to move away from and return to this service without unreasonable switching costs, and its quality and availability should be monitored by NRAs;

iii. a **flexible layer**, **allowing differentiated and quality-optimised services and commercial delivery arrangements subject to defined appropriate safeguards conditions and consumer choice**. The objective is to distinguish between conduct inherently incompatible with an open Internet and differentiation that may improve quality, choice and innovation.

This framework would also clarify the **treatment of specialised services, in order to provide greater legal certainty**, as well as **the treatment of non-temporary congestion, where ISPs' capacity expansion should not be the sole admissible response**. We propose that optimisation should be permitted where, under normal network operation, the objective quality requirements of an application justify dedicated or optimised treatment.

We further recommend distinguishing **consumer connectivity from bespoke business connectivity**. Individually negotiated B2B services, including network slices with contractually agreed quality parameters, should not automatically be subject to consumer-oriented protections designed for standard publicly available Internet access.

Finally, we argue that open Internet policy should increasingly take account of the **wider digital ecosystem**. Delivery infrastructures, CDNs, operating systems and emerging AI-based intermediaries can influence the quality and accessibility of digital services. The regulatory perimeter should therefore remain capable of evolving as these actors increasingly affect Internet openness and users' access to digital services.

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1. A Telecom Single Market

Many policymakers, including most recently Mario Draghi[1] and Enrico Letta[2] in their well-publicised reports, lament the absence of a 'telecoms single market' in Europe and attribute what they regard as Europe's comparatively poor performance in the deployment of telecommunications infrastructure and technology to the absence of such a market. We assess these claims and the proposals that are being advanced in the DNA in support of them in this section.

1.1. Why a Single Market in Telecoms?

There is a good deal of confusion in discussions about a telecoms single market and so it is useful to start by first recalling that the **European telecoms regulatory framework has, from the 1990s onwards, sought to promote the development of a single market by reducing barriers to entry into national markets**.[3] The European Commission took the lead in liberalisation because of concerns that Member States would seek to protect their former state owned monopoly or incumbent operators and obstruct competition. The expectation was that as regulatory measures allowed competitors to enter and erode the dominant position of the incumbent operators in their respective domestic markets, those same incumbent operators would venture into other European markets in an effort to offset their losses. This did occur to some extent, and former incumbent operators such as Deutsche Telekom and Orange, own fixed and mobile networks in a number of different Member States today. Groups without incumbent positions 'home' markets to protect, notably Vodafone and Liberty Global but also Iliad and Tele2, have also owned networks and have operations in multiple Member States at various times.

It is also useful to recall what a European single market is and why it is a central objective of the European Union. The idea is often illustrated by the trading of goods between Member States. Without a single market, Member States would be vulnerable to protectionist calls to restrict competition and protect domestic industries and jobs. Potential competitors in neighbouring or other Member States will find themselves excluded or impeded by trade barriers, including local regulations which diverge between Member States. Single market measures remove or lower these barriers and thereby increase competition in national markets within Europe. Consumers can buy goods imported from anywhere in Europe and so have more choice and access to better products at lower prices than would otherwise be the case. In these circumstances, a single market is associated with an increase in competitive intensity within national markets. There is also an expectation that this will make European firms that succeed better able to compete on a global stage.

The greater competition and choice for consumers that is associated with a well-functioning single market does not necessarily mean that the firms in that market will or can invest more. Greater scale from serving a larger market may enable a firm to support higher levels of investment in activities with fixed costs such as centralised R&D which support operations in multiple Member States. On the other hand, greater entry and competitive intensity may reduce profits and discourage investment.

[1] M. Draghi, The future of European competitiveness; Part B: In-depth analysis and recommendations, Report to the European Commission.
[2] Letta, Much more than a market: Empowering the Single Market to deliver a sustainable future and prosperity for all EU Citizens, Report to the Council, 2024.
[3] European Commission White Paper Telecom 1987.

The implications of a single market for the overall level of investment are therefore not self-evident. This applies equally to claims that a single market in telecommunications will necessarily contribute to greater levels of investment in infrastructure, as suggested by Draghi and Letta in their reports and by the European Commission when presenting its DNA proposals.[4] There are likely to be some fixed and variable costs in the provision of core network, cloud and IT services which will be reduced if telecommunications facilities located in one Member State can be used to support local networks and services across multiple Member States[5]. In addition, some cost savings will be achieved if operators can obtain lower prices in return for commitments to purchase higher volumes of equipment. However, the majority of network costs are incurred in the provision of the local network and transport infrastructure to serve users within individual Member States and are not significantly affected by whether a firm has operations or customers in other Member States.[6]

A single market does not necessarily mean that the firm itself will become larger or that it needs to own operations in every Member State in order to compete. Competitive markets force firms to organise their affairs in the most efficient way possible without presupposing what form that takes. For a producer of goods that could involve having operations in every Member State or it could involve concentrating all its operations in a single Member State which has access to capital, labour or other inputs that give that firm a comparative advantage over competitors located in other Member States. In time, the most efficient corporate structure will prevail, with successful firms capturing a greater share of the market and others either being forced to adapt or to exit the market altogether.

The same logic applies in telecommunications, where operators can be expected to organise their affairs in the most efficient and competitive way possible. However, telecoms has characteristics which distinguish it from many other goods or services markets. **Crucially, a firm cannot 'export' telecommunications services from one Member State to another in the way that other products can be exported because telecommunications networks, by their nature, must be supplied at the location at which the services they support are consumed** .[7] This explains why European telecoms operators do not 'compete' in a global market against overseas rivals in the way that exporters of products manufactured in Europe might compete for customers outside of Europe and why a single

[4] Both Letta and Draghi imply that a single market would address the 'investment gap' which the European telecoms industry is said to have when compared to its US and Chinese counterparts, but the means by which this is achieved is not clearly explained. There is widespread recognition that the relationship between competition and innovation (which is a function of investment) is complex as per the Aghion 'inverted U', see https://www.nber.org/system/files/working_papers/w9269/w9269.pdf. Letta appears to equate a single market with consolidation and mergers between networks at Member State level but does not explain why the latter would contribute to a single market. Draghi is more explicit in attributing lower investment to lack of pan-European scale and proposes redefining markets as European in scope for merger reviews 'when this facilitates cross-border integration and creation of EU-wide players' (although it is unclear why and this proposal has not been adopted by the European Commission in the proposed new merger guidelines), see p. 76 at https://commission.europa.eu/document/download/ec1409c1-d4b4-4882-8bdd-3519f86bbb92_en?filename=The%20future%20of%20European%20competitiveness_%20In-depth%20analysis%20and%20recommendations_0.pdf.

[5] The European Commission's White Paper which preceded the DNA proposal refers to 'unifying the core network functionality of several national electronic communications providers in the cloud',. p 25 at https://digital-strategy.ec.europa.eu/en/library/white-paper-how-master-europes-digital-infrastructure-needs. Barriers to achieving this are often said to include data localisation and privacy regulations, see, for example, https://connecteurope.org/sites/default/files/2026-09/Position_Paper_Telecom_Single_market.pdf.

[6] 'Core' network functions including IT are generally estimated to represent 10-20 per cent of an operators capex and opex, whereas local and transport networks represent 50-70 per cent, see, e.g., https://omdia.tech.informa.com/om029652/introduction-to-the-global-telecoms-capex-tracker.

[7] This is the case even if telecommunications services can be supplied remotely, for example by the service provider roaming on the network of another operator in another Member State.

market for telecommunications within Europe will not contribute to European 'competitiveness' in the way that would for many other goods or services.[8]

If there were significant cost or other advantages to be obtained from operating on a multi-Member State or pan-European basis then we might expect the structure of the telecommunications industry in Europe to reflect this. That might involve a small number of corporate groups, each owning networks in every Member State or the majority of them, having acquired those networks from smaller, less efficient operators who had been forced to exit the market. It is often claimed that this process of geographic expansion and network consolidation is what has occurred in the United States and that Europe should be aiming to pursue a similar path.[9]

However, the **European telecoms industry is not structured in this way despite there being no obvious obstacles to prevent operators acquiring networks in multiple Member States,** though **w**e recognise that there may be national security considerations which prevent such transactions and which may deter firms from considering them. This may be because operators have been able to obtain cost savings that require pan-European scale in other ways, such as entering into collaborative purchasing agreements that fall short of common ownership. More fundamentally, it reflects the fact that the most important determinant of average network costs - for both fixed and mobile networks - is not scale at a European level but the relationship between fixed network costs incurred within a Member State and the revenues and volumes generated at that same physical location. This is recognised by Letta in his report[10].

This view is also consistent with the focus of many industry advocates on the need for the European Commission to allow mergers between network operators competing within the same Member State in order to realise fixed cost savings and reduce average costs[11], rather than focussing on mergers between operators with interests in different Member States in order to increase regional scale. It is also reflected in the capacity of 'independent' or locally owned network operators to compete effectively with the local subsidiaries of multi-national or pan-European groups.

There is also an important distinction between network and retailing activities in telecommunications, notwithstanding that in many instances both are undertaken by the same firm. Concerns about investment tend to focus on network rather than retail activities. However, retailing activities in telecommunications have different economic characteristics to network activities and it may be argued that a single market for retail services could co-exist alongside the more fragmented network infrastructures that we observe today. In mobile services, the regulatory

[8] Successful European operators might acquire foreign firms (e.g., in the United States or Asia) and thereby expand their reach. Vodafone (in Africa, India and the US), Deutsche Telekom (in the US) and Telefonica (in Latam) have all done this with varying degrees of success and to a greater degree than operators from the US or elsewhere. Operators may also compete globally for capital and other resources and, arguably, to provide telecoms services to global multi-nationals.

[9] It is important to note that the largest European operators all have around 100 million mobile customers within Europe and are comparable in size to AT&T in the United States. We might expect US telecoms operators with greater scale to pass some of those cost efficiencies to consumers in the form of lower prices, but most studies indicate that prices (in terms of both unit prices and ARPU) are higher, on average, in the United States than in Europe.

[10] 'Building and maintaining infrastructure, such as towers or fibre optic networks, requires investment adapted to geography, population density and local technology needs. This diversity requires customised deployments for each geographical area and there are no significant savings accrue from international expansion. Pricing, offers, contracts and customer services respond to different purchasing power customer preferences driven also by cultural factors.'. p.54-5 at https://www.consilium.europa.eu/media/ny3j24sm/much-more-than-a-market-report-by-enrico-letta.pdf.

[11] Although in mobile merger reviews to date the European Commission itself has yet to accept efficiency claims as being sufficient to overcome concerns about upward price pressures.

framework has generally promoted entry by vertically integrated firms that undertake both network and retailing activities within the same Member State. Firms undertaking mobile retailing activities only (i.e., MVNOs) have generally, although not always, emerged through commercial arrangements but there is limited evidence to suggest that MVNOs present in multiple Member States (examples include Lyca Mobile, Lebara Mobile and Digi) benefit from significant economies of scale relative to MVNOs that operate within a single Member State[12]. Scale benefits in retailing might arise, for example, in marketing or advertising costs or handset procurement. If these were significant then, again, **we might expect industry structure to reflect that and for vertically integrated mobile operators to have demerged their retail operations and for those to have been consolidated into a small number of larger pan-European ownership groups**[13]. In fact, most consumers of mobile services in Europe continue to be served by vertically integrated operators with both network and retailing operations within the same Member State.

For fixed networks, Governments and regulators did not require the operators of the copper networks to structurally separate network and retail operations at privatisation or subsequently and only a very few have done so since (and, in those cases not as a precursor to merging the retail operations into a larger pan-European group)[14]. For many years, entry into fixed telecoms markets was enabled by a regulatory framework which assumed entry would first occur in retail activities (with retailers buying network inputs from the vertically integrated incumbent operator under regulated terms) but that those entrants would subsequently evolve into vertically integrated firms with their own network facilities. More recently, entry into fibre markets has been undertaken by operators seeking to compete as vertically integrated firms with their own fibre networks and retail operations[15], as network-only operators or as retail-only providers.

The distinctive characteristics of telecommunications network and retailing operations – with network production and retail consumption occurring at the same physical location rather than goods being exported across national borders – is, in our view, the key determinant of the industry structure and the opportunities to realise economies of scale. **There is limited evidence to show that vertically integrated operators obtain significant economic advantage by virtue of being part of a larger pan-European ownership group. The same applies for operators with retail operations only. Such groups do exist in Europe, but they exist alongside independent operators who appear able to compete effectively with them in many Member States.** The heterogeneous ownership structures that we observe today suggest that many factors will contribute to an operator's competitive advantage or lack thereof.

Looking forward, **it may be that changes in network technologies, including the virtualisation and cloudification of networks, are associated with changes to the underlying economics**. More network functions and activities are likely to be hosted remotely so that costs which previously or today are

[12] There is more evidence that MVNOs may benefit from economies of scope within Member States if, for example, the MVNO retails telecoms services alongside other services or if it uses a well-established retail brand or distribution channels, such as a national supermarket chain.

[13] We are aware of one instance of this – the demerger of the former O2 mobile operator in Czech Republic in 2015 by PPF – into network and retail operations, with a similar model then being applied in Hungary, Bulgaria and Serbia in 2020. In this case, it is the network operations that have been consolidated into a pan-European group (CETIN), leaving the retail operations to run at a national level.

[14] One case is Telecom Italia or TIM, which demerged its fixed network assets in 2024. Tele Danmark or TDC had legally separated network and retail operations in 2022, but both assets remain under the common ownership (of Macquarie).

[15] Although the civil engineering infrastructure may continue to be owned by the owner of the copper network.

incurred locally can be distributed across multiple Member States in future, allowing for greater pan-European economies of scale to be realised. Similar trends might arise in retail activities if physical stores are replaced by online channels. However, **the question remains as to how significant these cost transfers will be in the context of the overall network costs which an operator of telecommunications infrastructure must incur.** The majority of an operator's network costs relate to the installation, operation and maintenance of assets such as fibres, ducts, masts and cabinets and we see little reason to expect current technological advances to alter that[16].

1.2. The European Commission's Proposals to Advance the Single Market

General

The failure of the telecommunications industry to restructure itself or to operate in the way which some proponents of the single market consider it ought to have led to discussion of whether there are obstacles which are preventing such changes. The most commonly cited are regulatory barriers arising from divergent implementation in different Member States. **Greater harmonisation of regulation is assumed to lower barriers for firms wishing to enter a new market within a Member State and to reduce compliance costs for firms that already operate across multiple Member States.** The former should allow a firm with operations in other Member States to more easily enter a new market without having to alter existing services or operations to comply with different country-specific requirements. This would contribute to single market objectives as we have defined them in the previous section. The latter will not result in new entry, but it may nonetheless benefit consumers if it allows firms to scale services across multiple Member States more quickly or at lower cost[17].

Reflecting this, the DNA includes a number of new proposals to further harmonise regulation across Member States. For example, the framing of the DNA as a Regulation rather than a Directive is intended to ensure that European regulatory standards have direct effect in Member States and are not subject to local customisation or augmentation ('gold plating') or delay in implementation. The regulatory framework already contains numerous mechanisms, such as the market review and veto procedures and the use of delegated acts and guidelines, which are intended to ensure greater alignment and harmonisation of regulatory conditions across Europe. The DNA expands the scope of the European Commission veto in various dimensions (for example to include symmetric regulation remedies and spectrum licensing conditions[18]) and proposes to introduce new delegated acts on various topics. Other new measures in the DNA that have a single market rationale include proposals for a Single Passport procedure (allowing an operator obtaining authorisation in one Member State to operate and exercise its rights in all others, thereby lowering administrative costs for new entrants and echoing the 'country of origin' approach that is applied by other European regulatory

[16] As Connect Europe (representing large European operators) state 'While virtualised networks will create a platform for service provision, underlying local access infrastructures will remain the foundational layer for performant and resilient connectivity.', p.5/6 at https://connecteurope.org/sites/default/files/2026-09/Position_Paper_Telecom_Single_market.pdf.
[17] To the extent that harmonisation of regulation results in lower compliance costs with a particular Member State compared to the compliance costs previously incurred (i.e., a levelling down of regulation) then this will benefit both independent operators and those that are members of a larger ownership group. In our view this is not a 'single market' benefit since it could be achieved by changes within that single Member State, although it may still be important.
[18] DNA Proposal, Articles 31 and 32.

frameworks)[19]. The DNA also proposes the creation of new pan-European numbering resources and aspects of its spectrum proposals are also presented as harmonising licence conditions and the timing of spectrum release so as to advance single market objectives.[20]

There may also be trade-offs, however. For example, it is unclear **how far harmonisation can be taken without losing flexibility** that is intended to enable national regulatory authorities to respond appropriately to differences in the facts on the ground.[21] The framework seeks to apply a common methodology to different facts, recognising that different outcomes may be appropriate in different circumstances. This is important as the transition from copper to fibre networks and the introduction of new competitors has arguably led to greater variety in competitive conditions between Member States (as well as within them) than was the case 20 or 30 years ago. Another concern is **whether greater harmonisation will impede national regulatory flexibility or regulatory experimentation** which, if successful, can then be taken up and scaled at the European level. This has arguably been quite successful on occasions in the past, such as when some NRAs focused on regulating access to civil engineering infrastructure and on the use of symmetric remedies at a time when the European Commission was recommending other approaches to promote the deployment of new broadband technologies.

Union Harmonised Access Product

In addition to further harmonising regulation, the Commission has included a measure in the DNA which would require **NRAs to consider whether an operator with SMP should be required to provide a 'Union harmonised access product' in preference to access products which they would otherwise specify locally**.[22] The European Commission will be able to adopt implementing acts specifying such products.

The Union access product can only be imposed upon operators found to have SMP, which means that in most Member States it will only apply to services provided over fixed networks and will involve substituting one choice of remedy for another. The assumption is that technical standardisation will reduce the costs for an access seeker that wishes to utilise the product to enter and provide services in multiple Member States. However, operators that have already entered and are already using existing access products may face some additional implementation costs, as will the operators that are required to implement the measures. A harmonised approach may also result in some compromise of local flexibility and so may be less well suited to the specific circumstances of some Member States than the existing product. In the extreme it may not be possible to specify an access product at all that is both sufficiently generic to apply to all or many Member States but specific enough to be implemented and enforced effectively.

[19] DNA Proposal, Article 10.
[20] DNA Proposal, Article 47. We do not assess these proposals here but the arguments for greater harmonisation of licensing conditions for spectrum, which the European Commission proposes, are the same as for harmonising other regulatory obligations.
[21] T. Shortall and M. Cave, 'Is Symmetric Access Regulation a Policy Choice? Evidence from the Deployment of NGA in Europe', *COMMUNICATIONS & STRATEGIES* 98, 2015.
[22] DNA Proposal, Article 81.

Whether the product is implemented at all will depend upon an NRA first deciding to adopt it in preference to existing or other measures[23]. However, **it is difficult to see how any individual NRA could decide to adopt the Union harmonised access product without first knowing whether other NRAs will follow suit.** This knowledge is necessary to ensure that the claimed gains from harmonisation, which require the service to be scaled across Member States, would actually be realised. Given the uncoordinated manner in which market reviews are currently undertaken by NRAs, achieving this may be difficult. If the European Commission persists with the proposal, then **we would recommend that the DNA text be amended to require NRAs (or the European Commission in exercising its veto powers over remedies) to first demonstrate that there is demand from access seekers for the 'harmonised Union access product' across a substantial proportion of Member States.** We do not prejudge whether any NRA or the European Commission will be able to demonstrate that such demand exists.

Impact

Overall, we think **the European Commission's proposals in the DNA may contribute to single market objectives to some degree, but their impact depends on the extent to which new market entry is currently being deterred by a lack of regulatory harmonisation**. Markets are relatively mature and extensive entry, including across borders, has occurred over the past 30 years. This suggests that operators have been able and willing to customise services and obtain additional authorisations to enter markets and have now sunk the investments required to do so. There may be some firms that have been deterred from entering that will do so if these DNA proposals are implemented, but we doubt that regulatory harmonisation would be the decisive factor in such decisions. **We therefore expect the impact of these harmonisation measures on the structure, costs and performance of the European telecommunications industry, to be relatively modest.** We expect the current structure - in which independent operators in national markets continue to co-exist alongside subsidiaries of larger pan-European ownership groups. The latter will be the main beneficiaries of the proposals and may obtain some economies of scale and so lower average costs as a result. But we do not expect these gains to be sufficient to precipitate the radical restructuring of the European telecommunications industry which some are calling for[24].

[23] One potential issue is whether Article 81(2) envisages that an NRA could impose both a local product requirement and a Union product requirement, or whether it would be required to withdraw the local product. We also note that the Union access product would only be considered after the NRA has excluded other access remedies, such as unbundled fibre or access to civil infrastructure, or concluded they are insufficient.

[24] In order for this to occur investors and owners would have to believe that the risks and costs of restructuring the industry (with larger groups acquiring the operations of smaller independent operators) would be outweighed by the gains that they could obtain from it.

1.3. Other Proposals to Advance a Single Market

In this section we comment upon two other proposals that have been put forward by other authors during the consideration of the DNA proposals and which, it is claimed, would promote single market objectives. **We view these proposals as being more radical in intent than anything in the DNA proposed by the European Commission**.

Reforming The Mobile Wholesale Roaming Market

One proposal - by Tony Shortall and Peter Alexiadis - is based on the assumption that there are significant but as yet unrealised economies of scale in retailing telecommunications services in Europe.[25] The authors argue that firms would scale their retail services more quickly and likely invest more in fixed cost activities such as R&D if they could engage with customers on a pan-European rather than national basis. They accept that the current fragmented structure of networks is unlikely to change (for the reasons we have explained above) and so **focus their attention instead on features of the mobile wholesale roaming market which they argue prevent operators from retailing mobile services effectively across Europe.**

The authors focus on the level of prices rather than any lack of harmonisation of technical conditions (which is the focus of the European Commission's harmonised Union access product proposal). They argue that excessively high prices are sustained by the 'reciprocal' trading arrangements between mobile operators, under which one price is charged for traffic that is 'in balance' between the two firms (i.e., the volume of traffic exchanged between the firms is the same) and another, lower, price is charged for any traffic outside of that arrangement[26]. They claim that lower prices would be facilitated by changes to the arrangements which operators in different Member States currently conclude with each other. Specifically, **they propose prohibiting the conclusion of reciprocal arrangements which 'balance traffic' and obliging operators instead to participate in a 'blind' exchange.** Under such an arrangement, network operators or other parties[27] would purchase wholesale roaming services on a unilateral basis and, Shortall and Alexiadis imply, could do so from any operator, including those with networks in multiple Member States[28]. The authors suggest that this model could be extended to the trading of fixed network connections, although their proposals are less developed in this respect[29].

[25] https://iicintermedia.org/vol-53-issue-3/how-secondary-markets-can-unlock-growth-in-the-pan-european-telecommunications-sector/.

[26] The authors also criticise the logistical arrangements which the operators use to conclude new roaming arrangements (which they describe as 'speed dating' at roaming conventions and which they suggest excluding some participants and may sustain the 'cartel like' arrangements they observe.

[27] The authors propose that a 'secondary market' for connectivity services would be created in which any firm could participate. The authors do not discuss what network or IT infrastructure would be required for a retailer to participate in this market, but we assume it would be akin to a 'thin' MVNO.

[28] It is not entirely clear to us whether the authors propose that Vodafone or a similar multi-Member State operator would be obliged to aggregate traffic together across Member States when setting prices (thereby enabling multi-country retailers to obtain price discounts) or whether they would be expected set prices on a Member State by Member State basis in response to national competitive conditions.

[29] An exchange for fixed connection is more difficult to envisage if there are few or no alternative choices to serving a particular customer and when seller on the exchange may not be able to disaggregate connections where alternatives exist from those where they do not. There is also no 'traffic balance' issue affecting current prices in fixed telecoms markets.

There are a number of issues with this proposal to consider. First, more clarity is needed on **what legal instruments could be used to prohibit the existing reciprocal traffic arrangements for roaming or how operators could be obliged to participate in the 'blind' exchange** or how circumvention would be detected or prevented[30]. Unlike the European Commission's proposal for a harmonised Union access product, the authors' proposal would impose obligations on operators without regard to the application of the SMP framework (since even if some mobile operators were found to have SMP in future, it is unlikely that all would).

Second, more clarity is needed **on how any such exchange would be funded or regulated**, whether there would be competing exchanges (and if so, whether and how such fragmentation would affect the way in which trading works or the prices achieved[31]) or, if there were a single exchange which all operators would be obliged to trade through, how its fees would be regulated.

Third, **there is uncertainty as to what the effects of implementing their proposals would be**. Operators would be obliged to sell their roaming services at non-regulated prices (which they would determine themselves) on a blind exchange. **The assumption appears to be that they would do so at prices substantially below current levels for international roaming and potentially below levels currently charged to MVNOs.** If that is correct – and it is not certain given the possibility that operators could 'rebalance' other prices to recover revenues or withdraw supply altogether to prevent their loss - this could induce new entry by firms based in other Member States and or allow existing retailers to lower their prices for mobile services within Member States. This could have significant implications for operators investing in networks. Operators with retail operations in multiple Member States may be able to realise some of the cost efficiencies and gains that Shortall and Alexiadis believe can be achieved in a single market, although again it is not clear to us how significant those would be or what implications this would have for the structure of the industry.

Delayering Telecommunications Operators

A second proposal to promote a single market in telecoms has been made in a paper by Gerard Pogorel and Philippe Lefebvre[32]. **The authors argue that the DNA should promote the 'delayering' of Europe's traditionally vertically integrated operators.** They state that virtualisation technologies will increasingly allow operators to 'delayer' their operations, distinguishing between various types of 'neutral' network operators who own tangible network assets (with the different degrees of separation still to be determined) and 'delayered' service providers or retailers. The authors propose that the DNA include 'change accelerators' to incentivise (but not to require) operators to divest themselves of their retail operations. For example, spectrum would be reserved only for owners of network assets that had divested their services or retail business and the latter would benefit from lighter touch regulation when venturing into other Member States (akin to the European Commission's 'passporting' proposal) than firms that chose to remain vertically integrated.

[30] The authors' main objective appears to be to lower mobile access costs in national markets to levels similar to those obtained by MVNOs in those markets. Rather than prohibit reciprocity, that might also be achieved by amending the existing regulation of wholesale international roaming charges so as to align them with prevailing national rates (e.g., by 'tying' international rates to domestic rates or by setting the rate directly). We accept there are challenges with any approach.

[31] A single exchange would be more 'liquid' and deeper and so may deliver better results. On the other hand, operators may seek to avoid their competitors by choosing to participate in a different exchange.

[32] https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/14709-Digital-Networks-Act/F3571877_en.

We also have a number of concerns about this proposal. First, as explained earlier, we think **firms and their owners should be left to structure their operations and organise their affairs in the most economically efficient manner** possible without regulation seeking to distort their incentives in an attempt to achieve 'single market' objectives. Regulation can lower or remove barriers that influence industry or firm structure and alter incentives, but it should not predetermine what that ownership structure will be. That is particularly so in a technologically innovative sector like telecoms in which the boundaries between different functions are fluid and network virtualisation technologies are still being developed and deployed with uncertain long-term consequences.

Second, there is **uncertainty about whether the incentives which the proposal introduces would achieve the objectives they intend**. For example, operators will weigh the gains from a lighter touch regulatory regime or preferential access to spectrum against the losses they associate with a divestiture of assets within a given Member State. There may also be opportunities for strategic behaviour: for example, firms may place network assets in JVs or other ownership structures which retain some ownership interest but not control. Regulators would have to scrutinise every arrangement carefully to determine whether it qualified for the regulatory relief, which is being proposed, which would be a difficult and lengthy process.

The **implications for industry structure are also unclear**. There are already a large number of wholesale-only fixed network operators in Europe today and many retail-only MVNOs, but it is not clear that this has induced the vertically integrated firms with whom they compete to reconsider their own position or structure. The delayering which the authors envisage could occur (and realise the benefits which they attribute to it) without being accompanied by the exit of national retailers or the emergence of pan-European retailing groups or service providers. The authors suggest that network virtualisation will lower the costs and time required to develop and launch services (and that standardised APIs would allow this across networks in multiple Member States at the same time) but it is not clear that this will change the economics of retailing telecommunications services sufficiently to drive the structural changes which they seek.

Third, the **measures could be very disruptive**. If their 'change accelerators' were to work then billions of euros of telecoms assets could be in search of buyers, and firms which believe they would benefit from selling may find they are not able to do so or do so at an acceptable price. It is possible, as Pogorel and Lefebvre seem to envisage, that the buyers of the network assets would also seek to realise efficiencies by merging them, something their current vertically integrated owners may be prevented from doing. But these efficiencies would be obtained at the national or even local level and **there is no reason why a consolidator in one Member State will necessarily be the consolidator in another, or for networks in different Member States to be more likely to end up under common ownership by the end of what might be a complex and lengthy restructuring process.**

The authors of the proposal are right to highlight the importance of technological developments, particularly the 'virtualisation' and 'cloudification' of telecommunications networks. These technologies should allow new market participants to deploy 'standardised' telecoms services and products on a pan-European basis over the current fragmented set of network assets. The European Commission's White Paper seemed to assume that the large European operators will be able to exploit virtualisation technologies without themselves being disrupted whilst also recognising the risk that non-European firms may already control (in different ways) many of the assets that would be required

to run a virtualised pan-European telecommunications network at scale[33]. We recognise that none of the large US firms (Apple, Amazon and Google) appear to be planning to do so at present and that many of them have other commercial relationships with the European telecoms industry which they may regard as important to retain. It would be ironic, to say the least, if Europe's single market objectives were to be achieved by non-European firms once again exploiting disruptive trends in telecommunications technologies.

Conclusion

Overall, we consider that **proposals in the DNA from the European Commission that are intended to promote single market objectives are likely to have a relatively modest impact**. Proposals to further harmonise (or simplify) regulations may benefit some, particularly larger, network operators. But they are unlikely to precipitate any significant changes to ownership arrangements or the way in which telecommunications markets function in Europe.

This conclusion might lead some policymakers to seek to include more radical and potentially more impactful proposals in the DNA. Some proposals have been made to realise benefits by advancing a 'telecoms single market' but neither, in our view, describe in sufficient detail what that would mean or how the measures they propose could or would be implemented in practice. We would caution against adopting any proposal – whether justified by reference to the single market or not – without careful consideration of the implications, in particular or Europe's digital infrastructure, given the significant risks and uncertainties which the European telecommunications industry already faces from developments such as network virtualisation (or the challenges of satellite services, natural disasters or climate change which we also discuss later in this paper).

In our view, European policymakers will need to critically assess each policy proposal against the specific objectives and outcomes that are being claimed for it as well as the other objectives of the DNA, such as the need to strengthen investment and innovation in Gigabit networks. Measures which lower costs or reduce regulatory burdens or which sharpen investment incentives may have considerable merit even if they do not result in changes to competitive conditions or lead to any fundamental restructuring of the ownership arrangements in the industry. **Measures which claim to promote a telecoms single market should not escape scrutiny or be assumed to actually do so.**

[33] 'This inevitable opening of the traditionally "closed" electronic communications network in a NaaS approach exposes network capabilities to third parties and bears the possible risk of large non-EU providers becoming leading players in such ecosystems. In the current geopolitical context and from an economic security point of view, this would constitute a significant risk of additional dependence on non-EU players in the entire digital service sector', op cit, p.9.

2. Access Regulation

2.1. The DNA Proposal

This section deals with the DNA proposal regarding asymmetric access regulation. The **DNA proposal largely preserves the logic of the current framework for asymmetric access regulation,** alongside symmetric regulation. It retains the selection of markets susceptible to ex ante regulation through the cumulative three-criteria test (TCT)[34] and the identification of undertakings to be regulated through the significant market power (SMP) test, which is based on the concept of dominance under EU competition law. [35]

One of the main changes to the current regime is that the European Commission would no longer be required to adopt a Recommendation identifying the markets susceptible to ex ante regulation.[36] If the European Commission were to decide not to adopt a Markets Recommendation, this would have two important implications. First, the methodological clarifications currently contained in the European Commission's Markets Recommendation would not necessarily be carried over into the new framework. This concerns, in particular, the interpretation of the TCT, [37] but also other methodological guidance on market definition and market analysis, as noted by BEREC.[38] Second, and more importantly, the rebuttable presumption that a market identified in the Markets Recommendation satisfies the TCT in all Member States would no longer have effect. NRAs would consequently have to demonstrate independently that the TCT is satisfied in each national or local market in which they intend to impose access obligations.

2.2. The Rationale for Access Regulation

Before considering possible improvements to the European Commission's proposal, it is useful to return to the fundamental economic rationale for access regulation. **The economic literature generally justifies access regulation where bottlenecks prevent the emergence, or jeopardise the sustainability, of effective competition**.[39] Such bottlenecks may arise in a natural monopoly setting,

[34] Article 73(1) of the DNA Proposal carries over test of the EECC: *A market may be considered to justify the imposition of regulatory obligations set out in this Regulation if all the following criteria are met: (a) high and non-transitory structural, legal or regulatory barriers to entry are present; (b) there is a market structure which does not tend towards effective competition within the relevant time horizon, having regard to the state of infrastructure-based competition and other sources of competition behind the barriers to entry; (c) competition law alone is insufficient to adequately address the identified market failure(s).*

[35] DNA Proposal, Article 76(2): *An undertaking shall be deemed to have significant market power where, either individually or jointly with others, it enjoys a position equivalent to dominance, namely a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers.*

[36] DNA Proposal, Article 72(1).

[37] Markets Recommendation 2020/2245, paras 7-22 : (a) High and non-transitory entry barriers: Structural: asymmetry incumbent/entrant, economies of scale/scope, network effect, no duplication; legal, but likely decreasing; and not strategic; (b) Non competition behind barriers: Market dynamics and potential competition: products convergence, OTT, infrastructure-based competition; (c) insufficiency of competition law: access remedy a market failure could not be imposed under competition law; extensive compliance requirements; frequent and/or timely intervention; legal certainty is of paramount concern.

[38] BEREC's position of 2 June 2026 on access regulation (market analysis) of the DNA, BoR (26) 88_7.

[39] M. Cave, U. Stumpf and T. Valletti, A review of certain markets included in the Commission's Recommendation on Relevant Markets subject to ex ante Regulation, Report for the European Commission, 2006.

where economies of scale or scope make duplication inefficient, or in a tight oligopoly setting, where only a limited number of operators can viably provide the relevant infrastructure.

Building on this rationale, Alexiadis and de Streel have proposed the following definition of a bottleneck:[40]

> *National or sub-national infrastructures, or a set of physical or intangible assets (or a combination thereof), which provide access to end-user customers and are:*
>
> *(a) necessary from a functional perspective to provide effective alternative service provision in the electronic communications sector, taking into account technological developments;*
>
> *(b) not effectively contestable by access seekers, given the minimum efficient scale required to replicate the bottleneck and the absence of foreseeable technological developments that would erode the bottleneck characteristics identified under criterion (a); and*
>
> *(c) not subject to another viable and functioning access alternative, irrespective of the legal origin of the access options available, including commercially available access, obligations imposed under symmetric regulation, remedies imposed under competition law or merger control, and conditions imposed under licences or general authorisations.*

This definition provides a useful economic foundation for access regulation as the purpose of the test should ultimately be to identify circumstances in which a structural bottleneck prevents effective competition and where access regulation is necessary to address that market failure[41]. The foundations apply for access regulation imposed under asymmetric regulation (under which the bottleneck is determined by the regulator on the basis of the criteria defined in the law) or under symmetric regulation (under which the bottleneck is directly defined in the law).

For instance, where a local fibre infrastructure or network element constitutes a genuine non-replicable bottleneck, in particular where only one fibre infrastructure is present – provided that this sole infrastructure is not offering a wholesale input - at the relevant location and alternative deployment is not economically or physically viable, access should be imposed on the operator controlling that bottleneck.[42]

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[40] P. Alexiadis and A. de Streel (2024), *Ideas for the Future of European Telecommunications Regulation: Market and Economic Regulation*, CERRE Report. This definition is related to – but is not the same – to the definition of an essential facility under competition law: (a) Input is indispensable for access seeker to compete with the dominant undertaking in a downstream market: "Genuinely tight grip": no real or potential substitute; input cannot be duplicated realistically and in a viable way due to physical, technical, legal or economic reasons; equivalent input cannot be obtained from other sources; (b) access refusal is capable of eliminating all effective competition on the part of the requesting undertaking: access to the input is necessary for the requesting firm to remain viably on the market and exert an effective competitive constraint; competitors retaining a marginal presence in certain niches on the market cannot suffice to substantiate the existence of effective competition: *Draft Guidelines exclusionary abuses, para 99-103.*

[41] That implies a demanding necessity and proportionality test: access should be imposed only where duplication of the bottleneck is not economically viable and where denial of access would genuinely foreclose effective downstream competition. The mere presence of retail-scale economies, or a preference for wider service reach, is not enough.

[42] This approach would also be consistent with the logic of the Gigabit Infrastructure Act, which seeks to facilitate competitive network deployment through symmetric access to existing physical infrastructure.

2.3. Recommendations for Improving the DNA Proposal

The basic architecture of the European Commission's proposal should be retained. In particular, the logic of the TCT and the SMP test provides an established framework that contributes to legal predictability and market certainty, as emphasised in the BEREC opinion. However, the substantive content of the TCT should be clarified in light of the fundamental rationale for access regulation set out above. At the same time, the market-analysis process should be strengthened to ensure that regulatory intervention is based on robust evidence and consistent methodology.

Clarifying the Three Criteria Test

If the European Commission does not adopt a Markets Recommendation, the **TCT will become more important** because NRAs will have to demonstrate that the test is satisfied for each market in which they intend to impose or maintain asymmetric access obligations.

At the same time, however, the test risks becoming less predictable if methodological guidance currently contained in the Markets Recommendation is lost. It is therefore important to **clarify the TCT in the DNA itself and through appropriate soft-law instruments**, in particular through a revision of the European Commission's 2018 Guidelines on market analysis and the assessment of SMP.[43] This clarification would also be a good opportunity to strengthen the already existing link between the three criteria and the underlying economic rationale for access regulation. [44]

- **First criterion: absence of sustainable competition at retail level on a forward-looking basis,** in a greenfield approach (i.e., in the absence of regulation)[45]. The first criterion should focus on the relevant retail geographical market (which can be local, regional or national according to antitrust methodologies) defined on a prospective basis.[46] Thus, this first criterion should require a finding that the retail geographical market is not effectively competitive on a forward-looking basis.
- **Second criterion: structural barriers to entry at wholesale level.** The second criterion should concern the presence of high and non-transitory structural barriers to entry in the relevant retail geographical market (which can be local, regional or national according to antitrust methodologies). The key question should be whether access is necessary to enable effective alternative service provision. In economic terms, this means assessing whether the retail market can be effectively contested by access seekers, taking into account the minimum efficient scale that would be required to replicate the relevant bottleneck.
- This criterion should ideally focus on structural barriers, understood as significant additional up-front sunk costs that a new entrant would have to incur but which the incumbent does not

[43] European Commission Guidelines of 27 April 2018 on market analysis and the assessment of significant market power under the EU regulatory framework for electronic communications networks and services, OJ [2018] C 159/1.
[44] A. de Streel, A Program for review of the European economic regulation for electronic communications, *Telecommunications Policy* 32, 2008, 722-734.
[45] This criterion largely reflects recital 6 of the European Commission Relevant Markets Recommendation.
[46] This criterion should also focus on whether access regulation may be necessary to address a lack of effective and sustainable retail competition; where infrastructure-based competition is viable, access to physical infrastructure should be prioritised, while active wholesale remedies should remain available where necessary.

have to bear. Legal and regulatory barriers should not be treated in the same way. Where competition is prevented by an avoidable legal or regulatory barrier, the best response should be, if possible, to remove or reform that barrier—for example, through more competitive spectrum-assignment mechanisms—rather than to impose asymmetric access regulation.

- **Third criterion: absence of a tendency towards effective competition.** The third criterion should have a dynamic dimension and assess whether the market is likely to become effectively competitive within the relevant time horizon. This requires consideration of whether the bottleneck is subject to another viable and functioning access alternative, irrespective of the legal origin of that alternative[47]. It should also take account of foreseeable technological developments that could erode the bottleneck characteristics.
- One way, among others, to assess this criterion could rely on a two-stage empirical analysis.[48] First, regulators could examine the extent to which operators in Europe or elsewhere have successfully built competing networks under comparable circumstances and at economically viable scale. Second, this assessment could be complemented by cost analysis based on engineering models estimating relevant cost curves or by appropriate econometric cost functions as well as demand analysis.
- **Fourth criterion: insufficiency of competition law.** The fourth criterion should address whether competition law alone is insufficient to remedy the identified market failure. This should be understood primarily as a cross-check on the preceding analysis: where the first three criteria are satisfied, there will normally be a strong case that competition law alone cannot address the structural market failure. The assessment should not, however, become a comparison of the institutional capabilities of competition authorities and NRAs. The relevant question is whether the identified structural market failure can be effectively and appropriately addressed through the instruments available under competition law, taking into account the nature, frequency and timeliness of intervention required.

A finding that regulatory access is necessary should be distinguished from the subsequent choice of remedy. Where intervention is justified, the remedy should preserve infrastructure-based competition to the greatest extent possible and therefore prioritise access at the deepest economically viable infrastructure level rather than active wholesale access.[49]

Improving the Market-Analysis Process

In addition to clarifying the substantive test, the process through which the TCT is applied should be improved.

In particular, the **rebuttable presumption that a market identified in the European Commission's Markets Recommendation satisfies the TCT could be removed**. The main justification for such removal is that this presumption at the EU level is not supported by a robust market-specific

[47] This should not be understood as meaning that the availability of an active wholesale access product is sufficient to remove the bottleneck at infrastructure level. Where infrastructure-based competition is viable, access to the underlying physical infrastructure should remain the relevant basis for enabling such competition.

[48] M. Cave, Encouraging infrastructure competition via the ladder of investment, Telecommunications Policy, 30, 2006, 223–237.

[49] On a related note, the DNA should preserve the proportionately lighter regulatory treatment for wholesale-only undertakings, reflecting their inherently pro-competitive characteristics.

assessment when the relevant markets are national or local, which is the case in telecoms. When adopting the market Recommendation, the European Commission does an analysis of the application of the TCT to the telecom markets at the EU level but does not – and cannot realistically - conduct a full TCT assessment for every national or local market in every Member State.[50] The current presumption therefore rests on an assumption that is difficult to reconcile with the decentralised nature of the market-analysis process. Moreover, removing the presumption would also address a conceptual inconsistency in the current regulatory framework. The TCT is a more demanding test than the SMP test, yet the current framework requires NRAs to apply the SMP test to markets that are presumed to have already satisfied the TCT. In other words, the European Commission first identifies markets that meet the more stringent conditions of the TCT and then the NRAs apply a less demanding test to determine whether ex ante regulation is warranted.

However, as BEREC has rightly noted, besides the deregulatory signal given, removing the TCT presumption could increase the evidentiary burden on NRAs when imposing or maintaining access obligations. One way of mitigating this risk would be to **integrate the TCT considerations into the SMP analysis**. In practice, NRAs could assess, within the SMP framework, the criteria currently considered under the TCT. This would avoid requiring NRAs to conduct two separate analyses, while ensuring that the economic and structural considerations underlying the TCT continue to inform decisions on the imposition or maintenance of access obligations. Such an approach would also build on the SMP analysis, which NRAs are already required to conduct, and which relies on criteria that substantially overlap with those relevant to the TCT.

The removal of the presumption does not have to imply the removal of the European Commission's role in ensuring methodological consistency across the EU. On the contrary, the European Commission's Markets Recommendation currently contains valuable methodological guidance on the application of the TCT and on the definition of markets susceptible to ex ante regulation. Such guidance is important for NRAs and contributes to regulatory consistency and the integrity of the Single Market. Much of this guidance, in particular regarding the competition law methodologies to define the relevant product and geographic market, could therefore be transferred to, and further developed through, the European Commission's Guidelines on market analysis. This would preserve methodological consistency and legal predictability even in the absence of a Markets Recommendation. At the same time, the European Commission's veto power over the markets identified and defined by NRAs should be retained. This would provide an important safeguard for the integrity of the Single Market while allowing the substantive assessment of the TCT to remain appropriately grounded in the specific characteristics of national and local markets.

Overall, this approach would strike a better balance between national market-specific assessment and European regulatory consistency. It would preserve the established TCT and SMP architecture, while ensuring that asymmetric access regulation is imposed only where a genuine and persistent bottleneck prevents effective competition and where other regulatory or competition-law instruments cannot adequately address the resulting market failure.

The Possible Evolution of the Relationship Between Asymmetric and

[50] H. Never and B. Preissl, The three-criteria test and SMP: How to get it right. *International Journal of Management and Network Economics*,1(1), 2008, 100–127.

Symmetric Regulation

As we have seen above, the imposition of symmetric or asymmetric access regulation is based on the same economic rationale, i.e., the presence of a durable bottleneck, but which is addressed with different legal mechanisms. If the application of asymmetric regulation to many geographical markets which may be local when applying the competition law methodology becomes very burdensome, a symmetric regulatory approach may become better suited to addressing such local bottlenecks. In this case, symmetric regulation, applied only where bottlenecks exist and taking into account preferential commercial agreements, could be better suited to small and fragmented markets and the dynamic roll-out of infrastructure by multiple operators. The practical advantage of such a symmetric approach to bottlenecks may become particularly important as fibre deployment leads to increasingly granular geographic market structures.

3. Copper Switch off

3.1. The Proposed DNA Reform and its Deviation from Existing Regulatory Principles

The **transition from legacy copper to fibre-to-the-home (FTTH) is a legitimate and desirable policy objective**, based on the progressive increase of the connectivity targets set by successive European Commission communications.[51] Fibre is more performant, more energy-efficient and more reliable than copper-based architectures, and it faces no foreseeable capacity ceiling. No stakeholder contests those characteristics and that policy direction, although this has progressively implied a reinterpretation of and partial retreat from the original core regulatory principle of technological neutrality.[52]

The European Electronic Communications Code (EECC) already recognised the promotion of connectivity and of access to, and take-up of, very high-capacity networks as a regulatory objective.[53]

However, in its impact assessment (IA) for the DNA proposal[54] the European Commission acknowledges that "*the EECC has no provisions specifically promoting FTTH investments*" and therefore, considering that some Member States lag in terms of FTTH coverage and adoption,[55] there is the need for a policy to build specific legally binding regulatory instruments.

Therefore, what the **DNA proposal radically changes is not the investment objective, but the nature of the intervention**: it transforms the decisions about what kind of fixed connectivity solution to develop from an operator-led process, framed by regulatory safeguards under Article 81 EECC and by the incentives provided by a calibrated access regulation, into a **legally mandated industrial policy**

[51] From connectivity targets established within the 2010 Digital Agenda for Europe (DAE) to the ambitious objectives within the 2016 Gigabit Society (GS). Finally, the 2021 Digital Compass (DC) communication states that "*it is our proposed level of ambition that by 2030 all European households will be covered by a Gigabit network, with all populated areas covered by 5G*". This may be intelligible as industrial policy — although it is worth noting that universal coverage is not necessarily the dimension of connectivity with the greatest impact on competitiveness and productivity. See A. Manganelli, Competitiveness, Digital Transformation and EU Policies, 2025, CERRE paper. Generally speaking, such targets often lack a solid evidentiary basis and tend to conflate social objectives (universal service) with economic ones. As a result, they may overestimate the economic benefits of coverage, which tail off considerably as it approaches 100 per cent, while underestimating the value of developing the most advanced technologies (5G SA and edge AI) selectively, according to actual demand and business cases. It is these technologies that have a material impact on productivity and competitiveness.

[52] Technological neutrality has been widely regarded as a cornerstone of the EU regulatory framework since 2002, including in its latest iteration, the European Electronic Communications Code (EECC). There, the objective of promoting very high-capacity networks (VHCN) has given FTTH prominence. Yet the VHCN definition also sets performance benchmarks in terms of throughput and reliability, leaving operators free to choose the technology best suited to meet them. See BEREC Guidelines on Very High-Capacity Networks, BoR (25) 182.

[53] With the 2002 Directives, promotion of investments was considered as a tool to foster sustainable and durable competition (infrastructure-based). With the entry into force of the 2009 Better Regulation Directive, investments were considered as key enablers of efficient and effective regulation. Finally, only with the 2018 EECC, investment promotion has become a new independent general objective of the European strategy.

[54] European Commission, Impact assessment report, Accompanying the document Proposal for a regulation on digital networks, SWD (2026) 13 final - PART 1/3, pp. 35.

[55] At the end of 2025 the MS sitting below the EU average for FTTP coverage are Latvia, Greece, Austria, Czechia, Germany, and Belgium; and those sitting below the EU average for Fixed VHCN coverage are those above listed but Belgium (having 96.25 per cent fixed VCHN coverage) plus Finland, Poland, Slovenia, Slovakia, Croatia, Estonia, Lithuania and Italy. (DESI report 2026). Those are the fixed connectivity target within the Digital Decade, while there is no target for take-up.

transition. This has a non-trivial impact on the existing regulatory approach.

First, the proposed mandatory switch-off transforms the existing incentive-based regulation, that aims to provide the correct incentives to network operators for investments within an industry-led process, into a command-and-control measure that withdraws existing options from operators and end-users.

Second, the proposal gives one regulatory objective priority over the others: a mandatory switch-off inevitably affects competition, notably infrastructure-based competition, and consumer choice. Under the current framework, balancing these objectives is left to NRAs according to national market conditions.[56]

The **declared rationale of the CSO provisions within the DNA proposal is to incentivise both the coverage and the take-up of FTTH**, where guaranteed take-up is necessary to build the business case for further coverage.

However, those intended regulatory outcomes cannot be taken for granted, since copper retirement would not necessarily translate into an equivalent migration to fibre and incentives to further deploy, because the actual outcomes depend on several parameters and factors that can vary enormously from market to market and area to area.[57]

A centrally determined migration path, fixed by legislation a decade in advance and uniform across different markets, with different market actors, is vulnerable on precisely this ground: not because a centralised determination is necessarily illegitimate, but because it is informationally inferior to a framework in which national authorities, applying market analysis and receiving input from companies, adjust the pace of transition to observed local conditions.

Indeed, another core principle of the existing telecom regulatory framework (and of the "better-regulation" approach in general) is **the proportionality of intervention**. In regulatory terms, proportionality requires the selection of the least restrictive means of addressing the problems identified, which entails a differentiation of remedies, within the enforcement phase, according to the differing situations encountered.[58] The proportionality principle matters not only to minimise the impact of public action on individual rights of consumers and companies, but also to pursue efficiency: economic theory shows that decentralised decisions should be preserved as much as possible since policymakers and regulators do not and cannot hold the whole information dispersed among markets and market actors.[59] In other words, **proportionality, conceived in regulatory terms,**

[56] A useful comparator is the United Kingdom, where copper retirement is still assessed against a broader set of statutory objectives than fibre migration alone. Where these objectives conflict, the Communications Act 2003, itself modelled on the EU regulatory framework, requires Ofcom to resolve the conflict "in the manner they think best in the circumstances" (s. 3(7)) and, in important cases, to publish a statement of its reasons (s. 3(8)). The resulting regime is not a legislated switch-off date but a staged, exchange-by-exchange process, in which copper is withdrawn from sale and regulatory protection is progressively moved from copper to fibre services. See Ofcom, Promoting investment and competition in fibre networks: Wholesale Fixed Telecoms Market Review 2021-26, Statement, 18 March 2021, Vols. 1 and 3; Ofcom, Promoting competition and investment in fibre networks: Telecoms Access Review 2026-31, Statement, March 2026, which retained the framework.
[57] This could depend first on genuine migration readiness, including the practical ability to connect premises at scale within the required timelines and the availability of adequate alternative connectivity.
[58] For instance, for the access regulation in the EECC, e.g., article 68(2) "*In accordance with the principle of proportionality, a national regulatory authority shall choose the least intrusive way of addressing the problems identified in the market analysis*".
[59] See F.A. von Hayek, The Use of Knowledge in Society, 1945, American Economic Review 35(4), 519–530; F.A. von Hayek, Competition as a discovery procedure, 1978, in New Studies in Philosophy, Politics, Economics and the History of Ideas.

is not a limitation on effective regulation, rather it is a condition for it.

Furthermore, the IA also identifies the causes of delay in FTTH rollout in a combination of operators' conduct, i.e., incumbents in certain Member States failing to develop adequate investment plans, and "regulatory failure" to incentivise investment. In the European Commission's own words, "[r]*egulators in these countries did not adopt measures to effectively incentivise FTTH deployment. In particular, they did not give access to PIA (or imposed this only recently), but mandated access to active products. This allowed for service-based competition at retail level but did not stimulate infrastructure competition and fibre deployment*." On top of that, the European Commission also records that "[a] *common factor amongst the countries with the lowest fibre deployment (Greece, Austria, Czechia, Germany, Belgium and Italy) is the high share of upgraded copper networks (specifically FTTC [EN:* and/or Hybrid Fibre-Coaxial (HFC) cable networks]*)*".

In other words, access regulation could be, and in several Member States was, applied precisely in a manner designed to promote FTTH, and in others to promote competitive access to copper and incentivise transition to FTTC and/or HFC.

In this regard, it should be noted that, in economic theory, access regulation is precisely the instrument through which the different regulatory objectives, mainly investment incentives and the promotion of competition, are pursued and balanced. This point lies at the very heart of the alleged "regulatory failure" on which the current proposal rests. The "Ladder of Investment"[60] was an approach encouraged by the existing rules and overseen by the European Commission, and it has remained valid ever since. This is because **the current legislation does not rank the framework's objectives and has always left the concrete balancing between them to NRAs: it is precisely this allocation that the DNA proposal alters at its core.**

In any event, considering that the European Commission identifies access regulation enforcement as a main cause for inadequate FTTH deployment, following this diagnosis, a **first omission that could be identified in the DNA IA concerns its option architecture**. Each option bundles a switch-off variant with an access-regulation variant, and no two options differ in one parameter only.[61] The consequence is that the counterfactual following most directly from the European Commission's own diagnosis, i.e., revised access rules without a binding switch-off, was not assessed. The marginal contribution attributable to the mandate, as distinct from the access reform accompanying it, therefore remains unquantified.

The issue we have addressed in this chapter is therefore whether mandatory national transition plans and binding CSO procedures are appropriate and proportionate instruments and whether comparable outcomes could be obtained through less intrusive, costly or risky means, that better align with

[60] In a nutshell, the short-term objective was to make it relatively easy for new entrants to access the incumbent's network, so that service-based competition could develop quickly through access regulation. Entrants could then gradually build a customer base and reach a minimum scale, which would serve as a "stepping stone" towards rolling out their own networks and, ultimately, towards infrastructure-based competition. The aim was thus to balance the short-term benefits of downstream competition in services against the medium- to long-term benefits of investment and innovation. See M. Cave, "Encouraging infrastructure competition via the ladder of investment" (2006) 30 Telecommunications Policy 223–237.

[61] Option 1: Non-binding copper switch-off and very limited updates for access regulation; Option 2: Mandatory conditional copper switch-off and updated access regulation (in particular symmetric rules and EU wholesale access products); Option 3: Market driven copper switch-off, bottleneck-based access regulation and only symmetric access to passive networks; Option 4: Mandatory unconditional copper switch-off and symmetric regulation (i.e., regulated access to all fixed networks and to ducts and poles).

existing regulatory principles. Our argument developed here is that the **measures proposed are not completely appropriate and proportionate** and that the **forthcoming regulatory policy should preserve the direction of travel towards fibre while avoiding an unnecessary overhaul of the principles that characterise the existing regulatory approach**. This is not a defence of the *status quo*: below, we conclude with concrete amendment proposals, starting from an industry-led process and, where necessary, retaining mandatory legal elements, based on a proportionate redefinition of conditions, sequencing and analytical inputs on which CSO obligations depend.

3.2. Impact on Consumer Choice and Technology

Consumers' Choice and Copper/Fibre Substitutability

- ***Restricting users' choice, not only business conduct***

Alongside operators and regulators' responsibilities, the DNA **IA attributes the take-up shortfall to end users**: "[c]*ustomers on copper networks may delay the migration to fibre due to inertia, higher price, the possible works needed for bringing fibre to their homes or (perceived) lack of need*"[62] That factual relationship is plausible, but its normative implications have not been thoroughly investigated. The fact that non-migration depends substantially on consumer choice is not an incidental feature of the problem: it underlines that **mandatory CSO restricts not only business conduct but also end-users' choices**.

This restriction does not concern only the type of technology and its technical performance. By steering consumer choice towards a single parameter, namely higher connection speed, it would inevitably **limit users' ability to choose services on the basis of other valuable parameters**, such as network quality, customer support and additional services (e.g., streaming services bundled with the connection). It would also weaken operators' incentives to compete on service and quality. All these effects should be explicitly addressed and justified in an instrument adopted on an internal-market legal basis and assessed against the EU Charter of Fundamental Rights. This is even more necessary given that end-users' choice has so far been safeguarded by the access conditions attached to migration under Article 81 EECC, whereas Article 71 DNA no longer expressly provides for this safeguard. Moreover, it should inform the identification of alternatives, since end-users' choice can be influenced by many instruments short of prohibition, e.g., subsidies and vouchers, information campaigns, differentiated wholesale pricing, and conditionality in public procurement and State aid schemes.

- ***Migration and demand-side substitutability***

There is a second implication. Once the role of consumer choice is acknowledged, the European Commission's observation that **high FTTC penetration correlates with low FTTH take-up is an observation about demand-side substitutability**. The fact that users on enhanced copper do not migrate although fibre is available may simply be the result of FTTC and FTTH being substitutes for

[62] European Commission, IA, cit. Part 1/3 pp. 37. It should be noted that a lack of need that is possibly merely perceived, yet not real, as underlined by the IA wording, could indicate that end-users are not able to correctly define their own needs/preferences and act consequently – which would be a big problem in terms of market dynamics (and regulatory effectiveness) as competition in network industries was introduced on that assumption, as well as all the more recent consumer empowerment policies.

those users.[63] That is, moreover, the settled analytical position in most Member States, where NRAs have generally placed the two services within the same relevant market. Nevertheless, the switch-off provisions draw no distinction between FTTC and other copper-based architectures, although their performance may differ by an order of magnitude.[64] By treating all copper-based access alike, the DNA therefore fails to account sufficiently for the extent of fibre investment already embedded in hybrid networks and for the very different starting points from which migration to FTTH takes place.[65]

This reasoning does not aim to imply that FTTC should be excluded from discussion around migration from copper to fibre, provided the policy choice is maintained to move towards FTTH infrastructures. What it implies is that the **switch-off conditions should take account of the differing situations and differing market dynamics on both the demand and the supply side**.

Furthermore, in some countries a degree of substitutability can be observed between FTTH and HFC and FTTH and FWA, to the point that some NRAs have placed them in the same relevant market. Yet the **DNA proposal treats the non-FTTH fixed broadband technologies very differently: only FTTC would be subject to mandatory switch-off**. This has two broad implications. The first is a **substantial departure from the principle of technological neutrality**, which, even in its weakest form, requires at least that technologies offering comparable performance not be subject to regulatory discrimination. [66] It also raises a basic question of consistency: why would a policy meant to speed up migration to FTTH mandate the phase-out of copper while leaving other fixed technologies that are not full fibre entirely outside the transition framework? The second implication, discussed in detail in the following sections, is that **a mandatory CSO would not necessarily lead to mass migration to FTTH**. In countries where cable is widespread, it could instead drive migration to HFC, [67] as well as to FWA and mobile.

- ***Three consequences for the assessment***

The failure to distinguish enhanced copper networks from legacy copper networks is not merely a matter of classification. It affects the assessment of the proposal's benefits in three important respects.

[63] Substitutability of this kind is inherently subjective, but subjective assessment is precisely what drives the choice of connectivity and the uses made of it. Moreover, this may well be transient, as new services and new needs emerge; but market dynamics, monitored and periodically reviewed by national authorities, can manage that evolution in a more informed and more efficient way than a centralised public planner fixing the answer for every area a decade in advance.

[64] The magnitude of the copper/FTTC-to-ADSL performance gap varies by Member State according to network topology and the specific enhancement technology deployed, though it remains substantial in most cases. However, under the provisions as proposed, the degree of upgrade of the copper network is legally irrelevant: copper must be fully eliminated in order to reach the FTTH coverage target.

[65] As well known, FTTC is not a purely copper network: it already relies on fibre deployed deep into the access network, typically up to the street cabinet, with only the final segment remaining copper.

[66] Despite its importance, the concept of technology neutrality has been applied flexibly: across the various legal instruments in the digital field, it has been invoked with three distinct, and quite different, meanings, namely that (i) regulation should prescribe objectives rather than the specific technologies used to achieve them; (ii) the same regulatory principles should apply regardless of the technology used; and (iii) regulatory authorities should refrain from nudging the market towards any particular technology. The DNA copper switch-off provisions appear to depart from all three. See P. Alexiadis, "Technology Transition", in CERRE, The Future of European Telecommunications: In-Depth Analysis (2024); W. Maxwell and M. Bourreau, "Technology Neutrality in Internet, Telecoms and Data Protection Regulation" (2015) 21 Computer and Telecommunications Law Review 1.

[67] For example, cable networks carry around 22% of active broadband connections in Germany and around 52% in Belgium. See BNetzA, Telecommunications Annual Report 2025 (2026), pp. 9 and 13; BIPT, "La vente de connexions en fibre optique est en hausse, mais le câble reste le leader du marché", press release, 16 July 2025.

First, the **service-availability premise is overstated**. The IA assumes that certain services and applications, e.g., home care, emergency response, remote education, teleworking, digital entertainment, cannot be adequately delivered over copper networks. That assumption is sound insofar as "copper" refers exclusively to fully copper-based infrastructure, that is, traditional DSL. It does not hold for FTTC connections, which can support precisely the use cases invoked to justify mandatory migration. [68]

Second, the **GDP estimates in the IA rest on coerced adoption**. The benefit figures derive from econometric work on the effects of broadband deployment and adoption, in which the larger effect is attributed to adoption.[69] This is because adoption reflects a conscious decision to subscribe to an upgraded connection and put it to productive use; whereas it is at least doubtful that the same elasticity can be assumed for users compelled onto FTTH without having chosen it. A household or a business that migrates in order to telework, to use telemedicine or to run other activities that require an upgraded connection generates the productivity effects the literature measures; a household that migrates because its existing service has been withdrawn, and that then uses the connection exactly as before, in most circumstances, does not.

- Third, the **price counterfactual is inverted.** Where FTTC and FTTH are substitutes and are supplied by different operators, they are in competition. Eliminating FTTC therefore removes both an option for consumers and a competitive constraint on FTTH pricing, so that a price effect may arise from the removal of that constraint. Crucially, the stronger the performance of the copper-enhancement technology being decommissioned, the greater the competitive pressure it currently exerts on fibre pricing, and therefore the larger the price increase its elimination may trigger.

- ***High variability of incentives and competitive configurations***

Incentives for the switch-off of copper-based networks, as well as competitive outcomes afterwards, critically depend on FTTH deployment patterns and who has built the network: how far has the incumbent built out, how entrants have performed and, critically, the extent of adoption or migration from copper to fibre.

For example, an operator that owns the copper network and has deployed a fibre network will probably have its own incentives to switch off copper, since running two networks in parallel would eventually become too costly. By contrast, the negative competitive effects of a mandatory CSO would arise mainly where the copper network to be switched off belongs to an operator other than the one whose fibre network has contributed most to meeting the switch-off thresholds. In other words, the problem arises where network operators compete and one of them is forced to shut down its network.

[68] FTTC performance depends critically on the length of the residual copper segment between the street cabinet and the premises, and on the enhancement technology deployed. For example, in Italy, the secondary copper network is structurally short, which supports high-performance VDSL2/vectoring deployment across a broad footprint. In Germany, longer average loop lengths have required more intensive use of vectoring, super-vectoring and, increasingly, cabinet-splitting or sub-cabinet strategies to shorten the effective copper tail and augment performance.

[69] Mainly, see W. Briglauer, J. Krämer, N. Palan (2024) Socioeconomic benefits of high-speed broadband availability and service adoption: A survey, Telecommunications Policy, Volume 48, Issue 7, 2024; W. Briglauer, C. Cambini, K. Gugler, L. Sabatino (2025) Economic benefits of new broadband network coverage and service adoption: evidence from OECD member states, Industrial and Corporate Change, 2025, 34, 696–721.

Switching off a competitor's network carries the risk of re-creating local monopolies, which runs counter to the EU objective of promoting infrastructure-based competition.

Moreover, such a negative competitive impact could extend to those situations where alternative operators have climbed the "ladder of investment" by deploying fibre to the street cabinet and thus supplying FTTC services. In these situations, a mandatory CSO would also fundamentally undermine the investments these operators have already made, which could be left stranded.[70]

Finally, the competitive effects become even more complex where the copper network is owned by a wholesale-only operator. In areas where such an operator has no FTTH network of its own, it cannot migrate its wholesale customers to fibre, and it has no downstream retail business to fall back on by using access to competitors' networks. The withdrawal of its copper network would therefore directly affect its only activity in that market, having a particularly disproportionate effect. A mandatory CSO that would fall most heavily on operators whose business model the EECC expressly regards as pro-competitive would therefore sit uneasily with the framework's own policy choices and objectives. [71]

Competitive outcomes therefore differ sharply depending on whether, and to what extent, the owner of the copper network has deployed its own FTTH network. The uniform rules proposed in the DNA fail to take account of these differing effects and trade-offs.

Possible Migration to Other Legacy Networks

- ***End-users' cost for a forced migration and migration destination***

Under the policy choice to move towards FTTH infrastructures, which represents the core rationale for the switch-off rules, it is crucial to **identify possible situations and reasons where the switch-off might not lead to greater VHCN/gigabit take-up**.

Mandatory CSO imposes costs on network operators through the stranding of still-viable assets, and on end-users who are compelled to migrate. Article 59 of the DNA Proposal provides procedural safeguards, notably advance notification and continuity of essential services during the transition period; however, it does not address the **welfare consequences (and incentives) for the significant share of end users who, despite fibre being technically available in their area, have not already migrated**. As identified by the IA, the reasons vary: affordability constraints,[72] incompatible terminal equipment and, more fundamentally, the difficulty of installing in-building fibre and/or completing

[70] Admittedly, an alternative operator with fibre up to the street cabinet could obtain access to ducts under the Gigabit Infrastructure Act (GIA). However, that operator may well decide not to duplicate the FTTH networks already in place whose deployment triggered the CSO conditions. It would then no longer be able to make productive use of its existing fibre network, which would in turn harm infrastructure-based competition overall.

[71] Under Article 80 EECC, an SMP undertaking that is not active in any retail market for electronic communications services, and has no exclusive agreements with retail undertakings, is subject to a lighter regulation, essentially limited to non-discrimination and fair and reasonable pricing obligations. This reflects the legislator's view that wholesale-only models are less likely to raise competition concerns and therefore warrant lighter obligations, in light of the proportionality principle. This is the case in Italy, where AGCOM has designated FiberCop S.p.A., the company that owns the former TIM fixed access network following its structural separation, as a wholesale-only operator. See AGCOM, Decision No. 58/26/CONS.

[72] While affordability may be a factor in individual cases, there appears to be limited evidence that the cost of the final fibre connection is a significant barrier for a large number of end-users. In any event, Article 71(3) DNA seeks to contain connection costs: where an additional connection fee (exceeding the normal connection fee) is justified, the NRA must ensure that any such fee borne by end-users is fair and reasonable, and it may also set a maximum level for connection fees. This provision, however, addresses only monetary connection costs.

the final drop to the building termination point quickly enough. Moreover, as noted above, some end-users may not wish to migrate to FTTH at all, either because they do not need such a connection or because they value characteristics of the service other than connection speed. From an economic perspective, forced migration would impose at least non-monetary costs on these users as well.

Thus, if (most of) end users for whom an FTTH connection is already available have not migrated away from copper because of the costs they would have to bear, or because of some technical impossibility, it is probable that they would not migrate to FTTH either after the CSO.

A certain share of them would instead migrate to whatever alternative network is more readily available at lower cost, e.g., to HFC, in those countries where it is available, or to the "wireless or mobile alternatives" the European Commission itself contemplates.

The bottom line is that **if the policy choice and core rationale of the proposed provisions is to move towards VHCN/gigabit infrastructures, there is no justification for switching-off FTTC for users who will not migrate to FTTH, whether because they do not want to or because they cannot**.

- ***The coverage-based sustainability element for conditional switch-off***

Article 54.1 of the DNA Proposal requires Member States, before 31 December 2035, to mandate CSO in areas where the sustainability conditions in Article 57.1 are cumulatively met. Those are (i) a 95 per cent fibre coverage threshold, in terms of “premises passed” and (ii) the availability to end-users relying on copper of "*affordable retail connectivity services of comparable quality* ".[73]

The European Commission's own reading of this safeguard is that "[s]*ome end-users would need to migrate to wireless or mobile alternatives, but the sustainability conditions ensure that the overwhelming majority of end-users (at least 95 per cent) will benefit from improved services without (any significant) price increases*".[74]

This reading, however, rests on assumptions our analysis calls into question. Because of migration costs, users not yet connected to FTTH may move sideways or downward to other legacy connections rather than up to fibre. Indeed, the DNA proposal overlooks a key variable, i.e., the share of households not yet connected to FTTH when the switch-off is launched.

This is precisely where the coverage-based trigger used at Article 57.1 shows its weakness. The concept of "premises passed" assumes that a premises *could* be connected within a short reference period, therefore assuming no technical or other kind of impediment. First, as noted above, this is not necessarily the case. Second, also where a connection could be established within such a short timeframe (i.e., four weeks), users would have more readily available (and cheaper) connectivity options.

[73] The referent of "comparable quality" is left unclear, and the ambiguity is consequential. If it refers to the performance of the copper network being phased out, and if the fibre network satisfying condition (a) does not itself count towards condition (b), then condition (b) requires a separate, additional network — cable, fixed wireless access or mobile — offering services at least equivalent to the copper being retired. On that reading, switch-off is mandated precisely on the condition that an alternative network offering a copper-equivalent, not a fibre-equivalent, service is already in place. The framework would be requiring the elimination of one legacy technology conditional upon another legacy-grade technology standing ready to replace it — an outcome that is internally contradictory and that risks legitimising inferior-quality alternatives as a sufficient substitute for fibre migration.

[74] European Commission, IA, 2026, cit. Part 1/3, pp. 96.

BEREC notes that the four-week reference period in the geographical-survey guidelines captures only the time technically required and expressly excludes delays attributable to administrative or complex and costly processes.[75] Indeed, a fixed four-week criterion is quite arbitrary, since the time needed to complete a connection can depend on factors outside the operator's control, such as outstanding permits, lack of building access or owner consent, or refusal or non-cooperation by the end-user.

A trigger of this kind therefore measures a legal and technical possibility of connection rather than a state of connectivity "readiness" - and the gap between the two is exactly where the end-user welfare loss may concentrate. Therefore, **"premises connected" - as already defined in the DNA proposal at Article 183.2 and recital 384 - is a much better sustainability criterion, since it avoids most of the uncertainty associated with a timely activation of the connection.**

- ***The unconditional switch-off and the too narrow exception***

Problems related to existence of a causal link between the CSO, on one side, and deployment and take-up of fibre connections, on the other, are even more evident for the final, unconditional switch-off. Article 54.2 of the DNA Proposal establishes a hard deadline: by 31 December 2035, Member States shall mandate CSO in all CSO areas.

This mandatory rule-based copper switch-off is intended to serve as an incentive for fibre deployment and for take-up; however, in European experiences to date, as BEREC notes[76], switch-off has taken place only after widespread FTTH coverage had been achieved in the relevant area.[77]

There are serious concerns related to imposing CSO where FTTH coverage is not extensive.

First, a mandatory unconditional CSO "*might actually exacerbate existing bottlenecks in construction, civil engineering and planning capacities. A spike in construction costs could hurt positive market-driven dynamics*." [78]

Second, the DNA proposal wrongly assumes that the threat of unconditional switch-off would further incentivise operators to deploy fibre; on the contrary it could have quite the opposite effect, for example, by "*favouring those "non-copper" operators (cable or wireless), for which it is more advantageous to wait until copper is decommissioned and copper users are forced to migrate to their networks, rather than to invest in fibre deployment themselves*."[79]

Article 54.3 provides an exception to the unconditional CSO, that is however too narrow. That exception is applicable only where the two following conditions are cumulatively satisfied: (a) fibre deployment is not economically viable and (b) no adequate connectivity solution capable of replacing copper-based services is available. Recital 156 defines "adequate" as a solution "*capable of ensuring*

[75] BEREC's position on Migration and Copper Switch-off (Articles 53-61) of the DNA - BoR (26) 88_12.
[76] BoR (26) 88_12, cit.
[77] France provides a useful counterexample to the assumption that copper switch-off is necessary to drive fibre adoption: fibre subscriptions had already overtaken DSL by the end of 2021, before Orange submitted its nationwide copper switch-off plan in January 2022. See ARCEP, The French telecoms market in 2021, 24 May 2022, noting that FTTH subscriptions reached 14.5 million and overtook DSL by end-2021; Orange submitted its copper closure plan only on 31 January 2022.
[78] BoR (26) 88_12, cit.
[79] *Ibidem.*

the continuity of electronic communications services of a quality comparable to that provided by the copper network in the same area".

Therefore, where fibre is not economically viable - i.e., condition (a) is satisfied - but a "copper-equivalent" alternative network exists – i.e., condition (b) is not satisfied - the exception cannot be invoked. **Member States would therefore be legally obliged to mandate CSO in areas where fibre has not been, and will not be, deployed, solely because a legacy-grade alternative is available**.

However rare these cases turn out to be (largely a question of how economic unviability is defined), it should be considered that Member States are unlikely to accept the political cost of such switch-offs, making infringement proceedings a realistic prospect.

Recitals 146 and 147 present the switch-off as a driver of the transition to fibre as the superior, future-proof technology. In the scenarios described, CSO would be mandated not to migrate users upward to fibre but merely sideways, to a technologically equivalent and potentially, in terms of reliability and service continuity, inferior alternative. End users in such areas would bear real migration costs and welfare loss.

Furthermore, the breaking of the causal link between the regulatory intervention and its stated objective illustrates a structural problem with the unconditional phase to switch-off, that is the **lack of suitability of this provision**, which is a core component of a legal proportionality test (addressed in the next section).

3.3. Proportionality and Subsidiarity

- ***Legal perspectives***

What all these situations put in question is the proportionality of these measures. In this regard, Article 5.4 TEU requires that the content and form of EU action not exceed what is necessary to achieve the objectives of the Treaties; the legislator must accordingly be able to demonstrate (i) suitability, (ii) necessity and (iii) proportionality *stricto sensu*.[80] Moreover, Article 5.3 TEU requires a subsidiarity relationship between the Union action and those of Member States.

The **legal/EU treaties dimension carries particular weight** because the DNA IA itself acknowledges that "[t]*he introduction of a mandatory, but conditional, copper switch-off constitutes* ***a limitation of the freedom to conduct a business*** *under Article 16 of the Charter of Fundamental Rights of the EU*", with corresponding implications also under Article 17 as regards **property rights, the public-interest justification for their limitation, and associated compensation**. On the latter, a legal opinion *pro veritate* argues that mandatory decommissioning of operational, lawfully held and income-generating private infrastructure without compensation produces effects comparable to indirect expropriation.[81]

[80] The European Commission is required to demonstrate that the proposed measure satisfies a threefold test: (i) suitability — the measure must be suitable to achieve the objective pursued; (ii) necessity — no less restrictive alternative must exist; (iii) proportionality stricto sensu — the measure must not impose burdens disproportionate to the expected benefits.

[81] R. Mastroianni (2026) Legal opinion *pro veritate* on the compatibility with primary European Union law of the European Commission's Proposal for a Regulation of 21January 2026, establishing a regulatory framework for the transition from copper networks to fibre-to-the-home (FTTH) networks; P. Alexiadis (2026) presentation at BEREC external workshop on migration and copper switch-off in light of the DNA.

Consistently, BEREC notes that the unconditional switch-off "*may also increase the correlated risk of compensation claims by the copper-network owner, a risk which is not addressed by the DNA*".

- ***Suitability and necessity***

As regards **suitability**, mandatory CSO may have some effect on take-up and, indirectly, on deployment incentives, provided that users and firms regard the deadlines as credible. It does not follow, however, that the retirement of copper translates into an equivalent increase in fibre deployment, adoption and productive use. As discussed above, a certain percentage of users may migrate to mobile, HFC, fixed wireless or another copper-equivalent service (possibly performing worse than FTTC) rather than to fibre. The measure may therefore accelerate the formal retirement of copper without fully achieving its stated objective of migration to future-proof connectivity. This risk is the greatest under the unconditional switch-off.

The **necessity** limb is where the whole measure is weakest, because credible less intrusive alternatives, having a smaller impact on undertakings and on consumer rights, and constraining their choices and discretion to a lesser degree, could be identified. For example, a 2024 CERRE report[82] set out three less impactful options: (i) State subsidisation measures to incentivise migration to VHCNs, which could now extend to eligibility criteria for State procurement projects; (ii) allowing SMP-designated operators the flexibility to raise wholesale copper access prices in specified circumstances; and (iii) continuing with the current EECC regime, whereby access obligations are calibrated against levels of fibre roll-out.

To these should be added the targeted revision of **the existing EECC provision about "Migration from legacy infrastructure"** (Article 81 EECC). Indeed, another primary **omission that could be identified in the IA concerns** Article 81 EECC. The European Commission correctly observes that the existing provision was not designed to accelerate FTTH migration but to safeguard competition. Yet the **DNA proposal nowhere assesses an intermediate solution based on revising Article 81.** Such a revision could, for instance, limit the NRA's power to postpone the migration process while preserving its competition-safeguarding function. In addition, it could extend Article 81 to non-SMP operators, so that NRAs could agree appropriate migration areas with all owners of copper networks and be involved in every voluntary migration process. None of the above has been assessed as a standalone counterfactual.

Of course, it could be objected that these instruments would not achieve the same result within the same timeframe. That objection, however, presupposes the timeframe. Indeed, the deadlines for achieving complete FTTH coverage will be indirectly set by the DNA (in addition and with more specificity to existing soft law[83]), yet that does not derive from an assessment of the social (opportunity) cost of later completion. Since universal FTTH coverage is a means towards competitiveness, productivity and social inclusion rather than an objective in itself, a slower path achieved through less intrusive instruments cannot be dismissed as inadequate merely because it does not meet a deadline which is itself open to question.

[82] CERRE, The future of European telecommunications: in-depth analysis, 2024.

[83] As a matter of fact, as anticipated, the 2010 Digital Agenda for Europe, the 2016 Gigabit Society, the 2021 Digital Compass as well as the 2022 Decision establishing the Digital Decade Policy Programme 2030 define targets only in terms of coverage, while adoption is not considered.

- ***Proportionality stricto sensu***

Proportionality *stricto sensu*, in turn, requires costs of the measure to be weighed against its expected gains. On the benefits side, the IA has neither shown that estimated benefits of voluntary adoption transfer unchanged to involuntary migration, nor isolated the incremental benefit of FTTH over an already capable FTTC connection. On the cost side, by contrast, migration and implementation costs are concrete and the negative impact on competition may be significant. The balance thus weighs uncertain benefits against tangible costs.

On this test, besides the cautions and doubts previously highlighted, the IA itself does not seem to assess whether the difference in FTTH roll-out and take-up between Option 2 (mandatory conditional copper switch-off, as proposed by the European Commission in the proposal) and Option 1 (non-mandatory switch-off, as currently reflected in the Digital Decade Policy Programme) is sufficient to render the tougher measure proportionate.

	FTTH coverage		**FTTH take-up**	
	2030	*2035*	*2030*	*2035*
Option 1	78 per cent	92.5 per cent	51 per cent	67 per cent
Option 2	83 per cent	98 per cent	56 per cent	78 per cent
Δ	**5pp**	**5.5pp**	**5pp**	**11pp**

In three of the four projections, the differential is between 5 and 5.5 percentage points, which can hardly be regarded as a compelling justification for a coercive measure of this magnitude. The larger difference, i.e., 11 percentage points in FTTH take-up in 2035, coincides with the unconditional phase of the CSO and therefore carries all the problems described above. This outlier may better reflect the disruptive, high-risk nature of the provision rather than its effectiveness.

In sum, the **marginal gains projected under Option 2 do not appear to justify both the restriction of entrepreneurial freedom and consumer choice that a mandatory switch-off entails, and the associated costs of public enforcement**. Furthermore, as noted in section 2, these figures cannot be attributed to the switch-off design alone, since each option combines a switch-off variant with a distinct access regime - isolating the marginal contribution of the mandate would require an assessment the IA does not perform.

- ***Wider implementation costs and risks***

In addition to what was examined above, the **cost side of that balance may extend well beyond the operators directly concerned**. The costs to be weighed should include the costs borne by consumers;

the costs of administrative enforcement, and the risk/cost that procedures of this complexity and impact will not be delivered within the prescribed timelines and directions.[84]

As for administrative enforcement, BEREC's assessment is unambiguous. It describes an extremely complex iterative process, including, *inter alia*, delimitation and assessment of switch-off areas - based on EU-wide criteria set by the European Commission - with *ad hoc* data collection, national transition plans and associated regional market reviews, European Commission examination of those plans, the formal switch-off mandate, the possible imposition and monitoring of remedies, the operator's switch-off plan and any NRA amendments to it, enforcement, and implementation by all stakeholders including communication to end users. BEREC concludes by observing that this complexity "*will become particularly critical and overwhelming in terms of feasibility and administrative costs if considered together with the ambitious timing*", recommending simplification or greater temporal flexibility "*to reduce the risks of failure of the policy*".

These procedures are especially challenging considering the significant impact CSO may have on competitive dynamics, especially where the fibre network passing the relevant premises is largely that of a single alternative operator.

The variety of competitive concerns previously highlighted makes a market review, coordinated with approval of the switch-off plan, indispensable – yet the DNA proposal makes no allowance for it in the CSO timeline. BEREC observes that the review can realistically be conducted only once the switch-off legal acts have been issued and operator plans submitted, and that the timeline accounts neither for the review itself nor for the technical time needed to implement any resulting remedies. This is precisely the point at which the competition-safeguarding function previously performed by Article 81 EECC could be relocated.

- ***Subsidiarity***

Under Article 5.3 TEU, Union action in areas of shared competence is lawful only where two conditions are satisfied: (i) the objectives pursued cannot be sufficiently achieved by the Member States, and (ii) Union action is, by reason of its scale or effects, better suited to achieving them. Both conditions are questionable in relation to the copper switch-off provisions.

As to the first one, the transition to fibre is already well advanced, and in several Member States effectively complete, under the existing framework. Even where coverage remains below the Union average, deployment is accelerating and the direction of travel towards full-fibre environments is not in doubt. The **objective the provisions pursue is therefore one that national processes are already delivering**, rather than one that Member States are structurally unable to attain.

As to the second one, the variables that determine when and how copper can be retired — network architecture, the residual role of enhanced copper, civil-works and rollout costs, geography, building stock, and the competitive configuration between the copper owner and alternative fibre operators — differ materially between Member States and between areas within them. The DNA proposal does not tackle that heterogeneity and probably could not. **A centrally established migration path is**

[84] No assessment seems to have been made of the operational feasibility for involved operators to connect thousands of "passed households" and "switch" those related customers in a short period of time.

informationally inferior to a framework in which national regulatory authorities calibrate the pace of transition to observed local conditions.

The proposal's own allocation of tasks compounds the difficulty. Member States and their regulatory authorities are formally entrusted with "implementing" the transition, notably through the national transition to fibre plan notified to the European Commission (Article 56). In substance, however, the decisive endpoint and core triggers are fixed at Union level, and what remains national is mere operative implementation.

3.4 Recommendations for Improving the DNA Proposal

The transition to fibre is an important objective, and there is high value - including its expressive value - in defining a clear direction and a legal commitment for European technological policy, beyond the Digital Decade targets themselves.

Nevertheless, considering the criticalities described in the previous sections, **before introducing the mandatory procedure, the legislation should require an assessment of whether a national switch-off plan with objectives and a timeframe compatible with the regulation's goals and supported by appropriate regulatory safeguards already exists or can be established**. Where no such plan exists, cannot be established within a defined period, or is materially breached, NRAs should be able to initiate the amended mandatory procedure proposed below.

Mandatory measures should be considered only where no compatible national switch-off plan exists, where one cannot be established in good time, or where it is not respected. **In these circumstances the amendment recommendations below retain mandatory legal elements, and NRAs would be permitted to impose CSO, under recalibrated conditions governing switch-off and the associated procedures and timing.**

This would result in **a more balanced, proportionate and efficient scheme - minimising implementation risk and maximising the ratio of benefits to costs**. These proposals also materially reduce the legal risk currently attached to the proposed provisions - a consideration of practical significance, since a text potentially vulnerable to challenge before Courts certainly would not accelerate the transition to fibre.

Scope: Target the Measure and Preserve Functioning National Processes (Article 53)

Limit the application of CSO to Member States where (i) copper-based networks remain in service after 30 June 2029 as a non-negligible[85] share of national fixed broadband accesses and (ii) no national switch-off plan exists with objectives and a timeframe compatible with the regulation's goals.

[85] For example, BEREC suggests that more than 3% of active fixed broadband connections should be regarded as non-negligible. This percentage could be relative only to copper-based connections that are not considered a possible demand-side substitute to FTTH (such as full-copper xDSL).

Rationale. This concentrates the procedures on the lagging markets that motivated the intervention, avoiding the wasteful remapping of ongoing national regimes, and avoiding undermining regulatory certainty and the incentives available under migration schemes already developed by NRAs. This also addresses subsidiarity concerns, since it either leaves existing national plans in place or gives Member States an incentive to adopt one.

A Decentralised Operator-led Switch-off Plan Before the Mandatory Procedure (new Article 53a)

For the Member States that remain within the scope of the CSO provisions under the preceding recommendation, **the mandatory procedure set out in Articles 54 to 61 should be preceded by a first stage in which the transition is defined in a decentralised operator-led manner, subject to regulatory safeguards and a binding regulatory backstop**.

Within the preparation of national transition to fibre plan, the NRA should invite the operators owning or controlling copper access networks **to submit a copper switch-off plan** that takes into account the NRA's market analysis. Such a plan should set out**: (a) a transparent timetable and defined geographical perimeters for phased decommissioning; (b) verifiable intermediate milestones, including network-readiness indicators and notice periods for access seekers**.

The NRA should assess whether the plan submitted can deliver objectives and a timeframe compatible with those of the regulation (as here amended). The assessment should follow public consultation and be published together with the plan. If the assessment is positive, the NRA should monitor compliance with the milestones and timetable and report on it annually. Where circumstances change materially, the NRA may require amendments to the plan, and the operator may propose them.

The NRA should, by a reasoned decision, close this stage for the areas concerned and apply Articles 54 to 61, as amended by the proposals below, in either of two cases. The first is where an operator does not submit a compatible plan within the period set by the NRA. The second is where a significant number of the approved plan's milestones are missed without objective and verifiable justification, to an extent that makes the plan incompatible with the regulatory objectives and timeframe.

Rationale:

- *Necessity.* The proposal addresses the necessity limb of the proportionality test. Recommendations that reshape the mandatory procedure without first requiring a less intrusive, decentralised route would leave the necessity objection raised above unanswered.
- *Information.* Operators hold the most detailed information on network readiness and local demand. Requiring them to put forward their own plans, and letting the NRA test those plans against the regulatory objectives, is how this dispersed information enters the process. The proposal also respects the subsidiarity principle, because the harmonised mandatory procedure applies only where national, operator-led processes are absent or have proved insufficient.
- *Continuity with Article 81 EECC.* The proposal moves the function of Article 81 EECC rather than abandoning it. It adds a compatibility test, binding milestones and a backstop, and it applies whether or not the operator has SMP.

- *Evidence.* The European Commission's own evidence supports it. Nine Member States already plan to switch off copper by 2030 or earlier without any mandate, so a decentralised, plan-based transition is observed practice in about a third of the Union, not a hypothetical counterfactual.

- *Effectiveness and choice.* The framework stays effective, while migration is driven by demand and network readiness and end-user choice is preserved. Take-up is not forced by withdrawing an existing option.

Conditional Trigger: Add a Connectivity-Readiness Condition (Articles 54.1, 57.1.a)

The conditional switch-off under Article 54.1 should not rest solely on a percentage of premises *passed*, which indicates general availability. It should also require a second cumulative condition expressed as a percentage of premises *connected*.[86] Setting the exact percentage (for example 60 per cent) is a matter of calibration on which BEREC guidance would be appropriate. NRAs should be permitted to depart from the reference figure, towards an even higher percentage, on reasoned grounds reflecting national situations.

Rationale.

- It reduces the uncertainty surrounding the timing and feasibility of the connection works that must be completed before switch-off can occur without service loss.

- Since "connected" is referenced to the premises, the condition can be satisfied without in-apartment wiring being in place, and therefore without any need to carve in-building infrastructure out of the switch-off mandate. The feasibility problem is solved at the trigger stage rather than by narrowing the scope of the measure (as proposed by BEREC).

- As against a condition expressed in terms of take-up (premises activated), a readiness threshold still produces a direct impact on adoption, since not all households in a connected multi-dwelling unit will have an activated FTTH connection; the operator's incentive to convert readiness into take-up is preserved, while the trigger is not left hostage to consumer inertia.

- It retains - and actually sharpens - the incentive for alternative operators to deploy in order to trigger the switch-off, together with the correlated competitive effect on the incumbent. An operator seeking to trigger switch-off must now complete a proportion of the connections, not merely pass the building, which is where the residual cost and delay lie.

Give NRAs Adequate Time for Market Analysis and Remedies (Articles 54.4, 60.3)

Article 54.4 should be amended in order to extend the period between the binding legal act and the start of switch-off from one year to two, so as to accommodate an Article 73(1) market review of up

[86] The DNA proposal itself already defines and distinguishes these concepts (Article 183(2) and recital 384). An alternative that would address the costs and risks of switch-off even more effectively is to use take-up (i.e., the share of end-users who have actually subscribed to an FTTH-based service) as the cumulative condition.

to one year, and to allow the three-year completion period to be extended to five years where the NRA assesses that new remedies require additional implementation time. Also, Article 60.3 should be amended consequentially, so that the NRA conducts the Article 73(1) market analysis and assesses operators' plans within one year, rather than two months, of receipt.

Rationale. The administrative costs of these procedures are substantial, for regulators as much as for operators, and the market analysis is not an optional refinement: the switch-off may radically change market structure – in terms of service market definition, geographical market definition and competitive dynamics. A market review is the instrument through which all those relevant changes are identified and addressed.

Differentiate Enhanced Copper from Legacy DSL Within the Market Analysis (Article 73.1)

Article 73.1 on market review should require NRAs to assess whether the copper-based access to be decommissioned constitutes a demand-side substitute for FTTH or other remaining access technologies in the relevant area. Where it does, remedies and timing should be calibrated accordingly, for example by allowing NRAs to further delay the switch-off where such a measure would drastically affect competition in a negative way and reduce end-user choice.

Rationale. This is an operational ancillary counterpart of the analysis for the previous proposal. It restores the demand-side assessment that the conflation of FTTC with legacy copper removed; it gives the Article 73(1) review a determinate purpose, answering BEREC's observation that it is not obvious if and how the result of the review would affect the switch-off decision; and it relocates the substitutability judgment from a legislative act to NRAs' periodic and contextualised assessments. Where the review finds that substitution has ceased, the case for acceleration is strengthened and lighter safeguards suffice; where it finds that substitution persists – and thus the switch-off removes a competitive constraint - the remedies and timetable should reflect that.

Recast the Exception to Unconditional Switch-off (Article 54.3)

The unconditional switch-off should be **subject to the extended implementation periods proposed for Article 54.4.**

Moreover, **the exception to unconditional CSO should apply where either (i) extensive FTTH deployment is not economically viable — deleting the present second cumulative condition, namely that "*no adequate connectivity solution capable of replacing copper-based services is available*" — or, notwithstanding that FTTH deployment would be economically viable, (ii) fewer than 95 per cent of premises are passed by a fibre network or (iii) the share of premises connected falls below the threshold set for the conditional switch-off.** In substance, this aligns the unconditional phase with the conditional one, turning Article 54.3 into a final deadline rather than a mandate without conditions.

Rationale. This removes the internal contradiction identified, under which the exception is unavailable in exactly those areas where fibre will never materialise. It also mitigates the reverse-incentive problem, since an operator could no longer count on competing copper being retired irrespective of

its own deployment decisions: failure to reach the coverage or connection thresholds would trigger the exception rather than the mandate.

4. Net Neutrality

4.1. Introduction

The EU Open Internet Regulation (OIR)[87] confers on end-users enforceable rights to access and distribute information and content, to use and provide applications and services, and to use terminal equipment of their choice.[88] Correspondingly, Internet Service Providers (ISPs) are obliged to "*treat all traffic equally ... without discrimination, restriction or interference, and irrespective of the sender and receiver, the content accessed or distributed, the applications or services used or provided, or the terminal equipment used*".[89] "Reasonable" day-to-day traffic management practices are allowed as long as they are (i) transparent, (ii) non-discriminatory, (iii) proportionate and (iv) not based on any commercial considerations but on objectively different technical quality of service requirements for specific traffic categories.

The OIR also allows for the provision of "specialised services", namely services "*optimised for specific content, applications or services … where the optimisation is necessary in order to meet requirements of the content, applications or services for a specific level of quality*"[90] – that is, services requiring a level of quality that best-efforts delivery cannot assure. To ensure that the open internet is not adversely affected, the ISP's network capacity must be sufficient to provide them in addition to any internet access services provided, they cannot be usable or offered as a replacement for IAS, and they must not be to the detriment of the availability or general quality of the IAS for end-users.

Article 93 of the DNA proposal reproduces those provisions in substance, without diverging from the OIR. The few adjustments are a new implementing power conferred on the European Commission in respect of specialised services (Article 93.6) and the non-reproduction of several OIR recitals, including recital 15 on recurrent congestion.

The **DNA thus preserves a regulatory model built on the same assumptions** about how the internet works that underpinned the OIR in 2015, namely:

- A decentralised setting composed of individual users symmetrically exchanging traffic, information and content, so that end-users are treated as a single, relatively homogeneous category whether they access content or supply it;
- All Content and Application Providers (CAPs) being treated as parties requiring protection from ISP control, including those powerful service providers and intermediaries that also may themselves be vertically integrated competitors;
- Congestion being approached as a network-side phenomenon: the traffic-management exceptions are addressed to ISPs alone, and recurrent congestion is presumed to be resolved

[87] Regulation (EU) 2015/2120 laying down measures concerning open internet access.
[88] Article 3(1) OIR
[89] Article 3(3) OIR.
[90] Article 3(5) OIR.

by ISPs through capacity expansion, without regard to the traffic patterns generated on the CAP side;[91]

- Technical and commercial considerations in traffic management being assumed to be clearly separable, including as regards long-term congestion requiring investment; and
- Best-effort delivery being regarded as the reference model, both in technical terms (non-time-sensitive, low-bandwidth applications with limited congestion risk) and in economic terms, so that quality differentiation is admitted either within application-agnostic offers (Article 3(2) OIR) or as a derogation to be justified case by case (Article 3(5) OIR).[92]

Most of those assumptions have become incomplete in reflecting current market and technological dynamics.

A small number of very large CAPs now generate substantial traffic, control must-have services, operate private backbones and in-house content delivery networks (CDNs), and increasingly influence routing and end-users' quality of service and quality of experience through infrastructure and application-layer systems.[93] Rules addressed exclusively to ISPs therefore capture only one of the layers through which access, quality and delivery are determined.

Two further developments are unaccounted for. First, the competitive evolution of the IAS market after decades of effective pro-competitive regulation: competition among IAS providers reduces both the ability and the incentive of an ISP to degrade applications valued by its subscribers,[94] particularly as vertical integration between ISPs and audiovisual content providers, although present in some Member States, is far less pervasive in EU markets than in the United States.[95] Second, 5G transmission technologies and advanced services are based on the differentiation of end-users' QoS/QoE, which sits uneasily with a framework in which differentiation is either application-agnostic or based on a derogation to be justified.

On this basis, this chapter examines whether Article 93 DNA should retain an open-internet regulation in its current form, or whether elements of the existing framework may unnecessarily constrain

[91] Article 93.2 DNA, like Article 3(2) OIR, also reaches agreements and commercial practices, and the BEREC Guidelines contain an anti-circumvention doctrine. The point made here concerns the congestion exceptions in Article 93.3(c) and OIR recital 15, not the reach of the equal-treatment rule.

[92] The point is not that the OIR prohibits any differentiation – Article 3(2) has always permitted some differentiated offers, and BEREC's slicing guidance confirms that several slice-based IAS tiers and several QoS levels within one subscription are lawful (BoR (26) 84) – but that any differentiation which is not application-agnostic must be justified as an exception.

[93] See BEREC, Report on the IP Interconnection Ecosystem, BoR (24) 177, January 2025 (on-net caches and private backbones of the largest CAPs); BEREC, Report on the Internet Ecosystem, BoR (22) 167, December 2022 (role of operating systems, devices and app stores); V. Stocker, G. Smaragdakis, W. Lehr, S. Bauer, The growing complexity of content delivery networks, Telecommunications Policy, 41(10), 2017.

[94] Competition reduces, yet does not completely eliminate, ISPs' ability and incentive to degrade, especially in the less competitive markets: that's why in the following we propose a core guarantee, which is preserved unconditionally.

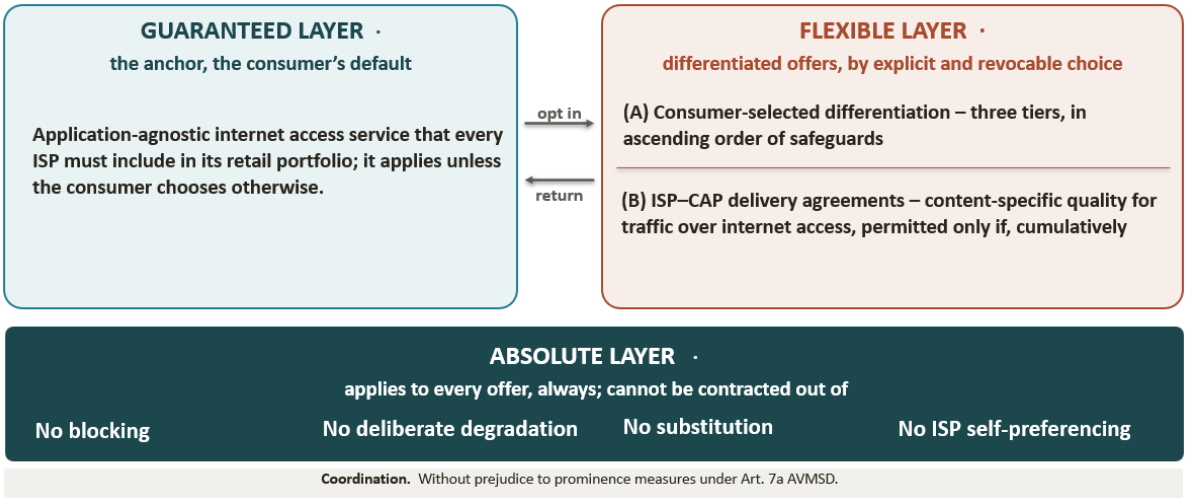
[95] In the US, where the net neutrality debate originated, the risk of self-preferencing by vertically integrated ISPs, with anticompetitive exclusionary effects on other CAPs, was and is one of the main concerns as for the neutrality of the internet. In the US dominant ISPs are vertically integrated with very large content providers (e.g., Comcast merged with NBC-Universal in 2011 and with Sky in 2018, and AT&T merged with Time Warner in 2018). Nonetheless, US Federal net-neutrality rules have since lapsed: the FCC's 2024 order was set aside by the Sixth Circuit in Ohio Telecom Association v. FCC (2 January 2025), leaving only the 2017 transparency rule at federal level and State laws such as California's.

innovation and should therefore be reconsidered.[96] In this regard, we argue that Article 93 DNA should preserve a minimum core guarantee, which assures the protection of those fundamental rights and core objectives that the OIR pursued, whereas differentiation above it should be assessed in a more proportionate way, in order to enhance operators' ability to deploy advanced network technologies and offer quality-optimised services efficiently. The DNA is the occasion to do so.

In our view, open internet rules, consistently with the wider DNA regulatory framework, should rest on three overarching principles already proposed in a previous CERRE report:[97] (a) proportionality, (b) a systemic perspective directed at a level playing field in the digital ecosystem, and (c) consumer empowerment. The reform advanced here accordingly organises the treatment of differentiation in a single regulatory architecture with three layers (Figure 1): (i) an **absolute layer** of prohibitions – blocking, deliberate degradation, self-preferencing, substitution of optimised services for internet access – which applies to every offer and cannot be contracted out of; (ii) a **guaranteed layer**, the application-agnostic "anchor" internet access service that every provider must include in its portfolio and that is the consumer's default; and (iii) a **flexible layer** which includes services alternative to the anchor, comprising consumer-selected differentiation and commercial delivery arrangements, which a consumer may move into – and out of – by explicit choice. The guaranteed and flexible layers are alternative regimes: every retail offer either is the anchor or is a differentiated offer within the flexible layer, and both rest on the absolute core. Coordination with the audiovisual media framework, whose prominence rules protect the availability of services of general interest, is addressed as a separate clause among the recommendations.

[96] Other jurisdictions have taken different routes. In the United States, federal rules lapsed after Ohio Telecom Association v. FCC (6th Cir., 2 January 2025); in the United Kingdom, Ofcom's 2023 review kept the rules but clarified that premium retail offers, traffic-category management and specialised services are permitted subject to transparency (Ofcom, Net Neutrality Review – Statement, October 2023). The proposals below are closer to the second approach, translated into legislative form.
[97] CERRE, The future of European telecommunications: in-depth analysis, 2024.

Figure 1 – The three-layered open Internet proposed architecture



4.2. Core Principles for a Ne[x]t Neutrality

"*Protecting and promoting a neutral and open Internet where content, services, and applications are not unjustifiably blocked or degraded*"[98] should remain an overarching objective for the Digital Decade. The **OIR - and the DNA proposal after it - pursue that objective** through a rule-based design: a general obligation of equal treatment (Article 93.3), three closed exceptions for traffic management, an express permission for optimised services (Article 93.5) and a permission for differentiated offers (Article 93.2), which the Court of Justice has construed as requiring no assessment of effects on end-users or competition.[99] That **design deliberately privileges predictability and low enforcement cost over flexibility**: any differentiation that is not application-agnostic must be justified as an exception, whatever its effects, and the effects of not permitting it are not weighed.

The question raised here is whether DNA should **pursue the same objective more proportionately**. Proportionality does not necessarily require a case-by-case assessment of every practice – which would raise the cost and variance of enforcement in a Regulation meant to end fragmentation – but that the instrument chosen for each class of conduct be no more restrictive than necessary.

The proportionality principle is a general EU law principle, especially when it comes to economic regulation.[100] Indeed, although open internet rules plainly remain addressed to the protection of the Internet's traditions of freedom, openness and equality, they **also have a crucial economic dimension, operating as a significant piece of economic regulation for the sector and governing the relationships**

[98] European Parliament, Council and Commission, European Declaration on Digital Rights and Principles for the Digital Decade, 2023 OJ C 23, 23.1.2023, p. 1, Chapter II, point 3.

[99] C-807/18 and C-39/19, Telenor Magyarország, § 52; C-854/19, Vodafone, § 28; C-5/20, Vodafone, § 24; C-34/20, Telekom Deutschland, § 52. See also C-367/24, Telekom România Mobile Communications, judgment of 10 July 2025: a tariff option activated by the end-user and applied irrespective of the video provider, limiting video-streaming bandwidth, infringes Article 3(3); neither freedom of contract under Article 3(2) nor the end-user's agreement can justify it.

[100] Under Article 5(4) TEU, it applies at macro level for the definition of the scope of regulation (in the law-making process), yet this principle always applies at micro level as well, in the enforcement activity, for instance for the access regulation in the EECC, e.g., Art. 68(2) «In accordance with the principle of proportionality, a national regulatory authority shall choose the least intrusive way of addressing the problems identified in the market analysis».

among ISPs, CAPs and end-users.[101] They should therefore consider and reflect interactions and trade-offs across the connectivity ecosystem and **apply the three principles identified above: proportionality, a systemic perspective and consumer empowerment**.

That case is reinforced by the **incorporation of the open internet rules into the DNA**. Such insertion is not merely a matter of formal simplification or enhanced codification: it should inform the interpretation and adaptation of the substantive norms and should therefore produce enhanced coordination and consistency between rules, principles and objectives.

Two examples may illustrate the point. First, the competitiveness objective under Article 3.1(a) DNA extends to the "*development of innovative services*", with which a best-efforts premise sits uneasily.[102] Second, in light of the DNA objective of "*facilitating investment in advanced digital infrastructures*", some empirical evidence associates strict net-neutrality regulation with lower network investment, although it cannot isolate the effect of the specific provisions discussed here.[103] These objectives support a shift away from the overarching principle that all traffic must be treated equally subject to a small number of complex and restrictive exceptions, towards a framework in which differentiation above an absolute core is assessed according to its effects.

An **effects-based framework should weigh all those objectives proportionately**. To that end, three open internet safeguards remain essential. **First**, net neutrality rules should retain a core of absolute prohibitions on blocking, degradation and self-preferencing, as defined in the absolute layer, applying to every offer irrespective of consent or market conditions; proportionality governs the assessment of differentiation above those limits, not the limits themselves. **Second**, consumers should be empowered rather than merely protected: every consumer must have, by default, an application-agnostic internet access service – the anchor developed in Section 4.4 – and may opt into differentiated services only by explicit and revocable choice. **Third**, the framework should distinguish consumer protection from industrial innovation: bespoke connectivity services individually negotiated with business customers, including B2B network slices with contractually agreed quality parameters, are agreed between sophisticated parties who settle transparency, service levels and remedies contractually, and should be expressly excluded from the protective part of Article 93. Applying consumer-focused obligations to such services would constrain advanced connectivity in manufacturing, mobility, healthcare, logistics and energy without protecting anyone.

[101] "*Net neutrality regulation can also be seen as a form of (strict) access regulation that (restrictively) intervenes in pricing and product differentiation between telecom and service providers.*" See W. Briglauer, M. Köppl-Turyna, W. Schwarzbauer, G. Serentschy, Future of telecom and digital regulation, 2026, Telecommunications Policy, Volume 50, Issue 9.

[102] The competitiveness objective derives from a context in which "*the connectivity ecosystem is expanding*" and the regulation should "*foster innovation and effective cooperation among the broad range of players in the extended connectivity ecosystem*" (recital 16).

[103] Briglauer, W., Gugler, K., Cambini, C., & Stocker, V., Net neutrality and high-speed broadband networks: Evidence from OECD countries. European Journal of Law and Economics, 2023, 55(3), 533–571; Ford, G. S. Internet regulation and investment in the U.S. telecommunications industry. 2024, Applied Economics, 1–8. Hazlett, T. W., & Wright, J. D. The effect of regulation on broadband markets: Evaluating the empirical evidence in the FCC's 2015 "open internet" order, 2017, Review of Industrial Organization, 50(4), 487–507. The cross-country study codes "strict" regulation as a country-level indicator across OECD countries and its authors refrain from an overall welfare assessment; the US studies concern Title II classification. The evidence is indicative rather than conclusive as regards the provisions discussed here.

4.3. The Open Internet and the Subjects it Protects

Building a framework on proportionality, systemic perspective and effective consumer empowerment requires **identifying clearly the different subjects active in the internet ecosystem and the different roles they play** — which the original vision of a decentralised network collapsed into a single, relatively homogeneous category. There are (a(i) consumers who access and use information, content, services and applications; (a(ii) businesses which access and use them; (b) consumers who distribute information and content and (c) businesses which distribute and provide information, content, services and applications. There are also providers - typically the largest CAPs - that bypass substantial parts of the upstream connectivity chain by operating private backbones and deploying caches within ISP networks. That **heterogeneity matters because the guarantee rests on a protective rationale:**[104] access to content, and the ability to distribute content of one's own, are conditions for the exercise of freedom of expression and for participation in public discourse. The first question is therefore who holds the guarantee and in which capacity. The present framework answers it with a single notion.

Article 93 confers its rights on a single subject, the "end-user" – a user that does not itself provide public networks or publicly available electronic communications services[105] – and deliberately confers on that subject both the right to access and use content and applications and the right to provide and distribute them. This is functional to protect a consumer who uploads, streams or hosts content. The difficulty is different: the same formula also covers undertakings whose scale and delivery infrastructure place them in an entirely different position from the consumer, and the framework offers no criterion to distinguish them. Demand-side and supply-side rationales are thereby collapsed into one notion – a drafting choice inherited from 2015 that matters more now that the supply side has radically changed.

Accordingly, the distinction required is functional rather than subjective and should operate on both the demand and supply sides. On the demand side, the obligations that the guarantee generates rest on a protective rationale: the beneficiary takes the service as offered and lacks the ability to negotiate its terms. That describes consumers[106] and, by extension, microenterprises and not-for-profit organisations, to which the framework already extends certain consumer protections;[107] it does not describe an undertaking procuring bespoke, individually negotiated connectivity with the benefit of technical and legal resources. For the reasons given in Section 4.2, such bespoke B2B connectivity should be expressly excluded from the protective part.

On the supply side, the guarantee exists to keep the barriers to reaching end-users low. This rationale applies in full to providers dependent on a standard, publicly available IAS. It is hardly applicable to providers of sufficient scale to operate their own backbones, deploy in-house or on-net CDNs and caches, and interconnect directly with ISPs, while continuing to rely on ISPs' capital-intensive access networks to reach subscribers. However, the realities of today's digital ecosystem mean that internet

[104] The protective character of these rules is confirmed by their placement: in merging the OIR into the electronic communications framework, the European Commission situated them between the "universal service" and "end-users' rights" chapters.
[105] Article 2(17) and 2(16) DNA proposal.
[106] Article 2(18) DNA Proposal.
[107] Article 99 DNA Proposal.

openness, traffic flows and quality of experience may also be materially influenced by other actors, including providers of operating systems, cloud infrastructure, app ecosystems, CDNs, online platforms and content.

Accordingly, CAPs should not be defined solely by reference to the use of an IAS supplied by an ISP. The DNA should lay the ground for proportionate transparency and accountability obligations to all providers that materially affect internet openness, traffic management or users' access to digital services. This should cover relevant technical and content-delivery practices, including adaptive bitrate streaming, caching, compression and device-specific optimisation.

The guarantee should therefore comprise two complementary parts: a protective demand-side one for consumers and comparable non-negotiating users, and a supply-side transparency and accountability one covering IAS providers and other digital actors capable of materially influencing access, traffic flows or quality of experience.

The demand-side part must nonetheless extend to the distribution of user-generated content, since a consumer who uploads or streams is engaged in an activity that is formally supply-side but attracts the protective rationale in full. What distinguishes between the two parts is therefore not the direction of the traffic (the internet not being a one-way directional network), but the commercial character, the negotiating position and the scale of the activity.

4.4. Competition and Consumer Empowerment

The proportionality principle set out above has a direct corollary: **any shift towards more proportionate regulation must take account of the disciplining effect of competition**, which now bears on ISPs after decades of pro-competitive economic regulation. As BEREC itself observes, *"[o]verall, the EU telecom sector shows strong competitive dynamics, affordable prices, improving coverage and solid financial conditions, though performance varies among MS*".[108] Nonetheless, the regulatory philosophy underlying the OIR - and preserved by the DNA proposal - shares the logic of quality regulation in a monopolistic market or, in any event, in a market with very limited choice: it defines a minimum standard to protect end-users who could not otherwise escape a degradation of quality. Today, in most circumstances,[109] an ISP that blocked or degraded content or applications for its subscribers would be disciplined by those subscribers, who could switch to another provider.[110] Under a proportionate framing, competition would therefore not merely exert downward pressure on prices but would also generate quality competition in various forms - including unmanaged traffic, where that is what users want and value and companies are not forcefully steered toward a standard-quality service. [111]

The economic and legal literature have addressed the related question of whether a competitive IAS market renders net-neutrality rules, notably the prohibition of paid "fast lanes", redundant. It

[108] BEREC, Europe's Telecom Reality Check - Draft BEREC Fact finding report on connectivity, competition and regulatory highlights in different jurisdictions, 2026, BoR (26)36.
[109] The strength of this disciplining effect will, of course, vary according to several factors, including whether the market is fixed or mobile, local geographical conditions, the scale of the relevant operators and the degree of vertical integration.
[110] M. Cave-I. Vogelsang, Net Neutrality: An E.U./U.S. Comparison. Competition Policy International, 11(1), 2015, 85 ss.; regarding any possible coordination in this respect there are competition law instruments in place.
[111] Quality competition would also open a route away from the price-only competition to which the sector has increasingly been reduced – an outcome to which the current regulatory approach has plausibly contributed.

identifies a trade-off whose sign depends on market structure, congestion, the heterogeneity of content providers and the allocation of prioritisation fees. With competing platforms, departures from neutrality may raise investment in capacity, innovation in content and aggregate welfare;[112] neutrality, on the other hand, may protect innovation "at the edge" by smaller content providers and the entry of content that does not contribute to ISP revenues.[113] The literature does not support a general claim that competition among ISPs makes the rules redundant - but it definitely does support assessing differentiation by its effects rather than prohibiting it per se.

Therefore, existing competitive constraints may not on their own justify removing the prohibitions on unjustified blocking or degradation or exclusionary self-preferencing, which should remain absolute; but they do support assessing conduct that is not inherently incompatible with openness - particularly quality differentiation and commercial delivery arrangements. **To strengthen the disciplining effect of competition, consumers should be empowered - rather than merely protected** through defining a fixed-quality standard[114]– by having access to use cases involving differentiated traffic treatment where the customer wants them. **Every consumer should therefore continue to have access to an application-agnostic IAS**, combining agnostic treatment of traffic with transparency as to the quality parameters applicable under the contract, without turning best-effort IAS into a guaranteed-QoS product: the "anchor" developed in the recommendations below, whose quality is defined by the contractual parameters and by any minimum quality requirements that a national regulatory authority may impose under Article 94.1 DNA.[115]

This reasoning about consumer choice is already embedded in the current framework. Article 3(1) OIR allows end-users to choose their own terminal equipment[116] – a genuinely technical choice regarded as a "*fundamental element of net neutrality*". End-users who are trusted to choose a router or a device, choices that increasingly determine how traffic is handled, may equally be trusted to configure the treatment of their own traffic, if and only if they wish to.[117]

[112] M. Bourreau, F. Kourandi, T. Valletti, Net Neutrality with Competing Internet Platforms, Journal of Industrial Economics, 63(1), 2015, 30 ss., finding that investment in broadband capacity and innovation in services is both higher under a discriminatory regime and that total welfare is higher in the model. ISPs do not always benefit from a departure from neutrality, as multiple lanes can intensify competition; the welfare gain follows from intense competition among ISPs producing better prices for end-users, not from competition removing incentives to discriminate. The same model notes the risk that prioritisation encourages relative scarcity or disadvantages CAPs unable to purchase enhanced delivery.

[113] C. Reggiani, T. Valletti, Net neutrality and innovation at the core and at the edge, International Journal of Industrial Organization, 45, 2016, 16–27; H. Guo, R.F. Easley, Network Neutrality Versus Paid Prioritization: Analyzing the Impact on Content Innovation, Production and Operations Management, 25(7), 2016, 1261–1273.

[114] See A. Manganelli, Consumer protection: from fairness to efficiency, 2024, in CERRE, The future of European telecommunications: in-depth analysis.

[115] The anchor's quality parameters should in no case fall below the "adequate internet access service" determined under Article 87 DNA. That threshold, indexed to the bandwidth enjoyed by the majority of consumers and periodically revised, operates as an absolute minimum rather than as the measure of the anchor's quality, being calibrated to social inclusion rather than to the capability of the network on which the anchor is supplied.

[116] See BEREC, Report on the Location of the Network Termination Point, and BEREC, Guidelines on Common Approaches to the Identification of the Network Termination Point in different Network Topologies.

[117] It must be specified that the OIR is not premised on end-users being unable to choose; it is premised on the view that some features of openness should not depend on bilateral contracting, because they affect third parties. The framework proposed here accepts that premise – it is why the absolute layer is unconditional, and the anchor is the default – but draws a corollary that above and next to those, users should be empowered to choose, if they want.

4.5. Congestion and its Mitigation

Selecting terminal equipment and selecting traffic treatment are analytically distinct, even though device and operating-system choices may influence how traffic is subsequently handled. Network-level traffic treatment may also directly affect third parties and shared capacity. However, a strict net-neutrality regime also generates externalities on users of delay-sensitive applications,[118] preventing an optimal capacity allocation. These congestion externalities indicate the opportunity costs of inefficient infrastructure usage.[119] Under this viewpoint, traffic differentiation does not merely displace congestion[120] but efficiently reallocates it away from the traffic for which the marginal cost of delay is highest.[121] Against that background, the "anchor" is not merely a default option for less engaged users: the application-agnostic service becomes a binding constraint on the capacity that may be diverted to differentiated tiers, and it is this constraint that legitimises differentiation next to it.[122]

Nevertheless, the **OIR's congestion exceptions are addressed to ISPs alone and presume that recurrent congestion is to be resolved by ISPs through capacity expansion, while at the same time strongly limiting their ability to allocate capacity**. Current rules limit traffic management to impending, exceptional or temporary congestion, where "*recurrent and more long-lasting network congestion … should rather be tackled through expansion of network capacity*" (OIR recital 15). The AGCOM/DAZN case illustrates the limits of that framing[123]: the NRA required DAZN to install equipment in ISPs' networks in order to handle its own live-streaming traffic but could not ground that order in the net-neutrality rules and had instead to proceed by requiring DAZN to obtain a general authorisation and by imposing investment obligations on it.[124]

Article 93.3(c) of the DNA proposal reproduces that limitation. Nonetheless, the proposal does not reproduce recital 15 – while recital 403, which concerns traffic handover arrangements, states that such arrangements "*should not lead to disproportionate or economically unsustainable investment*

[118] Under strict net neutrality the network operates as an "unmanaged common-property" resource: CAPs determine traffic volumes and congestion-control techniques so as to minimise their own delay while disregarding the effect on aggregate congestion, which produces "traffic inflation" and an inefficient allocation of capacity between delay-sensitive and delay-insensitive traffic. See M. Peitz, F. Schuett, Net neutrality and inflation of traffic, 2016, International Journal of Industrial Organization, 46.

[119] See V. Stocker, G. Knieps, Network neutrality through the lens of network economics, 2019, Review of Network Economics, 17(3). The relevant benchmark is therefore not a congestion-free scenario, which would entail an inefficient over-provisioning of capacity, but a socially optimal level of congestion.

[120] M. Bourreau, F. Kourandi, T. Valletti, cit.

[121] J. Krämer, L. Wiewiorra, Network neutrality and congestion sensitive content providers: implications for content variety, broadband investment, and regulation, 2012, Information Systems Research, 23(4).

[122] That function rests on the quality limb: the anchor may not be degraded in absolute terms and should improve in line with the provider's network upgrades, so that capacity devoted to differentiated tiers comes from expansion rather than from the baseline. This addresses a specific risk identified in the literature, namely that an ISP permitted to prioritise may invest less in capacity, since relative scarcity raises content providers' willingness to pay for priority. See also, for a monopoly scenario, J.P. Choi, B.-C. Kim, Net neutrality and investment incentives, RAND Journal of Economics, 41(3), 2010, 446–471.

[123] DAZN is a global OTT sports streaming service holding "Serie A" football broadcasting rights in Italy. The problem was that DAZN streaming experienced severe technical blackouts and stream freezing, which stopped millions of users from watching live Serie A football matches.

[124] AGCOM decision no. 206/21/CONS. The decision required DAZN to provide and install caches of its own CDN within the networks of the principal alternative operators, in a number proportionate to each operator's market share, in order to prevent congestion and to secure the technical and economic sustainability of live-streaming traffic growth. The regulator had to reach for the general authorisation regime to achieve an outcome that an effects-based open-internet provision would have delivered by setting the correct framing for balanced negotiation between the parties.

needs for network providers". The recital has no operative counterpart,[125] however it is a substantial step in the right direction, since it recognises that traffic handover has both technical and economic dimensions/effects and that congestion mitigation does not presume capacity expansion by ISPs to be always the least-costly or most proportionate option.

The amendment proposed here rests on that rationale, but it is justified on its own merits: where recurrent congestion is attributable to identifiable and foreseeable traffic patterns, transparent, category-based traffic management should remain available for a defined period, under NRA supervision. At the same time, a mitigation strategy should be settled on one or both sides of the interface (e.g., capacity expansion, traffic handover, caching or CDN placement, capacity reservation, cost allocation or application-side adaptation) – provided the "anchor" is maintained at its contractual quality.

4.6. The ISP-CAP Relationships

The strongest disciplining effect of competition, as described above, is in respect of "must-have" content, i.e., content, services and applications supplied by very large technology companies and gatekeepers that hold significant market power, such as Google Search, YouTube, Netflix, Meta Services (Facebook, Instagram, WhatsApp, Facebook Messenger) and Amazon Prime. Any failure to reach agreement, and the resulting absence or lower quality of must-have content on a given network, would prompt large numbers of end-users to switch away from that ISP: the outcome is that, despite the ISP's "termination bottleneck", very large CAPs enjoy substantial countervailing bargaining power, which materially constrains the market power of ISPs and their ability to exploit it.[126]

The equal-treatment obligation is addressed to ISPs because of their technical position: all traffic to and from a subscriber transits the access network they control. CAPs are a broad category – application developers, publishers, e-commerce sites – and just being a CAP does not *per se* imply power over an ISP. Yet, no obligation prevents very large CAPs, supplying must-have content and/or holding a gatekeeping position, from discriminating between networks and nothing in the framework limits their conduct vis-à-vis ISPs.[127] They may presently have no incentive to do so. In a prospective scenario such incentives could arise from the extension of the value chain, the entry and vertical

[125] Since it is referred to Articles 191–193 establishing BEREC guidelines and a voluntary, non-binding conciliation facility, not a standard or a remedy. This conciliation mechanism, far from being a "fair share" tool, is designed as a soft instrument to manage and coordinate the "*increased interaction, cooperation and commercial agreements among a broad range of undertakings"* (recital 402).

[126] Countervailing power is not uniform across CAPs or transactions. It depends, inter alia, on the indispensability of the content or service, the CAP's scale and multi-homing position, the availability of alternative delivery routes, the ISP's subscriber base and geographic reach, and the parties' respective ability to withstand interruption. The relevant proposition is therefore not that CAPs generally possess greater bargaining power than ISPs, but that the current framework cannot safely presume the opposite in every transaction. See BEREC, Report on the IP Interconnection Ecosystem, BoR (24) 177, 5 December 2024, ch. 7, pp. 35–36.

[127] ISPs are not business users of digital platforms, with the consequence that the P2B Regulation does not reach the ISP–CAP relationship at all. Likewise, the DMA touches it only obliquely: Article 6(6) protects the end-user's freedom to choose an internet access service against technical or other restriction by a gatekeeper, and Article 6(5) addresses self-preferencing only in ranking, indexing and crawling within the gatekeeper's own core platform service. Neither provision governs the terms on which traffic is handed over, delivered or paid for between a CAP and a network operator. That relationship remains regulated exclusively, and asymmetrically, by the open-internet rules.

integration of large CAPs into electronic communications markets, and the transformation of CAP–ISP interactions from complements to substitutes.[128]

Bargaining power that differs between parties is not, of itself, a market failure and does not in principle call for intervention. The argument advanced here is not for additional intervention but for the modification of one already in place: current rules prevent certain transactions between ISPs and CAPs from taking place at all, including transactions that may be efficiency- and welfare-enhancing, and they do so without any examination of effects. [129]

In a policy context in which the role and interplay between very large CAPs, end-users and business users are being reconsidered, it is difficult to justify leaving unexamined the rules governing the principal relationship between them in the digital networks ecosystem.

4.7. Substitutability and the Scope of the Open Internet Rules

Relationships between ISPs and CAPs are becoming increasingly complex, and **the uneven regulatory playing field more apparent where CAPs may play a role in routing traffic and in determining the quality of experience of end-users**. This may call for a rethinking of the scope of the open-internet rules.

The open-internet objective has always been broader than traffic-management obligations on ISPs.[130] It can reach other actors in the ecosystem, even if it has only ever been enforced against ISPs.

CDNs may illustrate the point.[131] They permit service differentiation by managing traffic across private networks and hosting content as close to the end-user as possible, so as to secure defined quality levels.[132] From the standpoint of user experience, these mechanisms operate as "technological substitutes" for ISP traffic management, delivering higher perceived quality.[133] Whether a large CAP "buys" delivery from a commercial CDN or "makes" it in-house through vertical integration, the arrangement is, from the standpoint of end-user experience, a functional substitute for prioritisation, although no traffic is prioritised at the network layer and it therefore falls outside the OIR. [134]

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[128] See BEREC, Report on the entry of large content and application providers into the markets for electronic communications networks and services, BoR (24) 139.

[129] We do not provide empirical evidence that foregone transactions would be welfare-improving; indeed, the claim is more limited, yet important: a per se rule may foreclose a class of transactions whose effects are never examined, and this indirectly shapes the negotiating position of network operators vis-à-vis very large CAPs. It also prevents ISPs from operating two-sided business models, whereas many CAPs monetise both end-users and advertisers or business customers. BEREC, BoR (24) 177, cit., chapter 7. Whether the gains from permitted transactions reach end-users and smaller CAPs is a distributional question, addressed by the conditions attached to Flexible Layer (B) below.

[130] See OIR Recitals 1 and 3.

[131] A Content Delivery Network (CDN) is a network optimised for content distribution, improving the performance of internet access. CAPs are the principal customers of commercial CDN providers, but the largest have invested heavily in in-house CDNs, and several - Amazon, Alibaba, Google, Microsoft - also operate CDNs commercially.

[132] V. Stocker, G. Smaragdakis, W. Lehr, S. Bauer, The Growing Complexity of Content Delivery Networks: Challenges and Implications for the Internet Ecosystem, 2017, Telecommunications Policy, 41(10). However, on-net CDNs cooperatively reduce capacity costs for ISPs by locating content closer to end-users.

[133] W. Briglauer, Efficiency and Effectiveness of Net Neutrality Rules in the Mobile Sector: Relevant Developments and State of the Empirical Literature, 2024, in wu.ac.at.

[134] T. Garrett, L.E. Setenareski, L.M. Peres, L.C.E. Bona, E.P. Duarte, A survey of network neutrality regulations worldwide, 2022, Computer Law & Security Review, 44.

Regulators have consistently treated CDNs as pro-consumer deployments – and, generally speaking, they are: on-net caches relieve ISPs' backbones as much as they improve users' experience. What has escaped scrutiny is the asymmetry that such deployments create at two levels: (i) between ISPs and CAPs, in the negotiation over the terms on which on-net caches are installed in the ISP's network; and (ii) among CAPs, between those whose traffic is delivered from on-net caches – whether through a proprietary CDN or a third-party CDN with on-net presence – and those whose traffic is not.

The first aspect falls into the points discussed in the previous section. As for the second, a CAP large enough to build its own CDN, negotiate on-net cache placement or run a private backbone obtains guaranteed delivery quality lawfully, while the prohibition on paid prioritisation, justified as protecting smaller CAPs from being outbid, channels quality differentiation into precisely the form only large CAPs can access.[135] **Rules confined to the access layer do not necessarily achieve neutrality but tend instead to relocate differentiation to where regulation does not capture it**. This diagnosis justifies **making the delivery layer visible to regulators and keeping the perimeter of the rules under review**.[136]

The DNA itself supplies the starting point: Article 9(2) extends the general authorisation to networks used wholly or mainly to provide information society services to the public – a category whose relationship with the definition of electronic communications network BEREC has asked to be clarified.[137] Once clarified, that category identifies the actors whose routing and delivery practices – private backbones, on-net CDNs, caching – shape the quality experienced by end-users, and to which proportionate transparency obligations and NRA information powers under Article 94 can attach.

Two further developments point the same way. First, operating systems and device ecosystems increasingly mediate traffic treatment – relay services, DNS resolution and, with 5G, the selection of network slices – so that a device or OS provider can constrain users' ability to choose their connectivity or to benefit from a slice their ISP offers.[138] Second, generative-AI agents are becoming a new gateway to content and services, capable of steering users towards providers with which the AI service has commercial agreements – the concern that motivated non-discrimination at the access layer, reproduced at the application layer.[139] **Whether a principle of non-interference with open internet access should eventually be extended to such actors is a question for the review of the open internet provisions.** [140]

[135] S. Greenstein, M. Peitz, T. Valletti, Net Neutrality: A Fast Lane to Understanding the Trade-Offs, 2016, Journal of Economic Perspectives, 30(2), 127–150.

[136] In this regard, a related difficulty of terminological coordination arises between the notion of CAPs used in Article 93 and that of information society services in Article 9.

[137] BEREC, Early assessment of the Digital Networks Act, BoR (26) 52, March 2026. A related difficulty of terminological coordination arises between the notion of CAPs used in Article 93 and that of information society services in Article 9.

[138] BEREC, Report on the Internet Ecosystem, BoR (22) 167, December 2022; BEREC, BoR (26) 84, cit., on the role of the device in slice selection.

[139] Arcep, Do generative AIs threaten the future of the internet?, January 2026.

[140] The Draft Opinion of the IMCO Committee of 11 June 2026 on the DNA proposal, 2026/0013(COD), moves in a related direction, although it addresses a different class of actors and is drafted as a prohibition rather than as a transparency obligation: Amendment 36 would insert a new Article 93(-1): "*All providers of content, applications, and services that affect traffic management shall not interfere with, degrade, restrict, or discriminate against open access to the internet*."

4.8. Quality Differentiation, Specialised Services and Uncertainty of Current Rules

Reform should widen the space for quality differentiation, on both sides of the market.

On the supply side, it allows operators to exploit capabilities already built into the network and to escape a competitive dynamic reduced largely to price, with its documented consequences of commoditisation and weak returns on capital. On the demand side, it enlarges the menu available to consumers, matching offers to heterogeneous preferences rather than to an assumed average user.

Flexibility is therefore not a concession to industry but a precondition for the bespoke, dynamic services that generate innovation, consumer welfare and, indirectly, the cash flows that finance investment. The technological driver is 5G, and particularly 5G Standalone, which is in substance about differentiating quality of service and experience - and whose deployment the European Commission's own impact assessment finds lagging: "*most European users experience 5G mainly as faster 4G, without the full benefits of 5G SA*".[141] Network slicing[142] - the architectural expression of that logic - sits uneasily with the best-effort premise of the current framework[143] built on the assumption that "*all data packets on the Internet should be treated equally*"[144] and that every deviation which is not application-agnostic requires justification. The point is not that slicing is unlawful, but that the framework still treats as a narrowly defined exception what technological evolution has made quality-improving and welfare-enhancing.

Existing rules already formally accommodate differentiation through "specialised services" – in the words of Article 93.5, services "optimised" for specific content or applications – and BEREC's recent draft guidance[145] argues persuasively that they can be interpreted consistently with technological development;[146] in addition, recent national case law points the same way.[147] The difficulty lies less in the evolution of that reasoning than in the instrument delivering it, yet also in the provision it interprets.

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[141] SWD(2026) 13 final, Part 1/3, p. 158; see also p. 157: the framework "did not deliver on the mass deployment of advanced wireless infrastructures and services, like 5G SA or advanced industrial and IoT services".

[142] A single physical infrastructure is partitioned into logically separate networks, each with distinct transmission conditions guaranteeing data rate, latency, jitter and packet loss. Slicing improves utilisation while enabling application-specific quality; with dynamic slicing and network APIs it adds a temporal dimension, whereby slices may be created, scaled or terminated in real time and QoS may be requested per session.

[143] C. Yoo, Network slicing and net neutrality, in Telecommunications Policy, 48(2), 2024.

[144] T. Wu, Network Neutrality, Broadband Discrimination, in J. on Telecomm. & High Tech, 2, 2003, L. 141.

[145] BEREC Draft Further Guidance on 5G Network Slicing - Annex to the BEREC Guidelines on the implementation of the Open Internet Regulation, BoR (26) 84.

[146] The draft guidance confirms that multiple slice-based IAS tiers with different QoS levels are permissible under Article 3(2), that a single subscription may carry several QoS levels at differentiated prices, and — most significantly — that where more than one level is offered, "application-agnostic" means any application may request any available level, the choice resting "exclusively with the end-user". In assessing "sufficient capacity" and "no detriment", BEREC now reasons that competition gives providers the incentive to supply additional capacity: an argument from competitive discipline that the letter of the provision does not itself contain.

[147] Cologne Higher Regional Court, 6 UKl 1/25, judgment of 19 December 2025, upholding a consumer-facing slicing product (a low-latency 5G SA slice with L4S, activated only when a compatible cloud-gaming application launches) as a lawful specialised service under Article 3(5): it suffices that optimisation be objectively necessary to achieve a given quality level, not that it be necessary for the service to exist, and no public-interest purpose is required. The court declined to allow an appeal on a point of law or to refer the question to the Court of Justice, so another national court remains free to read the criterion differently.

First, the **BEREC slicing guidance is an annex subordinate to soft-law guidelines, which do not bind courts and may be disapplied by national authorities** - a risk that grows the further the guidance stretches the letter of the provisions. The zero-rating cases are conclusive in this regard: an effects-based approach developed in soft law and applied in national practice was displaced by judicial reading of the legislative text, which is precisely why the reform proposed here must operate at legislative level. [148]

Second, the BEREC **guidance preserves the hierarchy that generates the problem**: specialised services remain an exception to provision via IAS, and operators must positively demonstrate, by self-assessment without ex ante clearance, that the required quality cannot be delivered through standard or differentiated internet access.[149] The guidance rightly leaves capacity planning to operators; but the burden of proof and the risk of a divergent reading by a court or another NRA remain with the operator, and a self-assessment that may be second-guessed years later is a weak basis for capital-intensive services.

Third, and most striking from an **investment perspective, a service may cease to qualify as specialised as general IAS quality improves**, leaving the operator only a reasonable transitional period. A legal basis designed to erode as the network improves is a fragile foundation for capital-intensive service development. The answer proposed below is to make it predictable.

This is also why Article 93.6 matters. The introduction of a **European Commission implementing power is welcome but may not be sufficient**. The instrument is well chosen: an act adopted under the examination procedure associates Member States more closely with the outcome and, though challengeable, becomes binding on national regulators and courts once upheld – which is precisely what soft law cannot achieve.

Yet, its content matters more: it should **state the conditions for optimised services positively – optimisation should be permitted where, under normal network operation, the objective quality requirements of the application, having regard to the legitimate expectations of its users, justify dedicated or optimised treatment,** rather than negatively, as a derogation from a best-effort default whose scope contracts automatically as networks improve.

Pending the DNA, legal certainty for slicing-based services should come from the finalisation of BEREC's guidance and from a European Commission's endorsement of its reading, or through a Recommendation. Once the DNA is adopted, the implementing act should follow within a fixed deadline – e.g., three months from entry into force appears realistic for an act adopted under the examination procedure after consulting BEREC. Should the legislator go further and remove the necessity condition from Article 93.5 altogether, the remaining conditions – sufficient capacity, no replacement of internet access and no detriment to its general quality – would carry the whole weight of the safeguard, which is a further reason for the anchor and for the monitoring proposed below.

[148] BEREC's Guidelines had established a case-by-case, effects-based framework for zero-rating. The Court of Justice held instead that Article 3(3) imposes a general obligation of equal treatment requiring no assessment of effects on end-user rights or competition: C-807/18 and C-39/19, Telenor Magyarország, § 52; C-854/19, Vodafone, § 28; C-5/20, Vodafone, § 24; C-34/20, Deutsche Telekom, § 52. BEREC then extended the prohibition to differentiated pricing generally (BoR (22) 81).
[149] This is precisely the mechanism through which uncertainty becomes a chilling effect on deployment, as the European Commission's own impact assessment acknowledges. See SWD(2026) 13 final, Part 1/3.

4.9. Recommendations for Improving the DNA Open Internet Provisions

The purpose of the reform proposed here is neither to abandon the open internet nor to treat all forms of differentiation as harmless. It is to **separate conduct inherently incompatible with openness from differentiation that may improve quality, choice and investment when appropriately framed**. The proposals below follow from the preceding analysis and are organised in the three layers introduced in Section 4.1 and illustrated in Figure 1. They are designed to be severable – the absolute layer and the anchor stand on their own. Taken together, they replace one per se rule with a small number of bright-line prohibitions, one default product and one conditioned, notified permission; they are not intended to multiply case-by-case assessments.

Scope, Definitions and other Horizontal issues

Rights-holders: Keep the "end-user" as the holder of the rights in Article 93.1, including the right to access and distribute user-generated content, and **add an express exclusion for bespoke, individually negotiated business connectivity services from the protective obligations of Article 93,** modelled on Article 99 DNA, and including optimised services and network slices with contractually agreed QoS parameters supplied to business customers. Where an assessment of effects is required (Flexible Layer B, Article 94), NRAs should have regard to **whether the CAP concerned depends on a publicly available IAS to reach end-users or controls its own delivery infrastructure**.

Addressees: Clarify the category delimited by Article 9(2) – networks used wholly or mainly to provide information society services to the public – and the **NRA information powers of Article 94 as regards their routing and delivery practices that affect the quality experienced by end-users**, together with a **review clause requiring the European Commission to assess, on that evidence, whether a principle of non-interference with open internet access should be extended to providers of delivery infrastructure, operating systems and AI-based intermediaries**.

Reporting under Article 94 should remain proportionate: the common template adopted under Article 94.4 should avoid duplication with Annexes III and IV, and the information collected should serve the monitoring of the anchor and of the delivery layer described above rather than add recurring burdens without a clear use.

Mobile vs Fixed Flexibility: The case for flexibility is strongest where capacity is scarce, and that constraint is most acute in mobile networks, where the traffic carried by a radio cell varies with the number of active end-users and cannot be planned as fixed-line capacity can.[150] Mobile is also the segment in which competition is most likely to discipline conduct,[151] and comparative practice has

[150] With limited capacity, prioritised delivery complements content providers' investment in quality and can enable the entry of congestion-sensitive applications, whereas in high-capacity fixed networks prioritisation and quality investment tend to be substitutes: J.P. Choi, D.-S. Jeon, B.-C. Kim, Asymmetric Neutrality Regulation and Innovation at the Edges: Fixed vs. Mobile Networks, CESifo Working Paper No. 4974, 2014, who contrast the FCC's asymmetric treatment of mobile with the uniform European approach.

[151] Four mobile network operators, alongside several MVNOs, are present in the vast majority of Member States: SWD(2026) 13 final, Part 1/3, p. 190.

drawn the same distinction.[152] Technology neutrality[153] counsels against a formal mobile-only regime, which would also invite arbitrage at the fixed–mobile boundary (fixed wireless access, converged offers). The appropriate route may be the one Article 3.2(e) DNA already indicates, in requiring regulators to take due account of "*the variety of conditions relating to infrastructure, competition, the circumstances of end-users and, in particular, consumers in the various geographic areas within a Member State*".

Coordination with audiovisual media law. Article 93 should be without prejudice to measures adopted under Article 7a AVMSD and national law on the prominence of audiovisual media services of general interest. [154]

Absolute Layer

Absolute prohibitions. Retain, irrespective of consent, commercial justification or market conditions, the prohibitions on:

(i) **Blocking:** rendering specific content, applications, services or end-points unreachable or effectively unusable via the internet access service, by technical or contractual means, save as permitted by Article 93.3(a)–(c);

(ii) **Deliberate degradation:** impairing the transmission of specific content, applications, services or providers selected by reference to their identity otherwise than by the end-user, or providing any internet access service persistently below the quality stated in its contract or required under Article 94.1; a difference in performance relative to enhanced traffic, the disclosed characteristics of an application-agnostic subscription, reasonable traffic management are not degradation;

(iii) **ISP self-preferencing:** granting content, applications or services of the ISP a treatment that is not available on equivalent standard terms to comparable third-party CAPs;

(iv) **Substitution:** offering or using optimised services as a replacement for internet access, where a limited-purpose optimised service is not a replacement merely because it is purchased instead of a faster internet access service. These prohibitions apply to every offer, whether the anchor or a differentiated one, and cannot be contracted out of.

These prohibitions apply to every offer, whether the anchor or a differentiated one, and cannot be contracted out of; they give operative content to the Declaration's commitment that content and applications are not "unjustifiably blocked or degraded".

The equal-treatment obligation of Article 93.3 and its closed list of exceptions, as amended below, remain the rule within the guaranteed layer.

[152] The FCC's 2010 Open Internet Order applied its no-unreasonable-discrimination rule to fixed broadband only and a narrower no-blocking rule to mobile, citing the capacity constraints, rapid evolution and competitive structure of mobile broadband: FCC, Preserving the Open Internet, Report and Order, FCC 10-201, 23 December 2010, paras 94–104. The distinction was abandoned in the 2015 Order, and the federal rules have since lapsed.

[153] Article 3.2(d) DNA.

[154] Recital 6 DNA reserves media-pluralism measures to content law and calls on competent authorities to contribute "within the limits of their competences"; the clause proposed here operates within those limits and does not import national designations into the substantive obligations of Article 93.

Guaranteed Layer: The Anchor Product

Every provider must include in its retail portfolio, and every consumer must be offered by default, an application-agnostic IAS (the "*anchor*") that: (i) does not discriminate by individual content, application or CAP identity, all traffic within the subscription receiving equivalent treatment; (ii) meets the quality parameters stated in the contract under Article 95 and Annex III and any requirement that NRAs may impose under Article 94.1 – without turning best-effort IAS into a guaranteed-QoS product; (iii) gives access to all content and applications; (iv) is selectable and restorable at any time without unreasonable switching cost, delay or penalty; (v) is not deliberately degraded, nor priced-up or designed so as to push users towards differentiated offers.

The anchor is the default: moving to a differentiated offer requires a choice that is informed, specific and revocable, and the anchor remains available to return to. Beyond its protective function, it performs the two structural roles established above — constraining the capacity divertible to differentiated tiers (Section 4.5) and operating as a floor on ISP–CAP bargaining (Section 4.6).

NRAs should monitor under Article 94 the availability, take-up, measured quality and relative pricing of anchor offers – for instance the share of subscribers on the anchor, the evolution of its measured quality relative to the provider's network upgrades and the price gap with differentiated offers of comparable capacity – and may use Article 94.1 where the anchor is becoming a residual tier.

The three amendments that follow, i.e., treatment of congestion, specialised services, and implementing powers, modify the rules that govern every internet access service, including the anchor.

Treatment of Congestion: Amend Article 93.3(c) so that **capacity expansion is not the sole admissible response to recurrent congestion**. Where such congestion is attributable to identifiable and foreseeable traffic patterns, transparent, category-based traffic management, notified to the NRA, should remain available for a defined period on the terms set out in Section 4.5: not selective between comparable CAPs absent objective justification, and, more generally, within the limits set by the Absolute Layer.

Specialised services should be defined positively, on the test stated in Section 4.8: optimisation should be permitted where, under normal network operation, the objective quality requirements of an application, having regard to the legitimate expectations of its users, justify dedicated or optimised treatment. The **legal definition should clarify** that (i) optimisation need not be indispensable to the application's existence; (ii) no public-interest purpose is required; and (iii) sharing capacity with internet access is not in itself detrimental, the sole criterion being whether the general quality of internet access is maintained. Correlatively, **the reassessment of a service's classification as general IAS quality improves should be made predictable**: it should take place at fixed intervals, with a guaranteed transition period of no less than three years. A service that ceases to qualify as specialised may thereafter be offered under Flexible Layer (B), which is designed to accommodate it.

European Commission's implementing power (at Article 93.6) should be conditioned on: (i) a positive statement of specialised services' conditions; (ii) clarification rather than exhaustive enumeration; (iii) technological neutrality; (iv) adoption within three months of the entry into force of the DNA after consulting BEREC; (v) periodic review and stakeholder consultation.

Flexible Layer (A): Consumer-Selected Differentiation

Expressly permit, in ascending order of required safeguards and departure from current approach[155] – all selected by the consumer as alternative to the "anchor":

- **Subscription-level differentiation**: subscriptions with different speed, latency, or other service parameters, provided that within each subscription the same treatment is available to all content, applications and services, subject to the network resources dynamically available at the point of access and without requiring uniform technical parameters to be maintained across the network.

- **In-subscription differentiation**: add-ons, time-limited QoS boosts, latency or reliability enhancements and treatment of objectively defined traffic categories, on transparent and non-discriminatory terms. Where several QoS levels are available, the choice of which application uses which level rests with the end-user and equivalent traffic within a category is treated equally.

- **End-user-assigned and content-specific differentiation**: where several quality levels are available, the assignment of applications or categories of applications to each level rests with the end-user through an explicit, revocable configuration. Content-specific premium treatment proposed by the provider is permitted only where it results from the same explicit and revocable choice and is open to any content or application provider, so that it does not become a closed list negotiated with a few CAPs.[156]

Flexible Layer (B): ISP–CAP Delivery Agreements

Permit content-specific ISP–CAP quality agreements for traffic delivered over internet access only where the following cumulative conditions are met:

(i) Consumers retain the anchor and non-participating traffic is neither unjustifiably blocked nor degraded within the meaning of the Absolute Layer;

(ii) The enhanced treatment is offered on standard terms and open to any content or application provider and does not result in unjustified discrimination between comparable CAPs, having regard in particular to the position of smaller and emerging CAPs;

(iii) The differentiation and its commercial character are disclosed to end-users, and the agreement is notified to the NRA;

(iv) Where the individual subscription is affected, the end-user's selection is explicit and revocable. The anchor operates as a floor on the bargaining itself: the ISP, as well as very large CAPs with SMP or must-have contents, may not use interruption or withholding of delivery as leverage (Section 4.6).

Because this permission limits the equal-treatment rule in Article 93.1, it is proposed as a legislative amendment, justified by the objectives of Article 3 DNA and confined to what those conditions make

[155] The first two tiers may already be lawful under BEREC's slicing guidance: codifying them adds certainty at low cost.

[156] This clearly departs from the current per se construction of Article 93.3 and is justified on the terms set out for Flexible Layer (B).

necessary[157]. Its administrability rests on standard terms and notification rather than on case-by-case assessments.

[157] The OIR "respects the fundamental rights and observes the principles recognised in particular by the Charter" (recital 33), and Article 93.3 is the provision through which the framework gives effect to the freedom of expression and information (Article 11) alongside the freedom to conduct a business (Article 16). A legislative limitation of that rule must therefore satisfy Article 52(1) of the Charter: provided for by law, respectful of the essence of the right – which the Absolute Layer and the anchor secure – and proportionate to the objectives of Article 3 DNA. The conditions above are drafted to meet that test.

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