Towards an EU Connectivity Union

Vodafone's response to the European Commission's White Paper

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Section 1 – Introduction

In February 2024 the European Commission published its White Paper (WP) "*How to master Europe's digital infrastructure needs?*" for public consultation until 30 June 2024. This consultation aims to lay the foundation for the next Commission's legislative agenda for the telecommunications sector and to identify the main policy reforms needed to improve the investment climate and the structural market conditions necessary to achieve the EU's digital objectives.

We are **encouraged** by the WP with the Commission having **rightly identified** several of the **key problems** that need solving.

In particular, the Commission highlights that the current policy mindset has led to **excessive fragmentation**, **excessive costs** borne by the telco sector, and an **asymmetric treatment** of players in the ecosystem. This has ultimately led to the EU's significant investment gap, undermined the EU's ability to attract more investments and led to the EU falling behind especially on 5G – all of which have meant that the EU is facing a serious **competitive disadvantage globally.** As a result, the **achievement** of the **Digital Decade targets is now at serious risk**, with major implications for the twin digital and green transition and the underpinned opportunities.

We welcome that the WP and the complementary European Council report from Enrico Letta ("Letta report", which was issued in April) set out to address these issues and to help **restore confidence** for investments in Europe's digital infrastructure.

In particular, we welcome the thinking behind the **12 scenarios** proposed in the Commission's WP under the three pillars of:

- Pillar I: Creating the "3C Network" – "Connected Collaborative Computing".
- Pillar II: Completing the Digital Single Market.
- Pillar III: Secure and Resilient Digital Infrastructures for Europe.

At the same time, however, we are convinced that these 12 scenarios only **partially provide solutions** to the problems identified, **fail to address certain issues** that we see as critical to the future of the sector, as well as **fall short in injecting the right sense of urgency**. To be clear, we are convinced that more and bolder steps will be required to turn the EU around from its current laggard position. Also, in our view, Europe is rapidly running out of time.

With this in mind, and with the Commission WP and the Letta report as background, we herein set out our call for a **European Connectivity Union**, embodying our policy **vision for the future of the digital communication sector** and expanding on the more comprehensive and concrete **actions** that will be required to achieve it. The paper is structured as follows:

- Section 2: Overview: A call for a European Connectivity Union.
- Section 3: Vodafone's assessment of the Commission WP.
- Section 4: Vodafone's assessment of Enrico Letta's 'Much More than a Market' Report.
- Section 5: Vodafone's proposals on the policy priorities for adoption by the next Commission.
- Section 6: Vodafone's response to the 12 scenarios outlined in the Commission White Paper.

Section 2 – Towards a European Connectivity Union

This paper sets out an **urgent call to action** given the unique set of multiple challenges that the European digital infrastructure sector faces: i) the large **investment gap** jeopardising the EU's digital transformation due to its poor investment climate; ii) the **lack of a functioning Digital Single Market** – and the associated scale benefits - due to fragmentation both of rules between EU Member States and within different parts of the digital ecosystem; and iii) the excessive **innovation by permission** approach which has led to the EU being a significant net importer of innovative and technological solutions that come to market.

In the last five years, the EU has worked admirably to set the ground rules on non-infrastructure related parts of the digital ecosystem, taking a lead in regulation of digital platforms to ensure fairness and contestability in digital markets and protect European citizens from exposure to illegal and harmful content (Digital Markets and Digital Services Act). The EU has also led in the regulation of emerging technologies via the introduction of the world's first comprehensive rulebook for Artificial Intelligence (AI Act) and new rules to unleash the potential of the data economy through enhanced sharing and reuse of data (Data Act). We have supported all such initiatives.

However, in sharp contrast, the EU has not adequately focused on addressing the **fundamental problems regarding digital infrastructure** which it is facing and that has been become all the more acute in the last few years. This is not to say that the EU intentionally caused these problems, but it certainly has not done enough to alleviate them, including during the latest EU Commission term from 2019-2024.

As a result, the **EU is lagging other regions** from in terms of connectivity and technology, leading to an economic deficit and reduced competitiveness. In this regard, the WP clearly identifies areas of disparity, and provides evidence showing that the EU is falling behind in the deployment of advanced network infrastructure, in particular 5G standalone. There are also worrying signs on the forestalled development of technologies needed for the digital transformation of Europe, such as IoT, AI, Open RAN, and network slicing, that will rely on high quality network infrastructure.

The root cause of this poor economic and technology position in part stems from the deficient investment climate for telecoms in the EU. European telecoms operators (telcos) are unable to generate sufficient returns on investment, with **returns below the cost of capital for more than a decade**, leading to persistent supressed investment levels compared to other countries and regions. Average EU telco capex per capita is under half that of other comparable economies, such as Australia, the US, or Japan.[1] The picture is similar when telcos are compared to other European sectors. In real terms the telecoms sector has shrunk with sector-specific inflation hovering around 0% between November 2020 and October 2023, compared to inflation of around 20% for the EU economy as a whole. As the still relatively young mobile industry moves into its fifth generation, it is clear that the economics of the sector has failed to keep up with the pace of technological change and that this is a particularly pronounced problem in Europe.

Improving the quality of Europe's digital infrastructure is critical for the economy and society. Therefore, we very much welcome the WP recognition that "*The future competitiveness of all sectors of Europe's economy depends on advanced digital network infrastructures and services, as they form the basis for global GDP growth between EUR 1 and 2 trillion and the digital and green transition of our society and economy.*"

[1] Omidia Capex Tracker for period 2020 – 2022

Indeed, **connectivity and digitalisation are potent force multipliers** for every part of the economy and society, boosting innovation, raising industrial productivity, and improving public services. For example, modern connectivity is expected to[2]:

- Drive enormous productivity gains and enable innovation in our **manufacturing industries.**
- Enhance **SME's** competitiveness and revenues.
- Bring considerable efficiencies to an ever-demanding **European healthcare system.**
- Offer solutions which directly contribute to the **green transition.**
- Improve the economic and social opportunities in **Europe's rural areas.**
- Give consumers more value for money and allow for the **improvement of EU's digital skills.**

These benefits will be particularly pronounced by the deployment of in 5G networks, and in particular **5G standalone. 5G standalone, the first truly 'cloud native' network**, will unlock significant potential for the development of critical new service capabilities for customers, given its ability to i) handle **increasing volumes** of data ii) support **high-quality and low-latency** sensitive services; iii) **integrate intelligence (AI) in the network** and with the intelligence in devices; iv) and thereby create a more **symbiotic relationship between content, connectivity and the plethora of connected devices** that will be supported.

5G standalone also represents a **step change in transforming the communications networks** to be not just for people, but for devices and machines, thereby **propelling a new era of productivity growth** and industrial transformation, so-called **industrial internet**. For instance, 5G standalone can support one million devices per square kilometre, compared to only 2,000 with 4G. This ever-growing number of connected sensors and devices will, in turn, generate exponentially greater quantities of data within and across various sectors of the economy. From this, various AI tools can generate valuable insights, from which economic and social value can be created. In reality, the latest GenAI step-change, and its potential to radically improve productivity across the whole economy, depends on low latency and mass-capacity modern mobile networks. **Connectivity must not become the AI bottleneck.**

It is therefore only logical that the poor digital infrastructure investment climate in the EU, as illustrated by weak financial health of the digital communications sector, is now putting at risk **Europe's economic competitiveness** and the attainment of **the EU's Digital Decade targets**. To avoid such unwanted effects on European competitiveness, prosperity, and jobs, it is crucial to create an investment climate for the sector right in a manner that can fix these challenges once and for all. In doing so, Europe will need to face up to a few uncomfortable truths, including that these challenges are mainly "home grown" - indeed unique to the EU, that inaction will only make things worse, and that time is not on the EU's side. The EU must address these challenges and fix its laggard status in digital infrastructure as a matter of priority.

The crux of the challenge is that the EU relies on a unique sectoral policy framework that:

- **limits scale** and **efficiencies**, with the consistent blocking of in-country mobile mergers or the imposition of structural remedies and spectrum auction rules which create inefficient market structures, while not resolving the lack of a Single Market for telecoms through maximum harmonisation;
- has been implemented in a way that have failed to strike a balance between short-term **price deflation/affordability**, albeit legitimate and laudable, and other equally legitimate and relevant policy objectives, including the promotion of **investments**, the creation of **medium to long term consumer welfare benefits** and the stimulation of **innovation**;
- is **unevenly and inequitably applied** through the communications value chain, disregarding new forms of competition and market definitions, the emergence of new (dominant) players and the creation of new bottlenecks in different parts of the value chain;

[2] Why telecoms matters for European competitiveness (vodafone.com)

- has **failed** to **update legacy regulation** and is thus holding the sector back on innovation;
- has been **unevenly applied** by Member States, who not only have been allowed different and diverging interpretations of common EU legislative instruments, but also continue to retain significant control over regulatory areas as diverse as spectrum, numbering, law enforcement and security, thus leading to fragmentation and moving the EU even further way from a true Single Market; and
- **fails to holistically consider** the impact on the sector of economic regulation and obligations on security, resilience, and sustainability – and thus lacks consistency and simplification.

We therefore strongly support a reset of the policy regime, which must ensure that the shortcomings listed above are addressed and thus allows the **EU to reclaim digital competitiveness** and a **leadership position** in future digital networks, technologies, and applications.

In particular, EU will need to face up to some very real trade-offs, particularly where it is inadvertently undermining its own ambitions and efforts to ensure that high-quality, secure and green digital infrastructure is deployed, and innovation materialises. Greater alignment across all policy instruments in favour of infrastructure competition, network deployment and innovation is a pre-requisite.

In addition, not least in light of the precarious situation that the EU finds itself in at the cusp of key technological change, the medium-term proposed policy reset should be supplemented by the incoming EU Commission with **immediate remedial actions** (based on new guidelines, recommendations, legislation or a revised approach to implementation where there is sufficient flexibility under the current framework). These should serve as a prelude to an **imminent, ambitious,** and **holistic overhaul** of the existing **European Electronic Communications Framework** (and in particular the Electronic Communications Code - EECC or Code), during the incoming EU Commission's term, that ensures coherence between the intertwining aspects of economic regulation, security, resilience, open digital sovereignty, and sustainability. Such an overhaul should be materialised in a pro-investment, pro-innovation overarching umbrella digital communications framework, which considers all actors and competition across the value chain. We strongly believe that such a comprehensive policy agenda requires a new bold objective in the form of launching the creation of a **European Connectivity Union.**

In our view, the road to a European Connectivity Union should be initiated by the Commission **as a matter of priority and urgency. The Connectivity Union would end the piecemeal, complex, and fragmented approach to legislation with the adoption of a policy package that harmonises and simplifies** rules, resulting in a step-change in the **quality and resilience of Europe's digital infrastructure**. In doing so, the focus should be on the following five pillars (so-called **5S' priorities)**:

Priority 1 Scale and Market Structure	Improve the investment climate for digital infrastructure and services by ensuring investment competition in mobile and fixed markets including accepting in-country mobile consolidation without unnecessarily punitive interventions, a targeted application of the SMP framework in the migration from copper to fibre, and accelerating the scale benefits of the Digital Single Market via further harmonisation, simplification of rules and enablement of cross-border provisioning of services between EU Member States.
Priority 2 Spectrum	Unlock network deployment business cases, whereby longer/perpetual licences are a stimulus for investment (acceleration of next-generation networks and improved coverage) and harmonised rules prevent national regulators from using spectrum policy to further fragment markets or extract value from the sector through artificially high spectrum fees.
Priority 3 Same Service, Same Rules	Ensure the policy framework does not forestall, but rather promotes, technological innovation, primarily by ensuring that services are regulated (where appropriate) in a fair and equitable way based on the services offered, and that frameworks are designed to prevent gatekeeper behaviour, thus levelling the playing field in the digital ecosystem,

	and guaranteeing equivalent protection for end-users, irrespective of whether the service provider is a telecoms operator or tech company.
Priority 4 Security and Resilience	Security requirements must be risk-based, proportionate, vertically harmonised, based on technical feasibility and implemented in consultation with industry. Security requirements should not lead to fragmentation across the Single Market. This should be supported by the adoption of a more harmonised security framework, underpinned by implementing guidelines, common standards, certification, reporting and notification requirements, and limiting localisation obligations.
Priority 5 Sustainability and Social Responsibility	Ensure all stakeholders commit to a combination of sustainability, economic and societal responsibility, by creating a more stable and predictable policy and investment environment that incentivises sustainability efforts, allows the absorption of costs, and ensures all digital ecosystem players play a role in the responsible use of (finite) resources, networks, and services.

We provide detail on the full range of the specific measures that fall within these priorities in Section 5. Given the broad range of regulatory measures that apply in our sector, it is unsurprising that these are many in number.

Notwithstanding the comprehensive overhaul required, some measures will be more critical than others. For investors, the absolute critical actions the Commission must take immediately in its new mandate are in particular:

- Enabling **in-market scale** for mobile operators to reflect the increasing capital intensity of modern networks.
- An upgraded, pro-investment **spectrum framework** to provide investment predictability.
- A **fixed SMP framework** with targeted interventions during the copper to fibre migration that encourages rather than degrades investment competition.
- More flexibility **on Open Internet** to unlock 5G based innovation and allow more efficient use of the finite network capacity to maximise consumer welfare.
- Applying a **proportionate, risk and fact-based approach to security requirements**, that enables best-in-class **network security and resilience**, including dedicated support for **Open RAN.**

Given that the listed priorities require **immediate action,** legislative action cannot wait for the review of the EECC, which would take too long to materialise. We thus support the adoption, in the meantime, of a ***Digital Networks Act*** **(DNA)** and/or **other policy/legislative instruments** aimed at fixing the identified problems as soon as possible. We identify those areas for immediate attention within Section 5 below.

However, the end-goal for the next Commission must be the creation of a **European Connectivity Union**, which simplifies and harmonises the various piecemeal, disjointed rules into a new legislative package that applies in a holistic manner across the ecosystem. We look forward to working closely with the Commission and other stakeholders on this.

If the EU gets this right, it has a chance to have the best-in-class digital infrastructure that its citizens and businesses deserve and to re-establish itself as a **centre for innovation and investment**.

Section 3 – Commission White Paper "How to Master Europe's Digital Infrastructure Needs": Vodafone's Assessment

As set out above, the Commission's WP provides a well-articulated description of the challenges facing the telecoms sector. However, the strategy the Commission has laid out:

- Is **subdued** on **actionable proposals** to address the challenges.
- **Fails** to correctly identify and tackle the competition challenges on **fixed markets.**
- Is **silent** on the need for **in-market scale.**
- **Fails** to suggest measures to create **fair competitive conditions** for all actors in the digital ecosystem and to address the competitive distortions caused by **internet regulation**.

Regarding the **health of the sector**, the WP provides a holistic description of the depth and breadth of EU's connectivity challenges, including acknowledging the poor health of Europe's telco industry and the need to significantly improve EU's investment climate, which we fully endorse. There is today broad consensus that the current situation is unsustainable, exposes critical national communication infrastructures to foreign actors or short-term private capital and puts EU's ambition to achieve open strategic autonomy at stake. Yet, the WP falls short in proposing how this can be solved, and when.

On **spectrum management**, the Commission acknowledges that the high cost of spectrum licences impacts the sector's investments as well as notes the unsatisfactory situation of diverging approaches taken across Member States. The WP also recognises that a better criterion for licence awards would be network investment commitments rather than the current approach of cash-maximising (or market shaping) auctions. It also advocates for a new EU governance structure to address high spectrum costs and spectrum fragmentation (all of which hold back investment in networks). However, the question of how to effectively ensure Member States implement pro-investment spectrum management policies remains unanswered.

On **market structure and consolidation**, while the Commission recognises that the fragmentation of the European telecoms sector affects the ability of operators to achieve the economies of scale needed to invest in the networks of the future, and ultimately the sector's financial (in)stability, it misses the fundamental point that in-market scale is a *sine qua non* requirement. In particular, it is oblivious to the fact that mobile operators must consistently make very considerable investments in their networks, in particular RAN, to tackle increased data traffic and offer higher quality requirements (including security). It also fails to consider that industrial scale is needed to absorb increased capital intensity, and this is especially relevant when policy makers – like in Europe – are aiming to ensure low unitary costs for end-users. Instead of focusing on promoting in-market scale, it puts forward ambitions of cross-country mergers. But the investment case for such pan-EU mergers depends on a distant Single Market – therefore, it will neither make Europe more attractive to invest in nor solve Europe's investment gap in the coming three to five years.

On **fixed wholesale access regulation,** the Commission rightly supports fostering progressive deployment of alternative fibre networks (although, more generally, it should support the deployment of Very High-Capacity Networks, VHCN) and avoiding copper migration reversing competitive gains. However, the WP suggests that the current extent of infrastructure competition may be sufficient to justify the withdrawal of regulated access to networks via the SMP framework. In this regard the WP fails to recognise that – no matter what – a significant proportion of households across the Union are – and will continue to be – served by a single fixed network infrastructure. Furthermore, whilst the paper recognises the material competition risks associated with the migration from copper to fibre, it fails to set out how – unless addressed – they can have a chilling effect on the alternative fibre investment that the Commission is rightly keen to promote. This means that customers' interests are being put at risk, if there is a failure to maintain a regulatory framework that both promotes alternative investors and ensures fair and non-discriminatory treatment between those alternative investors'/access-seekers' retail and the dominant operator's own retail business. In addition, in light of convergence, the WP fails to acknowledge the high risk

of negative spillover onto already fragile mobile markets by continued monopoly rents and other distortions in fixed markets.

Regarding **security policy,** we support the Commission's ambition of ensuring that the telco sector is trusted and secure in the provision of networks, connectivity and the services that these enable. However, we highlight that security measures should always be risk and evidence based and proportionate. In this regard, the Commission fails to recognise that a holistic approach to security is required, whereby the expected improvements in security (i.e., increased investments in quality) are matched by commensurate improvements in economic regulation, so as to ensure that private sector actors are incentivised to continuously enhance security and resilience. The Commission should also be proactive in this regard by supporting Open RAN – a key technological development that is missing from the WP. Additionally, we welcome the recognition by the Commission that the national nature of security legislation poses a challenge to pan-European operators, who must adapt and comply with distinct regimes in each Member State, thereby undermining further the EU's Single Market. We agree that regulatory barriers to cross-border operations should be removed, and challenges caused by fragmentation addressed through further harmonisation.

Finally, the WP rightly pushes for **symmetric rules across the digital ecosystem layers**, acknowledging the unbalanced digital ecosystem that requires policy modernisation to reflect how different layers within the ecosystem interact and compete. It makes a compelling point for the proposed "same services, same rules" principle, linking it to comparable experiences of end-users. But the WP does not go any further to explore and propose **how** the EU should create fair competitive conditions for all actors in digital ecosystem. It also fails to revisit internet regulation, including the Open Internet rules, which is holding the sector back on innovation and created distortions to competition between services provided by telecoms operators and similar services offered by other providers in the digital ecosystem.

Therefore, in Sections 5 and Section 6, we provide our proposals on the policy objectives and actions that should be pursued by the current and next Commission, along with our detailed views against each of the scenarios presented in the WP.

Before that, we provide an **assessment** of **Enrico Letta's report** which has been adopted in the period since the Commission launched the consultation on its WP and which, along with the WP and the upcoming Draghi report (on the Future of European Competitiveness), represent a collective steer to the next Commission and Parliament.

Section 4 – Enrico Letta: "Much More Than a Market" – Vodafone's Assessment

Following the publication of the WP, Enrico Letta's report "Much More than a Market" on the future of the European Single Market was released in April 2024. Despite differing in their scope and focus, these documents helpfully converge on the need for a **significant policy shift** to address pressing challenges in telecoms infrastructure and legislation.

As in the WP, the Letta Report stresses the **urgent need** to upgrade and expand **Europe's digital infrastructure**, underscoring the telecoms sector's role as a crucial enabler for economic integration and competitiveness. Both documents correctly align in their **problem definition** by identifying the obsolescence of the regulatory frameworks and the urgency for a policy shift, recognizing that without substantial reforms and investments, Europe risks falling behind in the global digital economy.

Clearly, Enrico Letta's report goes beyond the WP's prescriptions and also takes a broader approach by examining the telecoms sector within the larger context of the European Single Market and all other relevant sectors. It establishes telecoms as one of the key European industries in need of critical reform. We agree.

In terms of the more specific proposals of the Letta report, we would like to highlight the following:

Firstly, one of the main points of convergence between the two pieces of work, which we fully support, is the need to **improve conditions for the allocation of spectrum,** both in terms of acting on excessive spectrum costs, and the asymmetry of rules across Member States. Letta underlines that auctions focused on market entry have led to a poor investment environment. It thus correctly questioned the extent to which focusing only on pro-entrant rules is the right approach when the Commission is keen to ensure investment competition in the roll-out of advanced (5G standalone) networks. Additionally, Letta correctly notes the importance of ensuring that the higher 6 GHz band is allocated to mobile by 2029, which is needed to facilitate the high-performance and quality development of 5G services. These two additional considerations are extremely relevant in our view.

Secondly, on **consolidation,** the Letta report supports the WP idea that cross-border consolidation is desirable, and promotes the concept of cross-border consolidation, which will result in European operators capable of a global role - whilst also ensuring markets remain open and competitive. However, Letta's report goes further, and rightly so, by highlighting that in light of the scale of investments needed in new technologies, consideration should be given to **in-market consolidation**, coupled with an 'industrial policy' that ensures such processes do not result in unintended consequences (e.g., overcapacity or diminishing returns). This puts the fact that in-market consolidation is an important lever for investment and innovation at the centre of the discussion. We believe this is critical.

Thirdly, on **regulatory fragmentation**, the WP and the Letta report concur in recognizing i) the geographic fragmentation in the application of sector specific rules, despite a framework that seeks to harmonise these; and ii) the fact that the current regulatory framework has created significant asymmetries between telcos and new digital players who hold a significant role in relation to online services. While the Commission proposes a 'country of origin' based regulatory framework for Core Networks and Core Network Services, the Letta Report hints towards a significant revamp of the current telco regulatory framework - the EECC - in a way that maximises harmonisation and captures a broader range of players within the regulatory ecosystem. This would include greater governance and oversight from an EU regulatory body for pan-EU networks and services. How, exactly, this will work in practice will be subject to further assessment, with Letta setting a roadmap up to the end of 2025 for this work. The two solution approaches go in slightly different directions, but both are seemingly valid and could achieve similar outcomes and therefore worthy of further exploration.

Fourthly, other **cross-cutting recommendations** contained in the Letta report, which were not specifically addressed to the telecoms sector, are equally worth exploring and anchoring to the discussion around the revision of the legislative framework for the future European digital infrastructures. More

specifically, Letta proposes the creation of a **European Code of Commercial Law**, which would enable European businesses to develop within the Single Market. Such Code, based on the current European commercial law's codification method will make the European acquis in the field of commercial law readable and accessible. Through the use of an optional **28th regime**, Letta provides a viable solution to the most damaging aspects of the current market fragmentation resulting from the co-existence and compartmentalization of the 27 trade law regimes that still govern the day-to-day operations of businesses in Europe. A unified and codified commercial law would also be a vector of competitiveness and attractiveness, as foreign examples demonstrate; e.g. the United States with the Uniform Commercial Code (UCC) and 17 African states with the Organization for the Harmonisation of Business Law in Africa (OHADA).

In summary:

- Both the WP and the Letta report correctly identify the sector's problems and the sense of urgency for resolution, with broad-brush solutions which recognise the need for investment in the telecoms industry and the need for more harmonised regulation across Europe.
- The WP is testing scenarios and looking for industry views whilst the Letta report focused on presenting solutions and policy recommendations.
- We fully support the proposals from Letta, which go further than the WP. In particular, the Letta report highlights: i) the need for in-market consolidation (as opposed to the WP, which focusses on cross-border consolidation only) ii) the negative impact of spectrum regulation that has focussed on the promotion of new entrants; iii) the necessity of allocating the higher 6 GHz band to mobile by 2029; and iv) the need for guidance and ultimately an update of the open internet rules.

Overall, both the WP and Letta's report go in the right direction. Yet there are issues which neither of them identifies, but which we view as key for restoring the health of our sector and for creating a Connectivity Union. It is also crucial to translate the WP and Letta's endeavours and recommendations into a comprehensive list of concrete actions and roadmaps, which also includes the additional issues that need to be addressed, and which the current and the next Commission is mandated to take forward.

In the following section, we put forward the concrete policy priorities and timelines that we believe the new Commission should be working towards, with a cross-reference to the 12 scenarios where applicable. A dedicated response to the 12 scenarios is then provided in Section 6.

Section 5 – Policy Priorities for the Next Commission (Key Pillars in a future Connectivity Union)

Priority 1: Scale and Market Structure

As highlighted in the introduction, there is a wealth of evidence that the EU is falling behind other regions from a technology and therefore economic standpoint. This disparity in fortunes between EU telcos and comparable companies in other regions and other sectors is the consequence of a highly piecemeal, disjointed, and fragmented approach to the rules governing digital infrastructure and those who deploy it.

A number of corrective actions are required to remedy this.

The first area to be addressed is the **merger assessment framework**. The current mobile market structure in Europe is more fragmented than in other regions of the globe and the figures show that it has a direct impact on the ability for European operators to invest in cutting-edge technologies. For example, the number of operating groups in Europe with more than 500,000 subscribers is 45, whereas in the US it is six, in Japan four and in South Korea three. The average customer base for a European operator is 3,7 million, whereas in the US it is 87 million, 31 million in Japan and 18 million in South Korea. The scale of the operating groups in other regions of the globe allows them to have higher returns on capital employed and invest more, not only in absolute terms but also per capita. With this scenario, it doesn't come as a surprise that these regions are ahead in terms of 5G standalone deployment and associated customer experience.

The Commission must also address the **lack of consistency in terms of its view of the appropriate number of fixed and mobile networks.** Whereas the Commission appears to accept the need for only **one to two nationwide fixed networks**, it continually takes steps to promote the preservation of **at least four mobile networks.** It has gone so far as to tacitly support the re-introduction of additional mobile operators (e.g., through approving spectrum reservations for new entrants), including in markets where there is a more limited customer base (e.g., Portugal, Belgium). Furthermore, it has taken **direct steps to block or impose structural remedies in mergers** reducing the number of mobile networks. The Commission therefore needs to take a more consistent and coherent approach to market structure, with the overarching objective of maximising investment competition.

The second area to be addressed is the approach to **fixed regulation** and **Significant Market Power (SMP).** The WP sets the scene for a broad deregulatory approach due to the increased deployment of Very High-Capacity Networks (VHCN) across the Union. It also pushes for a date for copper network switch-off. Despite recognising that several geographic areas still don't have access to VHCN the Commission considers not recommending any market at the EU level for ex-ante regulation in the upcoming recommendation. Instead, the Commission proposes to focus only on markets for civil infrastructure (as the most persistent bottleneck) with the objective of incentivising fibre rollout. We support the Commission's vision of a different regulatory paradigm in a full-fibre world – one where the deployment of competitive fibre investment is maximised and access regulation is a safety net in the event that long-term, sustainable and fair commercial access deals do not materialise. However, contrary to the Commission, we believe that the continuous push for a relaxation of SMP in fixed markets, coupled with a push for copper-switch off, is premature. It risks reversing the competitive advances that have been made for the benefit of consumers, in particular by challengers like Vodafone, towards reaching the EU's digital ambitions. Rather, it risks creating an environment consisting of monopoly rents, exploitations of bottlenecks and cross-subsidisation, and the entrenchment of a significant market position by dominant operators into the fibre world that will persist in 2030 and beyond.

Furthermore, the Commission's apparent disregard for the fact that this **entrenchment of market power in fixed will spill over into mobile** is cause for concern. Given the convergence between providers of fixed and mobile services, it is to be expected that dominant operators will recycle their excess profits in fixed to gain share in mobile and leverage their customer base to enable this. Therefore, there is a lot more at stake in getting this right than solely the functioning of the fixed market.

The third area relates to the scale that will ensue from **removing the regulatory fragmentation** that is a barrier to the Digital Single Market. Despite the introduction of pan-EU regulatory frameworks that sought to **harmonise sectoral rules**, in particular the EECC, there is still fragmentation in the application of telco and adjacent regulations across the Member States. Requirements differ across the EU in matters as diverse as **spectrum** award processes, **law enforcement**, the compliant use of phone numbers, the routing of emergency calls, and the consumer protection rules. These deviations continue to prevent telcos operating at scale or offering consistent cross border services to business customers. This means, in practice, **there is no Single Market for telecommunications.**

The combined consequence of the issues identified above has been 'capital flight' from the sector, lower capex expenditure on digital infrastructure, and, ultimately, a delay to the digital transformation compared to other regions in the world. Reversing the decline in the European telco sector's fortunes must therefore be a top priority for the Commission.

To do so, it must focus on: i) creating efficient market structures to enable scale in mobile; ii) preventing re-monopolisation of fixed networks; and iii) achieving a true Digital Single Market by driving towards a more harmonised approach to the implementation and application of the rulebook for digital communication services.

Only through adopting these measures will the EU achieve the fully functioning Single Market that is essential for delivering Europe's digital transformation and revitalising its global competitiveness. However, each of these policy levers must be addressed in order to reach this goal.

We set out below the specific policy roadmap the Commission should follow to address the issues identified.

Policy Roadmap

Topic	Policy Lever	Overview	WP Scenario
Efficient Market Structure	Merger Guidelines	Going forward, the Commission and competition authorities must take the following into consideration as part of their merger assessment framework: - Reflect the enhanced and critical **role of virtual operators / MVNOs** and operator sub-brands in ensuring retail markets are and will remain highly competitive. - **Assess factors *beyond* price**, and consider quality-adjusted prices (via product and service enhancements as a result of combining network capabilities). - Incorporate **dynamic competition effects** recognising that where mergers create an operator with the (new) ability and incentive to invest, it will also elicit a competitive response from all market players.	Scenario 6

		- Consider **longer-term efficiencies** and benefits to consumers from investment in better quality, more capacity and new technologies and not just short-term impacts in relation to existing technologies. - Recognise the **need for minimum scale** to deploy better 5G networks and new technology and to **access capital** needed for infrastructure investment. Competition Authorities should also take into account the impact of new **technologies on their prospective analysis of competition in cases of MNO mergers.** In particular, **network slicing capabilities** will allow MNOs to offer considerably more sophisticated wholesale access and network facilities to MVNOs, which would reduce 'competitive risk' of relying on MVNOs to facilitate competition. This should be done **immediately** for all cases going forward. Thereafter, this approach must be **codified in the Merger Guidelines**. The updated Guidelines must: - Develop a **fully articulated approach for merger control in the telecoms** sector specifically. - Reconsider the **role of behavioural or investment-based** remedies. - The GUPPI framework should be adapted to reflect product enhancements post-merger (e.g. quality adjusted prices). - Ensure consistency between merger control and the ex-ante 'SMP' framework in the sector whereby no joint SMP/competition problem has been found in any EU mobile market – whether three player or four player – in the last twenty years. This codification should be done **within 24 months**. These revised guidelines should then be immediately followed by a thorough updating of the Merger Regulation, to ensure a more balanced and coherent approach to market structure that takes full account of the dynamic competitive and investment effects (mentioned above), rather than just short-term retail pricing concerns. This issue is **expanded in Section 6, with regard to Scenario 6.**	
Ensure sustainable	Commission/BEREC guidelines on copper	**Copper migration needs to ensure fair competition at retail and network levels, particularly if investment in VHCN by alternative network providers (altnet) is to be**	Scenario 5

competition in a full fibre/VHCN environment	switch-off / fibre migration	**encouraged, and so regulatory checks and balances on the migration must be maintained.** - SMP operators need to ensure full transparency and proper lead-times before starting the migration process. - The migration process shouldn't start until a certain percentage of the target area is covered by a VHCN. - A fit-for-purpose VHCN access product must be in place, and ready to be activated; the access product must provide higher speeds to all operators as requested by their retail customers without a price premium being applied. - There is a need to ensure strict pre-marketing rules on the SMP operator to avoid unfair competitive advantages during the migration from copper to fibre, in terms of favouring the SMP operator's fibre over VHCN alternatives. - Costs for forced migration (e.g., activation of fibre lines, deactivation of copper lines, equipment, etc.) should be borne by the SMP operator and decommissioning costs shouldn't be passed on to the access seekers (either as dedicated charges or as an unfair surcharge on remaining copper customers). Guidance should be provided as soon as possible and no later than by **Q1 2025** This issue is **expanded in Section 6, with regard to Scenario 5.**	
	Maintain SMP Regulation, at a minimum retaining Market 1 as a relevant market.	Any **further deregulation today would be detrimental** to investment competition, to the ability of alternative operators to compete, and with real risk of negative impacts in converged or even mobile markets. Therefore, the Commission **should not take any further deregulatory steps in fixed while pushing for a more consistent implementation of the SMP regime.** This approach should be **maintained at least in the next Commission mandate and possibly beyond (five to seven years) depending on whether true sustainable competition has materialised.** Fixed regulation should be focussed on the consistent and strict application of the following core principles: - Maximising availability of **passive infrastructure.** - **Equivalence of inputs to** preventing exploitation of **asymmetric information** and other **natural advantages** by SMP operators.	

		- Strict rules to **tackle anti-competitive actions** including margin squeeze / economic replicability tests. - **Regulating dark fibre.** - Accounting for the risks of **cross-subsidisation of fixed dominance into mobile.** This issue is **expanded in Section 6, with regard to Scenario 5.**	
Harmonised Application of Sector Specific Rules for pan-EU scale	Digital Communications Framework	The end-goal of the Commission must be an overhaul of the EU Electronic Communications Framework to create an **overarching umbrella digital communications framework for the sector**, which: - Achieves **greater levels of harmonisation** in the application of sector specific rules, considering evolving the EECC into a Regulation. - **Consolidates the fragmented regulations** that apply to the sector (e.g. Open Internet, ePrivacy) into an umbrella rather than a patchwork framework. - Creates **clear distinctions between the rules applicable for infrastructure vs services,** and better distinguishes between **business and consumer services.** - Captures the **full range of actors** within the digital communications ecosystem. - Takes a **one-stop-shop approach to governance and enforcement.** The specific issues and options addressed below will help **contributing towards this overarching framework.** This issue is **expanded in Section 6, with regard to Scenario 6.**	
	EECC Revision – General Authorisation Regime	The Commission should assess the following approaches in order to further **harmonise the General Authorisation regime,** and shift towards the one-stop-shop approach seen in other regulatory frameworks: - **Centralising the general authorisation regime** under BEREC or another central oversight body, with providers only needing to notify once to provide services across the EU; or - **Implementing a passporting regime**, at least for B2B and IoT services, where the provider must only notify in the principal country from which the services are being developed/delivered, to be able to provide services across the EU. The Passporting Regime is likely to be **particularly effective in the context of M2M/IoT services**, which by nature are more likely to be offered on a pan-EU basis.	Scenario 6

		This analysis should be completed in line with the timeframe for the EECC review, by the end of **2025 at latest.** This issue is **expanded in Section 6, with regard to Scenario 6.**	
	EECC Revision – Governance Models	The Commission should implement the following options to limit the fragmented approach to governance and oversight of the EECC, and to achieve a one-stop-shop approach: - **Applying a 'country of origin' principle**, such that the providers of regulated services would only need to comply with the rules and be subject to the oversight of the authority in the Member State where the service is principally developed; and/or - **Creating a two-tier governance system**, with: o An EU level Regulatory Authority with responsibility for i) harmonised regulatory principles (such as Open Internet); ii) cross-border / pan-EU networks and services. o National Regulatory Authorities, who would remain accountable for domestic services, local networks and consumer protection. Initial analysis should be completed in advance of the timeframe for the EECC review, by the end of **2025 at latest.** This issue is **expanded in Section 6, with regard to Scenario 6.**	
	EECC Revision – Definition of Large Business Customers	The Commission must **update the definitions in the EECC**, in order to create **stronger distinctions between large-scale enterprise services** (that are often delivered on a cross-border basis), and **consumer and SME services**, to avoid that the former get caught by unnecessary consumer protection principles. In line with the recommendation on 'governance' above, the Commission should immediately assess how these B2B services, which are inherently more likely to be pan-EU in scale, **would be subject to a more centralised governance framework**, by applying a passporting regime, and/or Country of Origin principle. This analysis should be completed in advance of the timeframe for the EECC review, by the end of **2025 at latest.**	

		This issue is **expanded in Section 6, with regard to Scenario 6.**	
	Further Harmonisation: Commission Supplementary Guidance to EECC	Whilst the 'end-goal' of the Commission may be to **transform the EECC into an overarching Digital Communications Framework** as a **stepping-stone** to get there, it should issue **further guidance to encourage Member States to take a more harmonised approach** to the EECC implementation. Firstly, the Commission must identify which obligations are still implemented in a highly fragmented manner across Member States. Where such areas have been identified, the Commission should coordinate with BEREC to develop guidance for Member States on the implementation of these rules, in a manner that achieves greater harmonisation and opens opportunities for the deployment of cross-border networks and services. A clear example is in relation to numbering rules, which remain highly national. The Commission should take steps to address this, in particular in relation to the use of numbers for inherently cross-border services such as IoT services. This analysis should be completed **as soon as possible,** to help 'set the scene' for wider Code reform by the end of 2025. This issue is **expanded in Section 6, with regard to Scenario 6.**	
	Consolidation of Consumer Protection Regulation into Horizontal Rules	**Consumer protection rules** in the EECC have been **layered with numerous EU-wide directives**, providing room for Member States to further tweak at national level. A **reduction and simplification of EU-wide consumer protection measures moving them from the Code into horizontal frameworks** such as the Consumer Rights Directive should be implemented. This analysis should be completed in line with the timeframe for EECC review, by the end of **2025 at latest.** This issue is **expanded in Section 6, with regard to Scenario 6.**	

Priority 2: Spectrum

Before the early growth years of mobile phones (1990 to 2000), **spectrum policy was a largely technical administrative matter**. With the approach of 3G, and as demand for licences outstripped supply, policy had to evolve, to include a mechanism allocating frequencies fairly and transparently among competing applicants. Auctions became the accepted way to achieve this. At that point, the long-term prospects of the market were still uncertain, and fixed term licences of typically 15 years seemed a reasonable measure to give regulators control over the use of spectrum over the longer term, regardless of whether the market was a success.

Thirty years on from the launch of the first digital mobile networks in Europe, **mobile services have become ubiquitous and essential**. In addition, conditions of competition in retail markets have changed markedly with the success of MVNOs (also highly relevant in the context of merger assessment). Demand for higher data speeds, better quality and more traffic have meant that operators have had to invest many tens of billions of Euros in frequent upgrades of mobile radio technology, the roll-out of more transmitter sites, and the deployment of more frequency bands. This **places constantly increasing demands** - never envisaged 30 years ago - on investors, who **need a forward-looking pro-investment spectrum policy environment** that:

1) Provides **perpetual** (or at least much longer duration) **licences**, consistent with the much longer investment horizon needed to generate a payback for network operators and removing the business risk of licence expiry (and the uncertainty of whether licences can be renewed and at what cost, and whether assets become stranded). There are now many examples of licence prolongation across Europe, including Germany, Spain, Portugal, and France – where licences have been extended for up to an additional 20 years on an administrative cost basis and in return for moderate additional investment commitments.
2) Minimises the amount of investment capital depleted through **excessive licence fees** demanded by national authorities both:
    a. one-off fees - that can be inflated due to high auction reserve prices or discriminatory or inefficient auction designs (with recent examples of auctions in Germany and Italy that left "successful" participants with an additional capital burden of several billion Euros); and
    b. annual fees - where there is no clear justification for the enormous differences charged by Member States for the same rights.
3) Identifies **new harmonised spectrum bands** that can be used to provide the extra network capacity needed to meet the data traffic demands from mobile customers (still growing at c.25% pa) and assigns licences to access these new bands in a fair, efficient, and timely way. The upper 6 GHz band is a case in point whereby, in proposing shared use of the band, European regulators risk jeopardising the efficient full-power use of the band to underpin future mobile traffic growth - while the US tech sector's claims that the band is essential to support future Wi-Fi services remain unjustified, and in fact contradict the position of Europe's own broadband services providers.

Given the enormous drag on investment placed on the mobile sector by the auction legacy over the last 25 years, and the resulting shortfall in investment towards Europe's mobile Digital Decade targets, the Letta report rightly puts forward the proposal that **future awards of spectrum licences are determined based on investment commitments** rather than cash payments. While this would require careful qualification and enforcement, it would be a positive improvement for the initial award of new spectrum bands.

Greater harmonisation of the day-to-day regulation of spectrum across Member States can also contribute to the Single Market, and should embrace all aspects of spectrum licensing, as well as more **technical matters such as EMF policy** (where departures by a small number of individual Member States from international standards results in increased build costs) and **spectrum sharing.**

Spectrum policy also needs to support innovation and fair competition - for example, allowing mobile operators to use satellite to augment their terrestrial service coverage; and addressing the disparity in regulatory costs for providers serving the same broadband markets but using different wireless technologies (e.g., mobile, satellite, Wi-Fi). Otherwise, mobile operators will remain disadvantaged by specific spectrum-related costs that do not apply to other competing providers.

As noted in the Letta report, spectrum has become **a proxy tool for regulators and competition authorities to shape market structure / regulate market access** – with some regulators reserving spectrum for new entrants (without either a market-based assessment to justify their actions, or any consideration of the negative consequences for the long-term investors in the market), and competition authorities often requiring merging operators to divest of spectrum to a remedy-taker, often at highly discounted prices (again, with complete disregard for cross-subsidy effects). These unjustified actions must be outlawed in legislation because they undermine investment, distort the market, create artificial spectrum scarcity / raise prices for existing operators in auctions and create cross-subsidy effects.

We set out below the specific policy roadmap the Commission should follow.

Policy Roadmap

Topic	Policy Lever	Overview	WP Scenario
Spectrum Policy	A Spectrum policy revision will require changes to: - The RSPP - The EECC - And/or a DNA	Spectrum policy must support innovation and fair competition, and a harmonised approach should be taken across the Member States. To this end, the Commission must: - Give mobile licensees the option to convert their existing fixed-term spectrum licences into **perpetual licences** (as the UK has done) or extend them to a minimum term of 30 – 40 years (as Spain and an increasing number of others have done). - Compile a transparent **EU-wide benchmark of national annual spectrum fees**, based on these rates being published regularly by all Member States, as a first step towards closing the policy gap between EU Digital Decade objectives and national competency on spectrum charging matters. - Provide clearer **guidance and enforcement on appropriate best-practice award methods** for new spectrum bands - with the emphasis on ensuring infrastructure investment (as advocated by Letta) rather than raising income for national treasuries – and ensuring more harmonised approaches by national licensing authorities and avoiding a repeat of destructive 5G awards seen in recent years (such as in Italy and Germany). This includes adhering to a market-based approach to new spectrum assignments and **avoiding arbitrary reservations and set-asides,** whether for new entrants or private networks. The	Scenario 6

		views of mobile operators must also be taken into account, with the Commission able to request a timely peer review for procedures that threaten the greatest harm. Clearer requirements to prevent future awards harming investment and investor confidence must be included in future legislation. - Harmonisation of enforcement rules would also mean addressing anomalies and departures from international standards in **EMF regulation**, including both limits and methods of measurement. - Support and license the **upper 6 GHz spectrum band for mobile use on a primary basis** (and at full "macro" power levels), to ensure growth in customer demand for mobile services can be accommodated cost-effectively before the end of the century. - Allow for **effective sharing of mobile frequencies between MNOs and satellite partners** (with appropriate safeguards against interference) and ensure the licensing of **Europe's 2 GHz Mobile Satellite Services (MSS)** spectrum is based on optimising overall European mobile infrastructure investment and advancing the mobile Digital Decade objectives. - **Remove the disparity** in obligations and regulatory-related costs **between mobile, satellite** and **licence-exempt technologies.** This updated framework must be in place by the **end of 2025.** In 2023, a revision to the **Radio Spectrum Policy Programme (RSPP)** was started by the Commission as its preferred mechanism to deliver spectrum policy reform. In our submission back then, we highlighted a range of important areas for reform - set out in detail in a way that could easily and effectively be included in a revision to the Code - including the need for departures from market-based assignments to require impact assessments, a stronger peer review procedure more in line with the approach taken for EECC article 32/33 style case assessments. The RSPP revision process was paused, and our contribution was not used - so this should be restarted as a priority, with the aim of making policy reforms as binding on Member States as possible. Beyond this, a DNA (or similar) provides the next opportunity to legislate for these reforms, followed by the revision to the EECC. This issue is **expanded in Section 6, with regard to Scenario 6.**	

Priority 3: Same Service Same Rules

The Commission has rightly recognised the **importance of encouraging European innovation**, noting that this is **critical to safeguarding our economic security and prosperity**. It is therefore welcome that a number of the scenarios recommended in the WP were designed with innovation and technology capabilities in mind. However, we have witnessed a number of worrying trends that are discouraging investment by telecommunications operators in R&D and are acting as a barrier to the EU taking its place as a technology leader. These trends also lead to a **lack of equivalent protections for end-users,** even where they were to believe that they are using equivalent services.

Firstly, **regulatory conditions in the EU are highly asymmetric**. While providers of telecoms services operate under a heavy regulatory burden managing a host of sectoral and general obligations to ensure, for example, network quality and resilience and consumer protection, providers of digital platforms and services have historically operated in a much less heavily regulatory environment, even where they are competing directly with traditional telecoms services or providing complementary services. This is largely the result of telecommunications network and service providers being subject to **cumulative regulations introduced over the last two decades**, while much of the regulation that impacts tech players has, firstly, emerged more recently after their market positions are already entrenched, and, secondly, has been comparatively more innovation and investment friendly.

For example, **providers of 'private' network infrastructure**, including **cloud services providers** and **CDNs**, remain **outside the scope of traditional telecommunications regulation** and are, therefore, not **subject to obligations on access, interconnection, interoperability,** and **portability**, **despite increasing convergence** between these providers and traditional network operators. Consequently, there is an (ever increasing) risk, that they refuse to deal or refuse to deal fairly with network operators, and therefore risk fair competition and the effective operation of the internet end-to-end.

The Commission must address this by ensuring that the 'same services' are subjected to the 'same rules'. The full suite of obligations should fall under the umbrella of a new, holistic, **Digital Communications Framework,** but interim measures such as the introduction of a DNA can be taken as steppingstones, to ensure key issues are addressed with urgency.

This asymmetry – and its impact on EU competitiveness - is compounded by the fact that some of the **regulatory frameworks that target 'traditional' telecommunications operators restrict innovation.** In particular, **Open Internet rules are increasingly challenging** to apply in the modern digital ecosystem, and act as a barrier to the development of use cases based on, in particular, 5G network slicing for B2B services. This is exacerbated by the fact that this framework does not apply to the true gatekeepers of the digital ecosystem: the largest platform operators. These players have significantly more scope to shape the internet experience of end-users, as they seek to exert increasing control over the quality of experience for end-users, via solutions at a device, software or application level.

Another example is in the area of **ePrivacy**. For a number of years, European policy makers have failed to effectively update the EU rulebook for processing of electronic communications data and metadata, enshrined under the ePrivacy Directive, creating legal uncertainty and inhibiting scale. This is having a tangible, negative impact on opportunities for innovation and growth in our sector, for example in relation to the deployment of anti-fraud measures.

Therefore, the Commission should **update digital regulation that is acting as a barrier to innovation** and bring these into a holistic regulatory framework for digital communications.

Secondly, whilst in this mandate the Commission made great strides in introducing new rules to promote technology leadership and competition and address identified regulatory gaps, for example through the **Digital Markets Act,** the **Data Act** and the **AI Act**, they are still in the **early phase of implementation.** There is a risk that, absent a concerted effort, they are not effectively applied. For example, whilst *prima facie* these regulatory frameworks should encourage competition and therefore innovation in the cloud and edge sectors, it is not yet clear how exactly the Data Act provisions on interoperability will be applied in the context of network cloudification; and no cloud players have yet been designated under the DMA. The Commission must, consequently, **build on its significant success by ensuring these world leading initiatives are implemented effectively.**

Thirdly, although the EU has voiced support for key new technologies, by, for example, setting **Digital Decade targets, much more is needed to achieve these ambitious goals.** For example, the Commission has failed to give its full backing (including dedicated strategic and financial support) to new technologies that will help underpin the digital transition, such as Open RAN or Edge.

For that reason, it should also take **measures to proactively support innovation**, in particular by setting up a dedicated **European Agency for Technology Research and Standardisation** (JASTE – Joint Agency for Standardization and Technology Europe)**.** This body should have **dedicated funding and dedicated expertise**, to focus on and fund projects and pilots of particular strategic interest to the EU in areas such as **Open RAN, AI, Cloud and Edge** and be open to full participation from trusted providers based outside the EU.

In totality, the continued lack of level playing field and regulatory policies that hinder instead of hasten innovation have served to **create a poor investment climate in Europe, and significantly lower levels of investment in much needed R&D and consequently in European innovation**. This increases the risk that other regions extend their leadership over the EU in terms of delivering the next generation of technology, and thus reap the economic benefits of this, whilst Europe misses out. The disjointed application of rules also leads to end-users being subject to a different level of protection when using services they consider to be equivalent, creating a gap between consumer expectations and reality.

We set out below the specific policy roadmap the Commission must follow to ensure the EU can regain its reputation as a technology leader and ensure that the regulatory framework is appropriately applied across the digital communications ecosystem, in a way that both encourages investment and innovation, and ensures effective end-user protections.

Policy Roadmap:

Topic	Policy Lever	Overview	WP Scenario
Addressing asymmetry in sectoral regulation	Introduction of a DNA	A **DNA** should be introduced, that **adopts but adapts core principles from the existing regulatory framework** found in the EECC, to apply in the context of the newly converged digital ecosystem. This may include the **expansion of principles on interoperability and interconnection** in a way that is fit for purpose for an expanded pool of players, including a broader group of core network operators. Such a framework could, ultimately, be pulled into an **overarching regulatory framework for Digital Communications** over a longer time horizon. However, proposals for a DNA should be **published by end of 2024.** This issue is **expanded in Section 6, with regard to Scenario 4.**	Scenarios 4 and 6
	Introduction of an IP-IC Dispute Resolution Framework	The Commission should **introduce a framework for the conclusion of IP-IC arrangements** in a way that: - **Remedies the asymmetric bargaining power** between large Content Application Providers (CAP) and their intermediaries and with providers of Electronic Communications Networks (ECN). - **Facilitates payment towards the costs of the valuable services provided by ECNs to CAPs**, ensuring a fair and reasonable price for the services provided to CAPs for the delivery of traffic to end-users. - **Incentivises CAPs and their intermediaries to deliver traffic in a more efficient way.** This should be done either via a **stand-alone framework for IP-IC dispute resolution, or** through expanding and adapting the interconnection and associated dispute resolution principles in the Code to other core network providers, vis a vis a new **DNA, as outlined above**. Proposals for a Dispute Resolution Framework to be published by **end of 2024.** This issue is **expanded in Section 6, with regard to Scenario 4.**	

	European Electronic Communications Code Review	In longer term, the DNA and other sectoral regulation should be pulled into a holistic **regulatory framework for Digital Communications**, enabled through **the review of the EECC, as discussed above under Priority 1.** As part of this overhaul, careful assessment should be given to the '**definitions' within the Code**, and the ramifications this has for network and service regulation (also taking account of any new obligations introduced through an earlier DNA). The end-goal must be a **framework that is based on what is delivered and not how it is delivered**, ensuring that the same services are subject to the same rules. Proposals for a revision of the Code and transformation into an umbrella Digital Communications framework should be brought forward by the **end of 2025**, in line with Code Review timelines. This issue is **expanded in Section 6, with regard to Scenario 4.**	
Open Internet	Open Internet Regulation Review	The **Open Internet rules currently only apply directly to internet services providers**, despite the increasing role of other players in the ecosystem in the development and delivery of content. The **Commission should consolidate the Open Internet framework into the overarching framework for the sector** and thereby **expand the core principles to other players** who play a key role in the deployment of content and end user quality of experience. Proposals for how to enshrine principles of Open Internet in a broader sectoral framework to be put forward by **end of 2024.** This issue is **expanded in Section 6, with regard to Scenario 4.**	Scenarios 4 and 6
	European Commission Guidelines on Open Internet	The Commission should complement the current framework with a European Commission Recommendation providing **guidance to obtain clarity and certainty regarding the application of the Regulation to developing use cases.** The guidance should address, amongst other things, the need for i) **clarity and consistency** with regard to the definition and regulation of non-public services, ii) **resolving ambiguities around traffic management rules**, and iii) **clarity on how to demonstrate compliance for**	

		so-called specialised services that are supported by the differentiation in the capabilities of 5G networks. In addition, guidance should include a **non-exhaustive list of use cases that are assumed to comply** with the Open Internet Regulations. This should be published as soon as possible, and no later than **end of 2024,** if operators are to be able to develop innovative use cases at pace. This issue is **expanded in Section 6, with regard to Scenario 4.**	
	Empirical Study on Open Internet	The Commission should **instruct a study, to assess the impact of upgrading the current regulatory framework to be fit for modern digital ecosystems**, in particular by assessing other jurisdictions that have taken a wide range of approaches. This study should be commissioned by **end of 2024.** This issue is **expanded in Section 6, with regard to Scenario 4.**	
Open RAN	Develop Open RAN Strategy	**Strategic, policy and financial support** for a coherent **Commission level Open RAN strategy** that looks at the end-to-end integration of different components, both on the hardware and software side. Strategic areas for investment should include system integration, network automation, chipset and silicon design and manufacturing, the integration of AI, and Cloud. This should be developed as soon as possible, to avoid an even greater innovation gap.	**N/A**
	Allocate Dedicated Open RAN Funding	The Commission should **allocate dedicated funding to 'trusted' Open Labs (hosted by European MNOs)** for the validation/certification of Open RAN system integration which will foster a strong and healthy European Open RAN ecosystem. This should also be allocated as soon as possible.	
ePrivacy	Establish a harmonised, flexible legal basis for providers of digital services to process electronic	The Commission should now take the decisive step of **withdrawing the proposed Regulation** and initiating the process of developing a **new, future proof legislative framework.** Within this framework, the Commission must ensure **a harmonised approach to ePrivacy rules across the EU**, in the form of a **regulation applicable to all providers of equivalent digital services,** which ensures sufficient flexibility for operators to reuse electronic	Scenarios 4 and 6

	communications data and metadata	communications services data and metadata for purposes which are compatible with the original data collection. This approach is aligned with the general GDPR rules and would allow us to deploy data analytics services in a harmonised fashion across our markets, as opposed to the current patchwork of local rules which inhibits scale and create regulatory asymmetry. The best benchmark for this remains the compromise text of the Council of the EU negotiated by the Portuguese Presidency, which includes under **Article 6 the ability for providers to process metadata for purposes which are compatible with the initial purpose (Compatible Further Processing) without additional consent.**	
Ensure new Digital Regulation Frameworks are implemented effectively	DMA Implementation	A number of actions should be taken to ensure effective implementation of the Digital Markets Act (DMA): **Cloud Services:** So far, **no cloud services have been designated** as Digital Gatekeepers under the DMA. This **situation should be kept under review** by BEREC and the Commission, and to swiftly designate services which pass the DMA's quantitative thresholds. Furthermore, to the extent the quantitative thresholds are not passed for such providers, the Commission should investigate whether they should apply other **qualitative criteria for designation**. **Messaging Platforms**: The Commission should keep **Apple's iMessage platform** under review and reopen its market investigation should Apple fail to adequately support Rich Communication Services interoperability as part of the next iOS upgrade. **Proactive Engagement:** The Commission must take **proactive steps to ensure that gatekeepers engage with third parties and access-seekers**. This includes **establishing a framework for gatekeepers to consult** with access-seekers on technical and contractual interfaces crucial for compliance with DMA requirements. **Market Investigations**: The Commission must conclude its **market investigations into Apple's and Google's DMA compliance** and instruct further changes necessary to fully open up the app store and OS environments.	Scenarios 1, 4 and 6.

		Guidance: The Commission should **produce guidance / secondary legislation on the DMA's Article 6.7 access obligation**, specifying how this applies in the context of enhanced network capabilities. Actions to support the implementation of the DMA should be completed **within 1 year.**	
	Data Act Implementation	The Data Act includes **welcome provisions on cloud switching** and **interoperability** which should help to reduce the barriers that currently exist to switching of cloud service providers and address the risk of vendor lock in. The Commission and national regulators **must ensure consistent and effective implementation of the Data Act,** in particular with respect to: **B2B Data Sharing:** The Commission to introduce guidance on sharing and reuse of data generated by connected products and related services (IoT data) providing more granular examples of service categories in scope and helping companies navigate grey areas. Introduction of model contract terms and standardised remuneration templates to assist parties sharing their data in effectively monetising these assets. Further guidance on how exemptions from data sharing obligations for trade secretes / IP protected data will work in practice and how conflicting rights will interact. **B2G Data Sharing:** Member State authorities to take a measured approach to their new rights of access to privately held data in situations of exceptional need, and to work closely with the Commission and private companies to develop a clear and predictable legal framework for data sharing to take place, and for companies to negotiate fair remuneration where appropriate. **Cloud Switching:** Support for cloud service providers in implementing new requirements on switching and interoperability, in the form of Commission guidance on technical parameters and contractual terms. The Commission should ensure close coordination with other efforts to regulate the cloud market in this regard, in particular under the DMA (assuming a designation of a cloud service at some point in the near future) and with national competition authorities currently investigating their domestic cloud markets for possible infringements and abuse of dominance. **International Data Transfer:** Flexibility to be shown in relation to restrictions placed on international data transfer and new requirements on Cloud Services Providers (CSP) to mitigate risks of unlawful third country access. We ask that the Commission works closely with industry	Scenarios 1, 4 and 6.

		to determine what mitigating steps need to be taken and in which circumstances, and to provide clear recognition of the countervailing circumstances which mean that additional measures do not need to be applied (for example the existence of a data adequacy agreement or MLAT). Actions to support the implementation of the Data Act should be completed **within 1 year.**	
	AI Act Implementation	A number of actions should be taken to ensure effective implementation of the AI Act: **AI Adoption Targets:** The Commission should establish more ambitious targets for the adoption of AI technology by European businesses and public administration. **AI Act Guidance**: The Commission should produce guidance on Article 6 / Annex III, confirming our interpretation that network management AI systems are not inherently high-risk. **Trustworthy Adoption:** The AI Office and the AI Innovation Board should work closely with industry to support their adoption of AI in a trustworthy fashion, compliant with the new rules. **Appointment of Competent Authorities:** The Commission should encourage Member States to move swiftly appointing their national competent authorities and starting the process of creating regulatory sandboxes for AI development. **Safety and Design Requirements:** The Commission should monitor Generative AI and General Purpose AI closely, with a particular focus on market structure and competitive dynamics. The AI Act guidance and targets should be developed as soon as possible, and no later than **2025**. The other measures should be actioned between **2024 – 2026.**	Scenarios 1, 4 and 6.
Supporting IoT	Review of the Roaming Regulation	The Commission must **preserve the current roaming regime for M2M** and **IoT** during any upcoming Roaming Regulation review. The **existing regulation allows operators to put in place commercial roaming agreements** instead of using regulated wholesale tariffs. This **freedom for commercial negotiations should be maintained.** The market is competitive, does not demonstrate signs of failure and therefore warrants no further intervention.	N/A

	Enhancing the Single Market	As IoT services are, by their nature, conducive to cross-border and pan-EU deployment, they will be supported by policy measures taken to further harmonise sectoral regulation across the EU Member States and that drive towards a true Single Market for telecoms. Therefore, the proposals put forward under Priority 1, Harmonised Application of Sector Specific Rules for pan-EU scale, are particularly important in creating an effective policy environment for IoT.	Scenario 6
EU Technology Research and Standardisation	Establish a Joint European Agency for Technology Research and Standardisation	We propose that the European Commission **establishes a Joint Agency for Standardization and Technology Europe (JASTE),** similar to the NIST in the USA, to support the European telecommunications industry and other European industries, on areas of European interest. This **body would develop and provide input to ETSI, 3GPP and other standardisation organisations.** This Agency should employ its **own staff of technology experts** which conducts key areas of research non-prioritised by commercial companies. It should have **dedicated working groups to analyse specific areas**, including some of those covered above (e.g. Open RAN; Cloud and Edge; AI). In particular, we recommend creating a sub-group of JASTE, an **Edge Technical Research Centre / Centre of Excellence** which could **provide relevant guidance**, **complement companies' contributions** and thereby provide a more balanced approach in the interest of the public and achieving the Digital Decade targets. The JASTE should be set up ASAP: the longer this is not delivered, the greater the innovation gap will become.	Scenario 1
Joint R&D and Projects	Legal certainty on cooperation	In ecosystems where scale is vital in order to deliver innovative new services for consumers, **companies in Europe (where fragmentation has led to a lack of scale) will almost invariably need to cooperate in order to deliver on the potential benefits for consumers.** Competition authorities should **actively encourage such collaboration** in order to boost innovation in Europe. A clear policy position that provides greater legal certainty (for example a **presumption that such initiatives in ecosystems with set characteristics are pro-competitive**) would be	Scenario 4

		welcome in this regard. Similarly, if in the same circumstances, sub-scale companies decide to collaborate through **structural means (e.g., joint ventures), merger control regimes should proactively facilitate swift approvals** so not to unduly delay entry (helping to speed up innovation as well as levelling the playing field against, e.g., Big Tech given their ability to make unilateral moves in fast-developing ecosystems that do not require up-front approval).	
Digital Decade Targets	Digital Decade Targets on Edge Deployment	The **success of the Commission's ambitious edge node targets** should be measured not purely by the number of edge nodes (which is already significantly behind targets), but also on the **usage of those nodes,** which will demonstrate whether or not the deployment is being utilised effectively. More generally, given the **limited expansion of 'telco edge nodes'**, it may be necessary to **revisit or reshape these targets in the near future**, to address the shifting reality of 'edge'. In particular, the Commission should reshape its target to focus on a combination of 'telco edge nodes' and other means of achieving edge processing capability (e.g. through connection to hyperscaler cloud). The Commission should review its Digital Decade Targets by Autumn 2024, in line with the 2024 Report on the State of the Digital Decade. This issue is **expanded in Section 6, with regard to Scenario 1.**	Scenarios 1, 4 and 6.

Priority 4: Security and Resilience

National security concerns are understandably heightened in the **current geopolitical context**. This has led to an increasing volume of **security and resilience obligations** on key enabling communications technology and critical infrastructure. We fully support strengthening security and resilience: protecting our customers and our infrastructure is at the heart of our business. It was therefore welcome that "secure and resilient digital infrastructures" is one of the core three pillars in the WP.

However, the current framework **creates impediments** to the effective adherence to these principles.

Firstly, in recent years, we have witnessed a **trend towards security policies rooted in protectionist principles.** These could operate to **exclude potential partners** such as hyperscalers from supporting the EU's digital transformation on the **basis of sovereignty criteria**. Should this manifest in outright prohibitions of potential partners, such as hyperscalers, from contributing to the EU digital communications ecosystem, the EU would lose out on a range of best-in-class technology and the innovation and investment this could bring.

The Commission must ensure this trend does not continue, and instead **consistently adopt and apply the principle of Open Strategic Sovereignty** across all regulatory frameworks. In practice this means pursing an industrial policy which supports the creation of strong and resilient European firms in strategically important sectors and technology domains. However, it must be doing so in a way which is fundamentally compatible with the principles of free trade and open, competitive markets and embraces likeminded countries and trusted technology suppliers that share European values and legal protections. In this way, and by applying **proportionate, objective, technical criteria** in determining the ability of providers to offer services in the EU (and in particular to public bodies), it will meet its security objectives, whilst still **allowing for best-in-class technology**.

Secondly, there is **continuing divergence** with respect to i) **technical security measures** that must be implemented regarding network infrastructure; ii) **cybersecurity risk management measures**, including technical, operational and organisational measures to manage cybersecurity risks, such as incident reporting mechanisms; and iii) **law enforcement obligations**, including the approach operators must take to implement lawful intercept and data retention obligations. Many **Member State authorities are highly prescriptive** in dictating *how* operators should comply with these security and law enforcement principles, with each Member State adopting a different approach.

Compounding this issue, many Member States apply an **inherently localised approach** to these requirements. Examples include requiring that lawful interception is carried out in country, and by a citizen of that Member State; or obliging operators to retain certain data sets within national borders.

In combination, this **fragmented, prescriptive** and **national** approach to security has a highly detrimental effect on achieving the highest degree of security and resilience of networks, and is essentially acting to **prevent scale for European operators through the backdoor.**

For example, for pan-European operators such as Vodafone, the fragmented and localised approach to security obligations **prevents the development of centralised network operation and security centres** (NOCs and SOCs), where best in class approaches to security of networks could be applied across Member

States. It also **restricts the use of state-of-the-art facilities and skills across borders**, and leads to sub-scale solutions, reducing the ability of industry to leverage capabilities across the EU to assist with incidents or cyber events in any given country. The prescriptive nature of the obligations also results in the **expertise of operators being set aside** in favour of pre-determined approaches, which may not be as effective.

Thirdly, the **cost of managing compliance** with the plethora of these highly prescriptive requirements must be **borne by the telco sector alone** and the financial obligations are not implemented in co-ordination with the economic regulation of the sector – most notably amounts paid for spectrum (auctions or annually) and associated coverage obligations. This is despite the fact that the benefit of secure and resilient networks being one that accrues across society. **These costs contribute to the poor economic health of the sector**, as the lack of commensurate change in the sector's economic regulation does not allow for the sector to absorb the costs.

We accept that **national governments have the sovereign right** to determine their national security and law enforcement requirements, based on national circumstance, and this approach is enshrined in EU treaties. However, the Commission must determine what more it can do to address this issue, and what levers it can pull to ensure a **more consistent and proportionate approach,** that avoids security obligations acting as a barrier to the single market and the achievement of scale in the communications sector.

Firstly, to the extent that the Commission has devolved implementation of security principles to Member States within an agreed framework, they should ensure that **Member States take action within that agreed framework**.

Secondly, more should also be done to **promote harmonisation**. In particular, the Commission should **develop harmonised frameworks** to facilitate a more uniform approach to security obligations; to encourage Member States to **refrain from strict localisation obligations**; and to **offer more flexibility to operators** to implement security obligations in a manner that best fits their operations and infrastructure.

Thirdly, security and law enforcement frameworks must ensure that the **costs of implementing any specific security obligations are funded appropriately**, and based on a set of uniform principles that apply across the EU. Furthermore, if the Commission applies pressure to Member States to implement non-proportionate measures it should be prepared to finance them.

Fourthly, the majority of these rules continue to be **applied primarily to 'traditional' telecommunications operators only,** despite a range of other actors in the ecosystem being equally accountable for the deployment of infrastructure and delivery of communications. This disparity creates not only a competitive disadvantage (given the compliance burden weighs heavier on telcos), but also risks a less than fully effective security and law enforcement policy framework when considering the digital ecosystem as a whole.

It should therefore be carefully assessed whether security and law enforcement obligations are being **targeted at the correct actors**. For example, by virtue of the current definition of publicly available Electronic Communications Networks (ECN) and Electronic Communications Services (ECS), many players in the ecosystem

who play a key role in the delivery of digital communications avoid being subject to these requirements. This should be addressed as part of any upgrade to security and law enforcement obligations.

If developed correctly, these measures in combination will enable operators to **ensure the security and resilience of their networks in accordance with requirements designed to be risk-based, fact-based and proportionate**, whilst ensuring that any objectively necessary technical measures are taken to address Member State concerns.

We set out below the specific policy roadmap the Commission should follow to achieve these goals.

Policy Roadmap

Topic	Policy Lever	Overview	WP Scenario
Open Strategic Sovereignty	Enshrining principle of Open Strategic Sovereignty in the Cyber Security Act and EU Security Certification Schemes	The Commission should ensure that the principle of **open strategic sovereignty is upheld** with respect to all security frameworks developed in line with the **Cyber Security Act.** Specifically, it should support **common technical certification schemes across the EU,** based on common standards and technical requirements only. This principle must be enshrined in the upcoming revision of the **Cyber Security Act,** and should be the approach taken when developing cybersecurity certification schemes under the Cyber Security Act, including **EUCS for cloud services and the 5G security scheme for 5G networks.** These security schemes should be developed as soon as possible, and in place no later than **Autumn 2024**. The revision of the Cyber Security Act should take place in 2025.	Scenarios 4 and 6
	EUCS Adoption	The Commission should maintain the currently revised **draft certification scheme** for Cloud services prepared by ENISA (V.1.0.413) which reverts to the **three original assurance levels** envisioned under the Cybersecurity Act. These changes **provide for transparency and allow both public and private entities to make an informed choice** and continue using **best in class cloud services** across the single market, with adequate protection of European data. We would call on Member States to give their full support to this version. EUCS should be adopted as soon as possible, and no later than **Autumn 2024.**	

	Open Digital Sovereignty to be included in Work Plan for incoming Commission	We call for the **inclusion of digital sovereignty on the agenda and work programme of the incoming European Commission** based on a strategically open approach to ensure that trusted services providers can continue to operate in the Single Market and contribute to the EU meeting its ambitious cloud-edge and AI deployment targets. This should be done in line with the adoption of the next Commission agenda and work-programme, by **early 2025**.	
Harmonisation of Technical Security Obligations	Introduce Pan-EU Impact Assessment Framework to complement the 5G Toolbox	The Commission should develop a **consistent and holistic impact assessment framework** and ensure it is applied by Member States when they are determining their approach to implementing security measures. This should be grounded in the need for **proportionality** and a **risk- and fact-based approach.** Specifically, the framework should ensure that Member States take the following aspects into account when implementing the EU 5G Toolbox: **i) the scope of the measures; ii) the time to implement them; iii) the cost to implement and related compensation, iv) the competitive impact of the measures on telcos and suppliers; v) existing alternative suppliers and relevant solutions (Open RAN).** Relevant industry stakeholders should be consulted throughout the Member States' impact assessment process. The Commission must then **refrain from taking any additional steps to push operators into taking additional security-driven actions** that go beyond Member State requirements. For example, they should not make funding conditional on the removal of certain vendor equipment from their networks. This approach should be taken with respect to the introduction of **any security obligations going forward.**	Scenario 4, 6 and 12
	Development of NIS2 Implementing Guidelines	The Commission should issue **implementing guidelines with respect to NIS2**, to promote harmonisation. The Commission should encourage Member States to follow these guidelines, and **refrain from adding requirements** that go beyond these. The Commission should also **consult regularly with industry stakeholders** to assess whether and where improvement is needed.	

		The implementing guidelines should be issued by **the end of 2024.**	
	Development of Common Standards and Implementing Guidelines for Cyber Resilience Act	The **Cyber Resilience Act (CRA) will replace the existing RED Delegated Act**, which lays down essential **cybersecurity requirements for products** with digital elements, with regard to their design, development and production. To ensure technical requirements under these acts are implemented in a harmonised way, **standards will need to be developed**, and adhered to. **Industry participation in the development of these standards is crucial.** Therefore, the Commission should task ENISA to **provide a dedicated website for publication of current and upcoming standardization requests,** including where these map to relevant legislation and timetables. This would improve visibility and transparency with respect to standards development and should allow industry to participate in the development of and adherence to developed standards. This should be done by **2025 for the RED Delegated Act, and by 2027 for CRA.**	
	Remove Localisation Requirements through Guidance	The Commission should develop **guidance and other supporting measures**, that encourage Member States to ensure that the Digital Single Market principles are upheld **and not undermined by localisation** requirements for data or NOC and SOC centres, that seriously hamper the development of a Digital Single Market. This guidance should seek to **narrow the differences in adopted practice** and ultimately be a precursor to Member States updating their security legislative frameworks in a **considerably more harmonised manner.** Such guidance should be issued **as soon as possible.**	
Law Enforcement	Establish an EU Board on Law Enforcement	The Commission should set up a **permanent board on law enforcement**, bringing together the **Commission, Member State authorities, and industry**. The board should have the objective of **facilitating best practice with respect to law enforcement obligations** and encouraging a more harmonised adoption of these across the EU.	Scenarios 4, 6 and 12

		This board should be set up **as soon as possible** to address the on-going fragmentation and issues this creates.	
	Development of Law Enforcement Implementation Guidance	The board should also be charged with developing **implementation guidance** that will encourage further harmonisation. In particular, it should issue guidance on: **Removing Localisation:** Guidance should encourage Members States to align on removing the strict 'localisation' requirements that a number of Member States apply with respect to lawful intercept and data retention obligations. **Operator Discretion:** We recommend that, whilst Members States continue to set national security objectives, decisions on how to operationally implement these should be left to organisations, with the ability for Members States to audit for effectiveness only. **Cost Recovery Principles:** The Commission should ensure a uniform approach to cost recovery principles for law enforcement obligation fulfilment, whereby cost recovery by operators is supported, but based on the decision made by the Operators on how to facilitate law enforcement obligations. **Digitisation:** The Commission should mandate that requests by law enforcement authorities (LEA) should be sent to operators digitally in a secure and safe manner. Such an approach would also help facilitate a centrally managed LEA capability. We note the recently issued broad recommendations of the **High-Level Group on Access to Data for Effective Law Enforcement**,[3] which were made with the aim of improving law enforcement activities, in particular on a cross-border basis. We urge the Commission to take note of these recommendations as they seek to better harmonise the law enforcement framework across the EU. This guidance should seek to **narrow the differences in adopted practice** and ultimately be a precursor to Member States updating their law enforcement frameworks in a **considerably more harmonised manner.**	

[3] Recommendations of the High-Level Group on Access to Data for Effective Law Enforcement (europa.eu)

		Such guidance should be developed in **consultation with industry** and be issued by **end of 2025.**	
	Removing Asymmetries	Given the increasing importance of 'Over the Top' (OTT) communications data, it is important that there is a **level playing field with respect to how LEA rules are applied to 'traditional' and 'OTT' communications players.** Therefore, in line with our recommendation in Priority 3: Same Service, Same Rules above, the **definitions applied to these players**, which impact the applicable obligations, **need to be reconsidered** to ensure that obligations are based on 'what' is being delivered, and not 'how' it is being delivered. We note that the recommendations of the beforementioned **High-Level Group on Access to Data for Effective Law Enforcement** also address this issue, highlighting the uneven applications of law enforcement rules between traditional communication service providers and 'OTTs', and making recommendations that would drive towards a more holistic application of law enforcement obligations such as data retention. We again urge the Commission to take note of these recommendations. This may be done through introduction of a **DNA in the short term (by end of 2024**), or through review of the **EECC (by end of 2025**).	
Sub-Sea Cables	EECC Definitions and NIS2	There is a lack of clarity in the EECC on the definitions of public ECN and publicly available ECS and how these apply in the submarine context. We need to see the inclusion of **clear definitions of public ECN and publicly available ECS in future legal and regulatory frameworks, in particular NIS2.** The definitions should be clarified at latest within the Code review timelines, with a proposal **at the latest by end of 2025.** These must then be **adopted into NIS2 by 2026.**	Scenarios 10 and 11
	Joint Governance Guidelines	To ensure a harmonised approach to **authorisation and permitting processes** for submarine cables, we advocate for **a joint governance process administered by relevant national authorities**, and **supported by the development of best practice** guidelines, for use across the EU Member States.	

		These should be provided for in final NIS2 legislation **by 2026.**	
	CPEI Funding	Vodafone strongly backs **the need for CPEI funding**. This should encompass: - A **global approach** in achieving the strategic aims of the CPEI. - **Transparent criteria** that consider factors such as scale, expertise, and operational capacity - **Accessibility to all trusted industry partners**, including non-EU countries, to ensure fair competition and best outcomes for the sector and customers. This should be provided for in EU work programme and legislation **by 2026.**	

Priority 5: Sustainability and Social Responsibility

We are pleased that the Commission recognises the critical role of the telco sector in protecting both our planet and the people inhabiting it.

On protecting our 'planet', the Commission WP recognises the **dual role the ICT sector plays in relation to sustainability**, both as a carbon contributor and as a **developer of technology that can significantly reduce global emissions**. It is therefore unsurprising that sustainability appeared as a key theme throughout the WP. Furthermore, on the back of rapidly-changing technological developments, and the consequent **growth in access to illegal and harmful content**, it is critical that **end-users are protected effectively** against emerging risks across all layers of the connectivity ecosystem. This has clearly been **recognised by the Commission in its recent legislative programme, in particular the DSA**.

In combination, these underscore the importance of a policy framework that **encourages the sustainable and socially responsible use of digital networks and services**, which is critical to the future of the digital sector. Vodafone is committed to its role in achieving these goals and takes its responsibility seriously. However, there are **weaknesses in the current framework** and a **lack of the correct incentives** to drive positive action.

In relation to sustainability, whilst many players in the ecosystem are taking **action to reduce their emissions**, there have been **limited practical steps at an EU level to facilitate this**. Therefore, it has typically been left to individual companies to determine the level of 'greening' activity they will undertake.

This is then exacerbated by a **policy environment that fails to create a solid business case for sustainability**. For example, complex and overlapping reporting requirements, such as the Corporate Sustainability Reporting Directive (CSRD), create unnecessary burdens and costs on companies, whereas the same outcomes could be achieved via less intrusive means.

The Commission should take direction from the recent activity of French regulators, who have created **a dedicated framework for the eco-design of digital services**, which will encourage all actors to take responsibility for their emissions and cooperate towards efficient use of resources. We welcome the Commission's recognition that **all players within the digital network ecosystem are required to play a role** in this regard.

It must also ensure that the **policies it has put in place to incentivise decarbonisation**, such as CSRD reporting and sustainability KPIs, work in practice for the communications sector. It should ensure that they **do not create unnecessary burdens**, and that the **specifics of the sector are appropriately addressed** in any horizontal rules. Furthermore, the **EU taxonomy** initiative is designed to support the net zero transition and to encourage investment in green activities, but it has not yet been tailored to account for **specificities of the telecommunications sector**. This must be addressed.

In sum, to ensure that the regulatory framework truly incentivises sustainability, it must be based on three pillars: i) **predictability** – businesses must be made aware of the rules that will apply to them; ii) **stability** – businesses should be able to plan for the long term against a regulatory framework that is not subject to regular change; iii) **simplification** – compliance with the frameworks must be easily facilitated. If the above noted actions are taken, this will come some way to achieving this three-pillar approach.

Additionally, we highlight that the **green transition will be supported by a shift towards new network technologies** such as 5G standalone, and the use of technologies such as Open RAN. However, a healthy telco sector is required to enable investment in these greening technologies, as set out in relation to Priority 1 above.

On **protecting people and end-users** of digital services in Europe, the key consideration of the Commission must be to effectively balance protecting end-users from harm, with considerations including ensuring privacy of communications, and encouraging innovation.

Steps are being made in the right direction. In particular, the **DSA marks a paradigm shift in the regulation of digital platforms** by introducing for the first time comprehensive legal obligations for the parties that play the most significant role in the dissemination of harmful or illegal content, namely the very large online platforms. Given the **volume of investigations initiated** (at least seven at the time of writing) and the **significant volume of requests for information** issued in the short time since the DSA came into effect, concerted **effort and sufficient resource will be required for the Commission** to guarantee the new rules are implemented and enforced effectively and identified gaps are urgently addressed. The Commission must build on the success of the DSA and continue to take effective implementing measures to protect end-users. It must see this as an on-going process, and be willing to tackle developing areas, such as addictive platform design.

However, there are other areas that must be addressed if end-users are to be **fully protected online**. Vulnerable end-users, in particular children, must be protected from exploitation and harm. This should be addressed by regulatory frameworks that place clear obligations on the providers and platforms that are in a position to take action to prevent online harms. For example, an effective Child Sex Abuse Material (CSAM) regulation should prevent the dissemination of CSAM content, and a future Digital Fairness framework should work to limit harmful online choice architecture.

These frameworks must **not be diluted through the application of competing principles**. For example, certain regulations (such as the Open Internet rules), and technical developments (such as the wide-spread adoption of end-to-end encryption) can frustrate the ability of ISPs to effectively and proactively take steps to protect children and other users from the spread of illegal and/or harmful content. Effective protection of these users must be the end-goal of regulation, ensuring that **each player in the ecosystem takes into account their social responsibility** to protect end-users in the development and deployment of their services.

Finally, the **Universal Service framework** in the EU was designed to ensure the **availability and affordability of decent broadband and voice services** for every citizen in Europe. Whilst a laudable goal, it has not proven effective, and the situation has developed now to the point that the current framework is no longer fit for purpose, and simply creates a disproportionate and unnecessary cost burden on operators.

We recommend the Commission take a number of steps to address these issues, as outlined below. In combination, these measures will **encourage a more responsible and sustainable use of networks and services**, support the **twin green and digital transition**, whilst **ensuring universal access to a safe digital environment** for all end users.

Policy Roadmap

Topic	Policy Lever	Overview	WP Scenario
Sustainable Use of Networks and Services	Eco-Design of Networks Code of Conduct and Eco-Design Expert Group	The Commission should develop a **Code of Conduct that would apply to the different players with a role in the design and conveyance of traffic**, and that will encourage them to design said services in an eco-friendly and sustainable way. The Commission should include **this Code of Conduct as part of the overarching regulatory framework** for the sector (i.e. the DNA and/or revamped EECC), to ensure utmost account is taken of it. To complement this, and as part of Joint Agency for Standardization and Technology Europe initiative outlined above, the **Commission should include the development of an expert group on Eco-Design**. The **Code and Expert Groups should be set up as soon as possible**, so that **reference can be made to them within new regulatory frameworks** for the sector.	Scenario 7
	Reporting Obligations Under Corporate Sustainability Reporting Directive (CSRD)	To help reduce **unnecessary burden triggered by additional CSRD costs**, we recommend the Commission: - **Implement a transition phase before CSRD assurance is required,** to allow companies to first implement reporting, and have time to respond to EFRAG requirements. - **Continue to align and simplify CSRD standards and definitions** via the ISSB, and with other national frameworks from third countries. CSRD update should be **completed by end of 2024.**	Scenario 7
	Sustainability KPIs	**Align any future telecom sustainability KPIs (including under the code of conduct) with the CSRD's ESRSs and with the EU Taxonomy.** This should be addressed at the **point KPIs are introduced**.	
	EU Taxonomy Framework	The **EU Taxonomy framework must be updated** in order to: - **Simplify the Technical Screening Criteria** in the EU Taxonomy climate delegated act.	Scenario 7

		- **Include Electronic Communication Networks** based on KPIs that are aligned to CSRD reporting. - **Include the enabling effect of Electronic Communications Networks and IoT** in the Taxonomy. The taxonomy framework should be updated **within 1 year.**	
	Legacy Network Switch Off: EU Commission Study and Action Plan on eCall	Existing **eCall Regulations are acting as a barrier to the efficient sunset of 2G networks** and the **refarming of 2G spectrum into more energy efficient networks** such as 4G and 5G. The Commission should therefore develop a **strategy and action plan for eCall** that ultimately trends towards the **phase out of 2G supported eCall systems**, and allows for the **switch off of 2G networks**. Furthermore, the Commission should **allocate sufficient funding to compensate** impacted operators in the process of preserving the eCall service functionality until such point that legacy systems are no longer in use. The Action plan should be put in place as soon as possible. Network operators should not be required to support legacy systems beyond 2030.	N/A
	Introduction of an IP-IC Dispute Resolution Framework	We believe the introduction of a price signal associated with the use of network capacity to be a clear way to incentivise CAPs to reduce the impact of their traffic. This should be facilitated through the introduction of a dispute resolution mechanism that can be used in the context of technical and commercial arrangements between CAPs and their intermediaries and network operators for IP-IC. Please refer to our Dispute Resolution Mechanism proposal under Priority 1 for further details.	Scenarios 4 and 6
Socially Responsible Use of Networks and Services	DSA Implementation	We strongly support the primary objective of the legislation to deal with illegal and harmful material disseminated online. The following further **implementation measures should be taken** to address this: - **Curbing Addictive Platform Design**: The European Commission should use its powers under the DSA to instruct providers of Very Large Online Platforms (VLOPs) against deploying addictive platform design features in Europe, including autoplay functionality.	N/A

		- **Guidelines on Mere Conduits:** The Commission should bring forward guidelines for mere conduits on how they can deal with conflict of laws that arise under the DSA and provide a clear statement that where the DSA contradicts with national security powers, the latter should always prevail. - **Rulebooks**: The Commission should monitor closely and resist efforts to introduce national or content specific rulebooks that diverge from the harmonised approach to content moderation set out under the DSA. Actions to support the implementation of the DSA should be completed **within 1 year.** However, whilst DSA implementation is a strong starting point, the Commission should also now ensure 'fairness' and effective consumer protection across the digital ecosystem more broadly, by developing a Digital Fairness Act, that captures all relevant actors, and seeks to prevent harmful design of applications and services, to the benefit of end-users.	
	CSAM Regulation	The Commission should ensure the adoption of the CSAM Regulation. The framework should be robust, but should be appropriately targeted at the correct players, specifically those that have the capability to take action against CSAM dissemination. It should therefore take a risk based and proportionate approach when determining scope. For example, we agree with the current Parliament text that excludes NB-ICS from scope on basis that these are not a significant vector for distributing CSAM. The Commission should also seek ensure expedient adoption, by end of 2025 latest.	
Universal Service Reform	Affordability	The Universal Service Obligation (USO) has not proven to be an effective tool in ensuring accessibility and affordability. Therefore, **further interventions to support vulnerable groups** should be **state funded** and **based on demand-side subsidies such as vouchers**. This should be addressed by individual Member States immediately and based on need.	N/A
	Availability	The Commission should continue to make **EU Recovery style funding** available to **Member States. The latter are best placed to make decisions** on areas where high quality connectivity is missing but where the economics of private roll-out are not present. Member States must ensure that any schemes funded by such programmes do **not crowd out private investment**.	

		Proposals on the reallocation of remaining Recovery and Resilience Facility (RRF) funding should be in place by end of 2024. To the extent the EU and Member States **wish to maintain a USO framework** that **relies on contributions from network operators**, this **must be expanded to cover all those who benefit from communications infrastructure, specifically the largest content generators whose business models are based on unlimited access to network infrastructure.** Influence could be taken from recent US proposals to expand their Universal Service framework in this way. This should be done in line with proposals for an introduction of a **Digital Networks Act,** to be published by the end of 2024.	

Section 6 – Response to the WP Scenarios

The Commission is consulting on 12 scenarios for public policy actions under the three pillars of:

- Pillar I: Creating the "3C Network" – "Connected Collaborative Computing"
- Pillar II: Completing the Digital Single Market
- Pillar III: Secure and Resilient Digital Infrastructures for Europe

These scenarios aim to address the challenges in the EU digital communications sector rightly identified by the Commission. These span from connectivity and infrastructure, to technology, and the difficulties in achieving the scale that would help address investment needs, the financial situation of the sector, the lack of a single market, the developments on convergence and level playing field, and sustainability and security requirements. The views collected will inform its future proposals.

As mentioned above, we are aligned with the Commission's problem definition and challenges identified. We have provided in Section 5 our views on the solutions required, including the required policy levers, actions and timing.

In this section, we provide responses to the concrete scenarios, with a focus on Pillar II (Scenarios 4 to 6). Our focus on these Scenarios stems from the fact that:

- In our view, they address the key priority areas for action (even if we are not fully aligned with the Commission's proposed way forward in all cases).
- Getting the Pillar II actions "right" will foster competitive private investment in the sector, and consequently limit the need for public funding to areas where there are 'market failures'. These outcomes will therefore have a direct impact the actions needed to address the scenarios identified under Pillar I and Pillar III.

Our responses below build on the inputs provided in Section 5.

Pillar I: Creating the "3C Network" – "Connected Collaborative Computing"

Scenario 1: Pilots for telco cloud and edge

The Commission may consider proposing large-scale pilots that set up end-to-end integrated infrastructures and platforms for telco cloud and edge. In a second step these pilot infrastructures would be used to orchestrate the development of innovative technologies and AI applications for various use cases.

Vodafone response: We welcome the recognition in the White Paper of the increasing importance of the cloud to edge continuum, and that the so-called 'industrial internet' will rely on having a distributed edge processing capability across Europe. We further agree that over the coming 10 – 15 years, an increasing number of cloud workloads will move from the core cloud to the edge. This will be done to i) manage the increasing capacity / hosting demands, as this allows for storage and compute to be built in a distributed manner; ii) improve the quality of delivery of new applications and content, which will rely on lower latency to perform effectively; and iii) reduce transport costs.

However, we see that the *means* of achieving this may not primarily be through the development of "telco edge cloud" as envisaged in the comprehensive Industrial Technology Roadmap of the European Alliance for Industrial Data, Edge and Cloud, and as suggested in the White Paper. As the Commission has recognised, Europe is not close to reaching their ambitious target of 10,000 climate neutral highly-secure edge nodes to be deployed by 2030, alongside the adoption of cloud technologies by European companies.

Instead, the success of an 'edge ecosystem' will likely rely on further telco edge node deployment, *combined with* partnerships with increasingly regionalised hyperscaler cloud providers who can provide ever increasing processing capabilities closer to the edge.

Our detailed views on policy actions needed: Whilst we would welcome the introduction of pilots to support telco cloud and edge, these should take into account the realities of achieving an effective cloud to edge continuum. This will likely mean supporting projects that go beyond pure telco edge, but also those which take account of the convergence between hyperscaler cloud and edge, and telco networks.

To facilitate this, and linked to the proposals in Scenario 1, we would recommend the creation of a dedicated EU-funded Edge Technical Research Centre / Centre of Excellence. This would employ its own staff of technology experts and would conduct key areas of research, that would not necessarily be prioritised by individual commercial companies. This Edge Technical Research Centre could provide much relevant guidance, complement companies' contributions and thereby provide a more balanced approach in the interest of the public.

This should form a sub-group of a broader Joint Agency for Standardization and Technology Europe (JASTE), as proposed in Section 5.

In addition, the Commission must consider the regulatory framework that currently applies to 'cloud' and 'edge' solutions and assess whether they remain fit for purpose in an increasingly converged world. As outlined in Section 5, this will include assessing:

- Whether there is a need to expand concepts on interoperability and interconnection into this ecosystem.
- The need to ensure an approach of 'open strategic sovereignty' in the regulation of providers of services into Europe, applying proportionate, objective, technical criteria in determining the ability of providers to offer services in the EU, which will allow for best-in-class technology.
- Ensure new digital frameworks such as the Data Act, AI Act and DMA are implemented effectively.

These go beyond the proposals outlined in Scenario 1 and are covered in more detail in Section 5.

Scenario 2: Infrastructure Focussed IPCEI

The possibility of following-up the accomplishments of IPCEI Next Generation Cloud Infrastructure and Services (CIS) by a new infrastructure-focussed IPCEI could be discussed by the Commission's Joint European Forum for Important Projects of Common European Interest (JEF-IPCEI), which is tasked with identifying and prioritising strategic technologies for the EU economy that could be relevant candidates for future IPCEIs.

Vodafone response: We agree that the EU can play a critical role in promoting innovation and supporting the development of new strategic technologies, as we have outlined above in relation to Priority 4.

Given IPCEIs are intended to focus on projects that are key to strategic sovereignty, we would underline the following sectors as focal points for the Commission: artificial intelligence, quantum technology, sub-sea cables, 5G standalone, edge and cloud computing.

With respect to the design of IPCEIs and their eligibility criteria, they currently focus strictly on the location of the 'headquarter' of participating companies, and therefore operate to exclude companies that have an HQ external to the EU, even where they have predominantly an EU footprint. Instead, the Commission should ensure an approach of 'Open Strategic Sovereignty' is used in making decisions on participation (as explained above in Section 5). IPCEIs have also been slow in execution, an issue which must be addressed if IPCEIs are to have the desired impact in areas characterised by rapid innovation and technological change.

Notwithstanding the above, the role of the EU and national governments should *primarily* be focussed on crowding in private investment into these areas. This will only be achieved if the policy objectives identified above - in particular Policy Prioriy 1 and 2 - are addressed.

Scenario 3: Investments in Connectivity Capacity

Massive investments in connectivity capacity are required to support the creation of a collaborative connectivity and computing ecosystem. The Commission may consider different options in order to frame these investments into a simplified and coordinated support framework for a truly digital single market drawing on European and national, public and private investments.

- *This should streamline procedures and improve synergies between existing instruments and programmes (including based on the experience with the Chips Joint Undertaking, Important Projects of Common European Interest, the Connecting Europe Facility and the Digital Europe Programme), possibly tasking as a pilot under the current Multiannual Financial Framework the Smart Networks and Services Joint Undertaking (SNS JU) to adopt a more coordinating role, and by liaising with stakeholders such as the European Alliance for Industrial Data, Edge and Cloud as appropriate).*

- *This should explore means to ensure strengthening coherence, simplification and clarity of future support action, without prejudice to institutional programme design and budget allocation prerogatives under the next Multiannual Financial Framework.*

Vodafone response: Vodafone supports the Commission's analysis on the need for massive investments in the connectivity ecosystem. The constant demand for higher data speeds, better quality and more traffic have led to frequent upgrades in mobile radio technology, the roll-out of more transmitter sites, and the deployment of more frequency bands.

To counter the main challenges to further deployment, all of the issues we have identified above, in particular under Priorities 1, 2 and 3 (in relation to market structure, fixed network regulation and spectrum, and fairness in the digital ecosystem), need to be addressed.

These should be the focus, as they will unlock significant private investment into network infrastructure. To the extent public funds are needed, there is a clear role for the Commission to play to ensure the fair allocation of those funds and harmonised rules in relation to the beneficiaries of those funds. It is not clear what the Commission envisages in relation to the single framework drawing on European and National, Public and Private Investments. The Commission should provide more details as to what this means in practice.

Pillar II: Completing the Digital Single Market

Scenario 4: Regulatory Level Playing Field

In order to address the converged electronic communications connectivity and services sector and to ensure that its benefits reach all end-users everywhere, the Commission may consider broadening the scope and objectives of the current regulatory framework to ensure a regulatory level playing field and equivalent rights and obligations for all actors and end-users of digital networks where appropriate to meet the corresponding regulatory objectives; given the likely global magnitude and impact of the technological developments and of any possible regulatory changes, a reform of the current framework needs to be properly assessed in terms of the economic impact on all actors as well as debated broadly with all stakeholders.

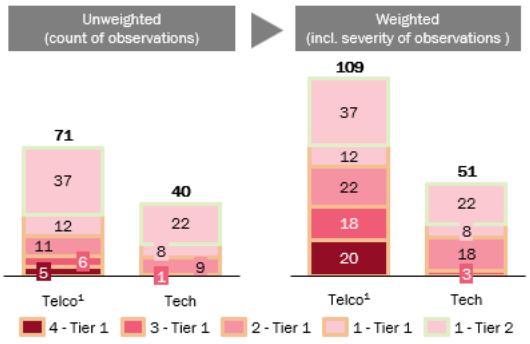
Vodafone response: The WP has rightly recognised that technological developments, in particular convergence, has led to a range of other actors playing a role in the digital communications ecosystem. Despite this convergence meaning that many of these players are now providing equivalent or complementary services, they are *not* subject to the plethora of rules applied to telcos, and benefit from lighter-touch regulatory frameworks centred on higher levels of harmonisations, which has enabled them to easily scale up and deploy services across Europe. As a consequence, there is no regulatory level playing field in digital communications.

The WP therefore correctly raises the question of whether the "*players in such converged ecosystem should not fall under equivalent rules applicable to all and whether the demand side (i.e. end-users and in particular consumers) should not benefit from equivalent rights".*

To help size-up the scale of this issue, Vodafone requested consultants Analysys Mason to:

- Identify all the key requirements that apply at or across each layer of the digital ecosystem;
- Map them against telcos and tech companies; and
- Assess the severity of impact they entail across these two different groups of players, which are split into:
    - *Tier 1* – the regulatory obligations that are most intrusive. These are the rules that seek to establish restrictions on / requirements for service and access provision, result in a longer time-to-market deployment for new products and services, or complying with them results in significantly increased costs (e.g. licensing for spectrum access, price control).
    - *Tier 2* – are those regulatory obligations that are less intrusive and create less of a compliance burden (e.g. requirements related to protection of consumer rights, transparency).

The findings are summarised below. The chart on the left shows the number of times each level of intrusiveness is seen – with 71 interventions on telcos and 40 on tech companies. The chart on the right weights these by the degree of intrusiveness, thereby comparing the intrusiveness of the regulations for telcos and tech companies. It shows the weighted impact of regulation on telcos is over twice that of tech companies.



The Commission's WP similarly identifies specific areas of disparity. For example, it establishes that "*the existing EU regulatory framework for electronic communications networks and services does not establish obligations related to the activities of cloud providers and does not regulate the relationship between the various players in the new complex digital infrastructure ecosystem*" and that "*Even if cloud providers run large (backbone) electronic communications networks, these networks are exempt from parts of the electronic communications regulatory framework, notably in the area of access regulation and dispute resolution.*"

It also accepts that the existing framework, underpinned by the Code, makes stark distinctions between service categorisations and the obligations applied to them, with a much heavier regulatory burden being placed on number-based interpersonal communications services (NB-ICS) and internet access services versus number independent interpersonal communication services (NI-ICS).

These disparities create several risks.

Firstly, they risk undermining consumer protection: end-users are not protected by the same rules, even for services they consider to be functionally equivalent.

Secondly, they limit the ability of parties to compete fairly. This can play out in a number of ways. For example, there is a clear competitive disadvantage in the development and deployment of innovative and value creating services if one group of players is subject to complex and costly regulatory obligations and another group is not, despite 'competing' in the same sector.

Thirdly, certain players, such as cloud service providers or CDNs, play an increasingly important role in the network ecosystem. For example, they are now involved in i) the deployment of private infrastructure to transport content (around 70% of network traffic is now carried over private networks); ii) the integration of cloud components into end-to-end communications services; iii) the cloudification and virtualisation of networks. Yet, they are not subject to 'network'-based regulation (such as interoperability, interconnection or access). They will therefore continue to increase their already significantly imbalanced bargaining power and be in a position to impose unfair conditions.

For example, and as has been well documented in the 'fair share' debate, network operators have to date been unable to introduce a pricing mechanism for bilateral IP-IC arrangements. This is due to an imbalance of bargaining power between telcos and large CAPs and their intermediaries.

This lack of level playing field has played a significant role in the downward trend in the economic health of the telco sector. This is evidenced by the extreme disparity in fortunes between European telcos (who have suffered years of continuous downward ARPU pressure, and ROCE lower than WACC for over a decade) and the small number of US big tech firms (who have been able to use the lighter touch and more harmonised framework they operate in to their advantage, and scale up and expand into a number of levels of the communications value chain).

Absent reform, the health of the telco sector will remain weak, and the innovation and investment needed to support next generation network infrastructure that is vital for Europe's future competitiveness remains at risk.

Our detailed views on policy actions needed: The White Paper has made high-level suggestions on how these issues could be addressed, including broadening the scope and objectives of the regulatory framework to ensure a level playing field, based on detailed consultation with stakeholders.

Whilst we welcome these ideas, there is a lack of clarity within the WP as to *how* they can be achieved. Therefore, below we provide more detailed thoughts on the specific actions that should be assessed by the Commission, to achieve these goals.

Digital Networks Act: In light of technological changes, as noted above, there are now a range of players that play a critical role in the digital network ecosystem yet are not subject to comparable rules. A Digital Networks Act should be introduced urgently, and in advance of the Code review timeframe, to avoid that the issues identified become entrenched. An overview of what should be covered by a DNA (and eventual Digital Communication Framework) is summarised in Section 5 above.

Expansion of Sectoral Regulation: Core legal principles that apply to ECN and ECS under the existing framework should be expanded to other providers of core network services (such as cloud and CDN infrastructure providers) and 'over the top' communication service providers, who play a key role in the delivery of content and services. In particular, the following obligations should be expanded to cover this group of players:

- Interoperability,
- Interconnection,
- Consumer protection,
- Law enforcement, and
- Emergency services support.

This could be done initially through a Digital Networks Act, as highlighted above. However, this should also come, eventually, through Code reform, with the creation of an overarching framework for Digital Communications that seeks to regulate based on what service is delivered, rather than how it is delivered.

The definitions within the framework and the ramifications they have for service regulation should be carefully assessed and, where appropriate, updated to take a more holistic view to regulation. For example, we see several 'network independent' interpersonal communication service providers who still make use of and have control over numbering resource yet remain outside the scope of the rules that apply to number-based interpersonal communication service providers. This should be addressed to ensure a fair apportionment of liability.

Introduction of a Dispute Resolution Mechanism: As part of the expansion of sectoral regulation, the Commission should introduce a dispute resolution mechanism that would facilitate commercial settlement for IP-IC arrangements between network operators and other operators of core network facilities.

As context for this, the way network infrastructure is designed and used has changed drastically in the past decade, as we outlined in detail in our response to the Future of Connectivity Consultation last year.

Historically, the internet ecosystem operated with network operators exchanging traffic with other network operators on a settlement-free basis. These settlement-free peering arrangements were made based on relatively symmetric IP data traffic exchange between large international network operators (Tier 1). In addition, local network operators (Tier 2 & 3) interconnected with large international carrier networks and purchased IP transit services to have access to the entire open Internet.

The situation today is unrecognisable from this.

Firstly, there are now significantly higher volumes of traffic on the Internet. Both average and peak traffic on a global level doubles every three to four years.[4] Between 2021 and 2022, increases in transported data traffic of up to 50% in fixed broadband networks and up to 35% in mobile networks were recorded, with differences depending on the network operator and type of network.[5] It is expected that by the end of 2028, data traffic in mobile networks alone will quadruple.[6] When broken down to individual users within the EU for fixed networks, an annual growth rate of 20% is predicted for the next years, increasing from 225 GB/month (2022) to 900 GB/month (2030).[7]

This is driven directly by the business models of large CAPs, which are broadly based on increased consumption of their services, and rely on connectivity to deliver these. This is likely to continue with the development of new and evolving applications (such as increased live streaming over digital; increased quality of video services; AI powered applications).

Secondly, the network ecosystem has become increasingly 'privatised' with many CAPs choosing to 'bypass' public network transit infrastructure and exchanges in favour of privatised infrastructure, in part to handle these increasing data volumes.

These CAPs have developed their own global networks and infrastructures, such as data centres, subsea and fibre optic cables, and content delivery networks (CDNs), to deliver their services and content more efficiently in support of their own business models. Today, around 70 percent of global Internet traffic flows through the proprietary backbone networks of large CAPs. This is a stark contrast to the less than 10 percent observed prior to 2012.[8] However, as no CAP player has entered the segment for telco 'access' networks in any meaningful way, they still rely on connecting to ISP access networks to reach their end-users.

Thirdly, the data exchanged between these private ecosystem and public access networks has become incredibly asymmetric. For example, based on figures from October 2023 in Germany, the balance of "incoming traffic Gbit/s" compared to "outgoing traffic Gbit/s" for our top 15 bilateral interconnect partners was a ratio of around 20:1.

Taking these factors into account, the conclusion drawn is that the Internet has evolved from a decentralized, user-centric communications network to a content delivery network. This, in particular, applies for the largest CAPs, and the relationship between these large CAPs (and their intermediaries) and integrated ISPs has evolved from a symbiotic coexistence to a pure business-to-business ("B2B") relationship.

Yet, despite the relationship evolving from a technical perspective, it has not generally been possible to introduce fair commercial terms into these relationships. This is due to the asymmetric bargaining position that exists between vertically integrated ISPs and large CAPs (and their intermediaries). This stems from several interlinking factors:

- The application of the Open Internet regulation creates a 'must carry' obligation for integrated ISPs: we must carry traffic on our access networks on a non-discriminatory basis. This means that although we are not obliged to enter into bilateral peering or CDN arrangements with any particular partner, we must carry their traffic when it enters our network through any exchange route.

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4 Cf. TeleGeography, The State of the Network, 2023 Edition, p. 10.
5 Cf. Sandvine, Global Internet Phenomena Report, 2023, p. 7.
6 Cf. Ericsson Mobility Report, 2022, p. 18; Sandvine, Global Internet Phenomena Report, 2023, p. 22.
7 Cf. Arthur D. Little, The Evolution of Data Growth in Europe, Report 2023, p. 18 ff.
8 Cf. Analysis Mason, IP interconnection on the Internet, A European perspective for 2022, 2022, p. 23 based on TeleGeography 2022.

- This gives CAPs significant leverage: they can select to route traffic through an alternative sub-optimal route rather than pay a fair price for IP data transit, thus reducing the quality of experience for end-users for which ISPs, not the CAPs, would be blamed by end-users.
- This is exacerbated by the fact that several CAPs have grown significantly in size and market power to the point where ISPs are compelled to ensure that the traffic from major content generators is available at high quality to their own end-users, given the services from these CAPs are so heavily consumed.

Consequently, despite the significant shift in the ecosystem, there is limited incentive to date for CAPs or CDNs to re-negotiate with telcos in relation to the technical and commercial arrangements for CDNs and bilateral peers: they broadly operate on a 'take it or leave it' basis, and most of these relationships continue to operate on a 'handshake' only basis, absent a contractual founding.

The result is a vicious circle for integrated ISPs: CAPs and their intermediaries have limited incentive to internalise cost, as an increase in traffic on their side increases their profitability. At the same time, the costs on their IP interconnect partners (i.e. ISPs) continues to rise to manage these traffic increases (for example through capacity expansion requirements; or to address 'spill over' events as a result of sudden traffic floods).

In essence, CAPs are receiving a service that should be paid for. We therefore welcomed the recognition in the White Paper that, as a result of this shift to very direct and cooperative interaction between CAPs and ISPs, it should be possible to agree on technical and commercial conditions bilaterally for these arrangements. We would welcome such commercial settlement and are now proactively pursuing such agreements with our IP interconnect partners.

However, as set out above, we are of the view that a regulatory framework is required to underpin such arrangements. Absent this, the continuing asymmetric bargaining power will continue to act as a barrier to the conclusion of fair commercial settlements.

We therefore do not agree that the Commission should postpone the introduction of such a framework simply due to *"few known cases of intervention (by a regulatory authority or by a court) into the contractual relationships between market actors",* as indicated in the White Paper.

In particular, as explained above, due to the imbalance of bargaining power, the majority of these relationships still operate absent a contractual basis. It is not clear, therefore, how these could be taken to formal court dispute.

Furthermore, as 'private' network infrastructure (such as CDNs or bilateral peers with large CAP infrastructure) is not currently in scope of the interconnection obligations that *do* apply to public network operators, there is no recourse to an established dispute resolution mechanism via NRAs.

Therefore, a key reason there are so few formal disputes is due to the handshake / unpaid nature of the relationships which ISPs are unable to reshape for the reasons outlined above. Behind the scenes, however, there are many instances of informal/non-public disputes with respect to payment and conditions of IP interconnect arrangements. To provide a few examples:

- A major hyper-scaler threatened to pull all of their caches (which would result in significant quality degradation and potential capacity overload at other 'unprepared' points in the network) if they were required to pay.
- A major hyper-scaler required the operator to take ownership (and therefore tax liability) of their CDN equipment, as a condition of installing their CDN on the network.

- A major hyper-scaler threatened to, and then followed through, in stopping all traffic entering through pre-configured ports, and instead let the internet traffic route through transit, at significant cost to the ISP. The end-result was an acquiescence to a demand to host the hyperscaler's CDN on-net at no cost.

We welcome the Commission's proposal to introduce "dispute resolution mechanisms", but believe this should be done with urgency, rather than waiting for *further* evidence of an imbalanced ecosystem.

We encourage the Commission to act now to introduce a framework for the conclusion of such agreements in a way that:

- Remedies the asymmetric bargaining power between large CAPs and their intermediaries and with providers of ECN.
- Facilitates payment towards the costs of the valuable services provided by ECNs to CAPs, ensuring a fair and reasonable price for the services provided to CAPs for the delivery of traffic to end-users.
- Incentivises CAPs and their intermediaries to deliver traffic in a more efficient way.

There are options as to how to achieve this. However, as outlined above, a simple way to achieve this would be to expand and adapt the interconnection and dispute resolution principles that currently sit in in the Code to additional core network operators, through the introduction of a DNA.

Alternatively, this could be introduced as a stand-alone framework for dispute resolution (similar to the News Media Bargaining Code introduced in Australia).

Review of Open Internet Framework: The aim of the Open Internet Regulation is to ensure the "*functioning of the internet ecosystem as an engine of innovation*" in Europe and to protect end-users from the actions of those identified at the time as 'gatekeepers' in the digital ecosystem: the internet service providers.

However, with the technological evolution over the past decade leading to significant commercial and structural changes in the digital ecosystem, these legitimate aims are no longer delivered under the current rules. The current framework does not apply to the true gatekeepers of the digital ecosystem: the largest platform operators. These players have significantly more scope to shape the internet experience of end-users since they seek to exert increasing control over the quality of experience for end-users, via solutions at an application, device or software level.

For example, there has been a considerable expansion in recent years in the volume of data being conveyed over private networks, in particular the use of CDN services (proprietary or commercial). These CDN providers are able to include quality of content and can differentiate prices based on the quality of service they offer to content providers. They also apply traffic management techniques such as load balancing and prioritising certain traffic (e.g. live streaming), in a way ISPs cannot due to the rigid application of the OIR rules.

Another example is in the increasing role operating systems play in the end-user experience. For example they:

- Control the access and cost structure of app stores, with only recently introduced limitations on this through the DMA.
- Control the ability for networks and network slices to 'access' the OS ecosystem. It is now technically possible to map different applications to network slices based on the needs of the different services/content. However, the OS providers are seeking to maintain full control over how this is done, (i.e. dictate the quality needs of this content) and exclude network operators from providing this service to end-users.

- Offer privacy enhancing services such as Apple Private relay, which both *blocks* our ability to identify traffic on the network for quality measurement purposes and impacts the routing of the traffic and therefore the quality.

Despite these capabilities and the role these players (and others) now play in the delivery of content, they are not constrained by compliance with the current regulation: instead, they are able to exploit it.

Furthermore, the potential for ISPs to act as 'gatekeeper' of the internet experience has vanished since the introduction of the OIR. The competitive dynamics and structure of the market imposes neutral and open conduct on telecommunications operators, which would apply even if the OIR were removed today. It would be economically unviable for an ISP to unjustifiably block or throttle legal content on the internet as customers would not accept it and would rightly move to a different operator.

These misaligned regulatory obligations add to the telecoms sector's challenges, thus affecting the competitive dynamic with tech companies and making it harder to justify investments in network upgrades that are crucial for European economic growth.

Adding to this challenge is the lack of clarity on how the regulation will be applied to developing technologies, which have come into existence since the introduction of the Open Internet rules.

For instance, operators are enhancing their networks to support advanced 5G capabilities such as network slicing and high-speed, low-latency technologies. This includes transitioning towards more flexible, software-based networks that can offer on-demand connectivity ("network as a service"), at the quality required by specific applications and services, via developments such as network APIs. However, these types of service, which offer a far more symbiotic relationship between content and connectivity, sit at odds with the core principle of 'equal treatment of traffic' enshrined in the Open Internet rules, and it is very difficult to navigate the narrow exceptions to this rule, such as the 'specialised services regime'.

The same also applies to developing network management techniques, which could help mitigate the impact of ever-growing traffic volumes, but do not sit comfortably within the conditions for compliance traffic management. An example would be 'L4S' which would allow content providers to 'mark' their packets if they require low-latency, which would facilitate a more effective queuing system for traffic.

As a consequence, operators fear investing in new ideas or deploying new technologies that might later be considered contrary to OIR. This was clearly exemplified by the European Court of Justice's 2020 decision that found zero-rating practices to be contrary to OIR, despite this being years of settled practice that were popular with and benefited consumers.

Additionally, different Member States and regulatory authorities may interpret the Open Internet rules differently, which creates uncertainty, especially regarding innovative technologies like 5G network slicing. If a finding of non-compliance is made in one Member State, it may trigger a domino effect of other Member States coming to the same conclusion; equally it may result in a service being compliant in one Member State, but not in another.

Such uncertainty leads to slower adoption of new digital services and dissatisfaction among users. Without the ability to develop these services, operators struggle to profit from their network investments, limiting their capacity to invest in future upgrades. We see this as a vicious circle.

The paradoxical effect of the failure of the Commission to keep OIR obligations current means that tech companies have the market power in the Internet ecosystem yet are free from obligations that would constrain this power. ISPs, who do not have market power, instead face the obligations.

Whilst the WP did not address the topic of Open Internet directly, given the weight it places on the need to support European innovation and create a regulatory level playing field, we believe the following policy actions should be enacted.

European Commission Guidelines: To attain the required certainty for innovation in networks and services, we would propose to complement the current framework with a European Commission Recommendation providing guidance to obtain clarity and certainty regarding the application of the Regulation to developing use cases. This is critical for the future development of the European telecoms market, including in relation to the swift and efficient delivery of 5G and the use cases it supports across the EU. This has been recognised by the Commission in its April review of the Regulation, and more recently recommended by Enrico Letta in his report on the "Future of the Single Market".

The guidance should address, amongst other things, the need for i) clarity and consistency regarding the definition and regulation of non-public services, ii) resolving ambiguities around traffic management rules, and iii) clarity on how to demonstrate compliance for so-called specialised services that are supported by the differentiation in the capabilities of 5G networks. This could be presented in the form of an analytical framework, that could be used by Operators and NRAs alike to assess the compliance of use cases / categories of use case. We note that this approach, recently adopted by Ofcom, is already giving operators in the UK confidence to deploy new traffic management techniques and develop further proofs of concept on the 5G network.

We would also welcome, in addition to any analytical framework, a non-exhaustive list of use cases that are assumed to comply with the Open Internet Regulations. EC would recommend the competent authority to *ex-ante* consider the use cases in that list as compatible with the OIR. Any other case not explicitly mentioned should be considered and assessed in the context of the new Commission guidance and the principles outlined in the Regulation, complemented with the BEREC Guidelines.

Our view is that the Commission is best suited to provide the regulatory certainty needed to address these ambiguities. This is due to its ability to ensure a harmonised approach in the application of EU law, its primary role in shaping policy in the telecoms sector, its focus on ensuring the successful deployment of next-generation-networks and to complement the technology-neutral approach of BEREC, with guidance focused on new innovations, in particular 5G network slicing.

Given the: i) dynamic nature of the telecoms sector, ii) the policy and technical nature of the guidance required, iii) the need for quick and swift intervention and iv) the need to ensure a harmonised approach in the interpretation of the net neutrality Regulation, our view is a soft law instrument in the form of a Commission Recommendation strikes the right balance between these different considerations.

We ask that the Commission issues such a Recommendation to enable operators to continue investing and innovating on new use cases with enhanced regulatory certainty.

Longer Term Review: In the longer term, and considering the critical changes in the digital ecosystems mentioned, it is no longer a tenable situation that larger CAPs remain protected by and able to exploit the asymmetric application of the open internet rules. This creates a highly unlevel playing field in the digital ecosystem, and results in a dilution of end-user protections.

In this regard, the Commission should consolidate the stand-alone Open Internet Regulation in the new overarching regulatory framework for the digital communications section, thus ensuring that it applies appropriately to all the relevant players in the ecosystem and in a manner that supports innovation. This should be done by expanding the core principles of the Open Internet rules to a broader scope of players through the introduction of a Digital Networks Act.

Empirical Study: We would also recommend that the Commission as soon as possible instructs a study to assess the likely impact of upgrading the current regulatory framework to be fit for modern digital ecosystems, in particular by assessing other jurisdictions that have taken a wide range of approaches towards 'Net Neutrality' rules, ranging from having never introduced them (e.g. Australian, New Zealand), through to soft principles based approach (e.g. South Korea and more recently a softening in the UK), through to having repealed and reintroduced them (e.g. USA).

Scenario 5: Address Technological and Market Developments (Copper Switch Off and Access Policy Amendments)

In order to address technological and market developments and the resulting need to change the regulatory paradigm and ensure less burden for companies and more efficient service delivery, while continuing to protect vulnerable end-users and promote territorial coverage, the Commission may consider:

- *measures to accelerate copper switch-off (such as a target in 2030, aligned to the Digital Decade target for Gigabit connectivity, and support for copper-fibre switch-over from 2028);*
- *a change to access policy in view of full fibre environment, by proposing a European wholesale access product and recommending no markets for presumptive ex ante regulation while maintaining a safety net for NRAs to keep regulation if the "3 Criteria Test" is met (reverse burden of proof). In the alternative, only markets for civil infrastructure might be considered for regulation ex ante (as the most persistent bottleneck), combined with the implementation of lighter access regulation (no price regulation or pricing flexibility) along the lines of the recently adopted Gigabit Recommendation.*

The Commission's Scenario 5 is split between two specific recommendations on (i) copper switch off; (ii) an EU-wide wholesale access product. We respond to each below and provide further comment on the SMP regulatory framework that the Commission comments on throughout the WP.

Copper switch-off

In the WP, the Commission specifically acknowledges that "*predictable and balanced measures are necessary to avoid the migration reversing competitive gains, including competitive infrastructure roll-out*" and that "*NRAs should ensure that the design of the copper switch-off process by the operator with significant market power (SMP), in particular as regards its timing and agenda, does not allow strategic behaviour that would weaken competition at wholesale or retail level*".

Investment competition is a key lever to close the investment gap in fixed and we see the upcoming migration from copper as a "make or break" opportunity to promote competitive infrastructure investments, especially by altnets, and thereby to genuinely shape a more competitive future fixed market (which should be the overarching principled policy goal).

As a result, even if SMP-style regulation were to be gradually replaced by commercial agreements (if, and when, contestable markets have been established), for now there must be strict regulatory checks-and-balances for how migration from copper is managed, not least because dominant operators will have significantly different cost structures (lower OpEx from lower maintenance/FTEs, and capex intensity) once fibre is deployed. Otherwise, it could end up reversing the efforts over the last 30 years to improve fixed market structures: not only will fixed markets be less competitive; there will be bleed over to mobile, with excess incumbent profits in fixed being recycled to win share in mobile.

Whilst the Commission recognises that the copper switch off could pose risks to competition and FTTH deployment by altnets, it fails to suggest specific measures that would safeguard competition and prevent potential lock-in strategies of the incumbents in the transition from copper to VHCN, beyond those included in the EU Code and the Gigabit Recommendation. Rather it proposes to take measures to accelerate copper-switch off with a mandated date of switch-over, without any additional safeguards.

We do not believe that the rules and safeguards of the EECC and the Gigabit Recommendation are sufficient to ensure a competitive outcome during the switch-off process, and more needs to be done to safeguard competition, but the WP is silent on any such additional measures. It is also unclear to what extent "*safeguards to preserve competition (similar to those provisionally agreed under the Gigabit Infrastructure Act (GIA) [...])*" would effectively counter-balance the competition risks.

We also emphasise the fact that the option foreseen in the Gigabit Recommendation of increasing copper prices will forestall rather than promote migration. It will severely aggravate access-seekers' migration business case, and effectively allow SMP operators to earn windfall profits on these depreciated copper network assets, leading them to sweat these assets rather than migrate to fibre quickly.

Such a move would also lead to lower quality copper services (typically consumed by lower income consumers) cross-subsidising the migration to higher-end services (typically consumer by higher income customers). This option also goes against the objective of the Commission to protect vulnerable groups during the transition period as rightly mentioned in the WP.

Our detailed views on policy actions needed:
The Commission or BEREC should adopt guidelines on copper switch off. These should build on article 81 of the EECC, the Gigabit Recommendation safeguards and existing BEREC Guidelines on the topic. Concrete recommendations and best practices on copper switch-off – ensuring the migration doesn't result in long-term entrenchment of market power – should be put forward which ensure the right safeguards and incentives are in place and avoids copper to fibre migration reversing competitive gains.

The guidelines should ensure the following:

- SMP operators need to ensure full transparency and proper lead-times before starting the migration process.
- The migration process shouldn't start until a certain percentage of the target area is covered by a VHCN.
- A fit-for-purpose VHCN access product must be in place, and ready to be activated; the access product must provide higher speeds to all operators as requested by their retail customers without a price premium being applied.
- There is a need to ensure strict pre-marketing rules on the SMP operator to avoid unfair competitive advantages during the migration from copper to fibre, in terms of favouring the SMP operator's fibre over VHCN alternatives.
- Costs for forced migration (e.g., activation of fibre lines, deactivation of copper lines, equipment, etc.) should be borne by the SMP operator and decommissioning costs shouldn't be passed on to the access seekers (either as dedicated charges or as an unfair surcharge on remaining copper customers).

A specific 'date' by which the switch-over should take place should be avoided.

EU-wide access product
The idea of imposing an EU-wide access product is at odds with the Commission objective of lifting regulation. The imposition of an EU-wide product would perpetuate regulation, even where no market failure has been found, on one or several infrastructure operators and abandon the idea of infrastructure competition by allowing market entry without any investments in VHCN.

The Commission proposals also fails to provide detail on such a proposed product, failing to address:

- Which EU wide wholesale products would be mandated (Physical Access? VULA? Bitstream?)
- Whether these products would be mandated symmetrically to all fibre-operators or asymmetrically to the SMP-operator?
- How would the pricing be set?
- Whether mandating European wholesale access products could be combined with maintaining a civil engineering access market in the Recommendation on Relevant Markets (RRM)?

Our detailed views on policy actions needed:
Therefore, we would recommend that the Commission does not pursue the development of a pan-EU wholesale access product.

Fixed SMP Regulation
We disagree with the proposal in the WP for a widespread deregulation of the fixed broadband markets via the removal of markets from the RRM. In particular we disagree with both the options the Commission is considering:

- Removing all markets for *ex ante* regulation in the upcoming review of the Recommendation on Relevant Markets (RRM) and propose an EU wide wholesale access product; or
- Include a market for civil engineering infrastructure (as the most persistent bottleneck) only in the RRM.

Over the last decade, alternative network operators have invested tens of billions of Euros in building or acquiring fibre networks and upgrading cable networks to challenge the dominance of incumbents in fixed and to offer consumers more choice of modern, gigabit-capable fixed broadband.

Altnets have therefore played a key role in stimulating more investment competition in many parts of the EU, constraining former incumbents from leveraging their (depreciated) legacy copper assets to extract monopoly rents, reduce competition and frustrate consumer choice.

Yet, despite altnets' efforts, there remains an investment gap in fixed to be closed to meet Europe's digital ambitions. While in a better starting point than mobile (where EU is lagging behind other regions on 5G), Europe's current availability of Gigabit-capable fixed networks, just as for 5G, needs to improve. But, contrary to mobile where there are already three to four nation-wide networks, the market structure of fixed is still highly concentrated, often down to a single nation-wide network.

In fact, this is one of the reasons why investments in fibre are still inadequate. Therefore, as part of closing its investment gaps, Europe needs to ensure more investment competition in fixed – not less. We fundamentally disagree that monopolies generate investment step-change (as shown by the experience in Italy prior to the creation of OpenFiber). Instead, we believe in healthy market structures that support multiple investing operators to compete fairly.

We agree that SMP has not yet fully delivered what was originally intended, i.e. truly competitive fixed markets and, thereby, close the investment gaps. It has helped foster retail competition, but its record in promoting investment competition – that decisively reduces the dependence on monopoly infrastructures – is mixed at best. The main reason for this, however, is not that the SMP framework was ill-conceived, or that the rules were wrong, but that EU has inadequately and inconsistently implemented these rules. The Commission, since 2013[9], has continuously pushed for relaxation of SMP. Thereby, monopoly rents, exploitations of bottlenecks and cross-subsidisation have been allowed to continue. The investment by alternative operators has been happening despite these legacy problems, not thanks to them.

Against this background, demands for fixed deregulation are misplaced, in the current context, for a number of reasons:

[9] Through the Commission recommendation on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment

- It ignores that SMP operators – even under the existing regulation – still manage to extract most of the profit pool in telecom markets by leveraging their various control points and bottlenecks.
- It ignores the economic reality that, in fixed, there is an inherent tendency towards "natural monopoly" in significant parts of a country's territory, which is not the case in mobile.
- It also ignores the prevailing experience to date with premature deregulation, such as in Romania, where an alternative operator Digi is now fully dominant and is able to use its fixed monopoly rents (and control over the content market) to undercut and distort competition in mobile.
- It ignores that there is an ongoing politically motivated trend towards re-monopolisation or renationalisation, with the most extreme case being TIM's Netco in Italy.
- As the EC rightly recognised in preparation of the current RRM, the physical infrastructure access (PIA) market is very different across the Union. The decision not to suggest PIA as a separate market was based on the fact that it would oblige NRAs to carry out market assessments where it was not possible or needed. The current scenario is at odds with the analysis from 2020, and the PIA market has not changed considerably since then.

In addition, contrary to what the Commission advocates under the guise of the Single Market, there is no justification for any "one size fits all" deregulatory wave in Europe. Different from mobile, fixed market structures vary significantly between Member States: some still depend heavily on access to one operator's infrastructure, while others are seeing some emerging competition at regional level thanks to cable, altnets and municipal builds, while only a few have nationwide competing infrastructures.

It is incorrect to claim that it will be enough to rely on *ex post* competition enforcement[10], or symmetric regulation, to tackle the monopolistic tendencies or dominance within fixed. The essence of market power means that dominant operators are able to frustrate competition, so it is not possible to rely on competition law alone (in addition to the fact it takes years to correct a single problem through litigation while, in the meantime, the market is distorted beyond repair). In addition, reliance on mere horizontal regulations only makes sense in markets where the players have equal market and bargaining power, which is far from the case in fixed.

So, whilst there could and should be a point in time when (more) deregulation of fixed is justified, that time is certainly not now. Widespread deregulation today would be detrimental to investment competition, to altnets' ability to compete, and with real risk of negative impacts in converged and mobile markets.

Our detailed views on policy actions needed:
In line with the policy objectives outlined above, and to accelerate investments in a manner that is pro-competitive, we urge the Commission to ensure consistent application of essential regulatory principles:

These are:

- Maintain at least the current market 1 in the RRM, as it provides the NRAs with the tools to impose different types of remedies according to the national circumstances.
- Maximise availability of passive infrastructure - through access to incumbents' PIA on cost-efficient terms and proper enforcement of the Gigabit Recommendation and GIA on PIA access.

[10] There are several cases that show that ex-post competition law is insufficient to address cases of abuse of dominance in the telecom sector in an efficient way. The cases not only take many years to reach a final decision by the courts and the decisions focus essentially on imposing penalties on the dominant player and not to confer access to infrastructure.

- Prevent exploitation of asymmetric information and natural advantages by incumbent's migration plans (pre-marketing and transparency/tactical overbuild rules).
- Tackle anti-competitive actions (EoI, margin squeeze, cross-subsidies, wholesale volume discounts designed to deprive efficient altnets from getting a share of wholesale orders).
- Dark fibre regulation for enterprise to ensure that the business segments of connectivity don't remain in the hands of the incumbents.

Therefore, the Commission should maintain the current SMP-framework at least in the next 5-7 years, while strictly enforcing the pro-competitive principles enshrined in the EECC and the Gigabit Recommendation[11]. Art. 32 and 33 of the EECC should be used to foster the consistent application of essential regulatory principles mentioned in this section.

[11] As mentioned throughout the paper there are some elements of the Gigabit Recommendation that can have a negative impact on competition and shouldn't therefore be applied by NRAs, e.g. the possibility to increase copper prices to incentivise migration, lifting cost-orientation already in case of prospective infrastructure competition and assumptions regarding duct access sufficiency vis-à-vis network access.

Scenario 6: Greater Harmonisation

In order to facilitate the single market and building scale for activities of all players, the Commission may consider:

- *a more integrated governance at Union level for spectrum that would allow, where necessary, for greater harmonisation of spectrum authorisation processes and thereby create the conditions for market scale necessary for pan-EU operators to attain larger investment capacity; the Commission may also consider solutions for more aligned authorisation and selection conditions, or even single selection or authorisation processes, for terrestrial and satellite communications and other innovative applications that make clear cases for fostering the development of the single market;*
- *a more harmonised approach to authorisation (through the possible establishment of "country of origin" principle for certain activities less connected to consumer retail markets and local access networks).*

Spectrum

To facilitate the single market and building scale for activities of all players, the Commission is considering a more integrated governance at Union level for spectrum that would allow greater harmonisation of spectrum authorisation processes to create the conditions for market scale and larger investment capacity. The Commission is also considering solutions for more aligned authorisation and selection conditions, or even single selection or authorisation processes, for terrestrial and satellite communications and other innovative applications.

Our detailed views on policy actions needed:

We have shown in Section 5 how spectrum policy has evolved throughout the years and the importance of longer investment horizons, business certainty, lower license fees and efficiently, fairly and timely awarded spectrum. We have conveyed the point that spectrum policy must absolutely support innovation and fair competition.

Specifically, policy reform should focus on the following areas:

1. Licence duration: The main investors active in the sector today are infrastructure funds, with very long-term investment horizons. Licences of 15 – 20 year duration are too short to provide certainty to these investors (in contrast with fibre). Investors need to be given confidence that their returns are secure over a 40-year period; this requires perpetual spectrum licences (as is already the practice in the UK and the US), or at least durations of 30 – 40 years - as we have seen recently for all mobile licences in Spain. Longer investment timeframes – and removing the risk of failing to renew expiring licences, or renewing at high cost – will help restore investor confidence.

2. Annual fees: some Member State governments and regulators impose very high annual spectrum fees, which act as a drag on financial performance and can divert cash from infrastructure expansion. Investors need to see consistent and low annual fee arrangements across Europe, which can free up cash for network improvements and improve investor sentiment. While annual fees tend to be determined at a national level, the first step at a European level should be to benchmark and publish annual fees as input to a debate on their impact and normalisation.

3. Spectrum award mechanisms: while existing licences can be made perpetual, or prolonged on a simple administrative basis, a competitive mechanism is still going to be needed to assign new spectrum bands fairly among applicants. While auctions have been the most common basis for award across Europe, auction rules have been inconsistent, and on occasions inefficient, ineffective and even discriminatory. This leads to high licensing costs and artificial market structures, both of which impact investor returns. The Peer Review process has singularly failed to intervene and tackle a number of disastrous 5G award rules in some Member States.

National licensing authorities therefore need better guidance on consistent approaches to licensing, including the need to evaluate the impact and justify any departures from market-based approaches. Consistent licensing will improve predictability for investors, avoid legal disputes, and reduce examples where assisted market entry has triggered a "race to the bottom". Letta rightly makes the point that awards would be better based on infrastructure investment commitments rather than cash, and while this will require stronger oversight and enforcement, it will lead to better outcomes than auctions.

4. Allocation of Upper 6 GHz band to address future spectrum needs: mobile users continue to generate more data traffic year by year, and operators need to be given access to additional harmonised spectrum bands to cost-effectively deliver the necessary increase in network capacity. (The alternative of tower densification is simply not cost-effective, nor as good for the environment).

   We estimate that additional spectrum will need to be deployed in cities before the end of the decade, and there is strong support across the mobile industry to introduce the Upper 6 GHz band. With the Lower 6 GHz band already used for Wi-Fi, identifying the Upper band primarily for mobile use will ensure the overall connectivity needs of customers are met in an optimal way. We are concerned that proposals for the Upper band to be shared in some way between mobile and licence exempt use will severely compromise the utility of the band for both use cases.

5. Satellite and direct-to-device services: advances in satellite technology mean that mobile operators can extend service coverage beyond the reach of their terrestrial networks by sharing their mobile frequencies with a satellite partner. This is possible and permitted today under the ITU's Radio Regulation 4.4, while longer term options will be discussed at the ITU in coming years. Europe also can license MSS frequencies in a way that will allow Europe's mobile operators and their satellite partners to deliver pan-European direct-to-device services within the next few years, similar to the services being planned by mobile operators in the US under the latest legislation. If licensed correctly, this could advance Europe's overall Digital Decade mobile connectivity objectives.

6. Innovation and competition: one benefit of technology and service convergence is that mobile, satellite and licence exempt technologies are increasingly able to compete together in the same market for digital connectivity services. The significant regulatory burdens associated with mobile spectrum use (including fees and other obligations) create a disparity between providers and risks putting mobile operators at a competitive disadvantage. An underlying aim of spectrum policy should be to remove this disparity and support unfettered innovation and competition.

Fragmentation

Whilst technologies such as network virtualisation are increasingly allowing for the provision of cross-border networks and services, the business case for these is hindered by the different regulatory regimes that apply in each Member State. Because of this fragmentation, there is no single market for telecoms.

Similar conclusions are reached in Enrico Letta's report. Indeed, a central theme in the Letta Report is the acknowledgment of geographic fragmentation in applying sector-specific rules to telecoms operators, and the negative impact this has on the creation of a single market in telecoms.

In addition to the rules in Member States being fragmented, operators also face the additional burden of being subject to the oversight of individual governments and national regulatory authorities in the provision

of their services and application of these rules. In particular, in line with the existing general authorisation framework, the NRA in each market has the right to impose specific obligations on operators authorised to provide services in their country, based on national rules. This creates a very heavy regulatory burden on operators providing services in more than one Member State.

Our detailed views on policy actions needed:
We believe that by taking inspiration from other sectors and recently implemented regulatory frameworks, alternative options are available that would help alleviate this burden and trend towards a more 'single market' experience.

Country of Origin: We welcome the White Paper's consideration of this issue and the proposals on the introduction of a 'country of origin' principle. In particular, the White Paper indicates that to create a 'harmonisation effect', a country-of-origin (CoO) principle could be applied to core networks and core network services. We interpret this to mean that the providers of such services would only be bound by the rules and be subject to the oversight of the authority in the Member State they are headquartered in.

We have seen this model applied in other regulatory frameworks in a way that has allowed service providers to scale up across Europe (for example, in GDPR or eCommerce). We therefore think this is a viable option to facilitate scale-up for electronic communications networks and services.

To achieve this, certain issues would need to be resolved to ensure its workability, including:

- The fact that a number of competencies (e.g. numbering rules, spectrum allocation, law enforcement) remain highly national and fragmented. In contrast, other sectors or frameworks that apply a CoO principle, or a 'full' passporting concept (such as GDPR, or financial services passporting) are based on far more harmonised pan-EU regulations.
- Defining the scope of the networks and services this principle would be applied to, since the distinctions between infrastructure and service providers become increasingly blurred. For example, the Commission refers only to this applying to providers of core networks and core network services, which could help in the deployment of pan-European core networks. However, it would not necessarily address the issues faced when developing and deploying pan-European retail services. To that extent, we do not necessarily agree with the Commission that these services should remain subject to a wholly national governance framework, and not benefit from a centralised governance, (whereas 'OTT' type service providers do benefit from CoO based frameworks).
- How such a model would apply to rules that sit outside of the telco regulatory framework, in particular security and law enforcement obligations, which are inherently national in nature and often come with strict localisation requirements. We make recommendations on how to address these issues in Section 5 'Security and Resilience' above.
- It is also unclear how such a framework would impact infrastructure that has been designed and deployed based on compliance with existing fragmented and localised rules, and whether such a model would therefore only be workable for the next generation of networks and services.

Two-Tier Governance Model: We also believe the alternative model highlighted in Letta's report, where he noted that it may be appropriate to create a two-tier regulatory model. Specifically, he proposed:

- An EU level Regulatory Authority with responsibility for i) harmonised regulatory principles (such as Open Internet); ii) cross-border/pan-EU services. We have seen the Commission effectively take on such a role in the context of new frameworks such as the Digital Markets Act, which could be built upon here.

- National Regulatory Authorities, who would remain accountable for domestic services, local networks and consumer protection.

The competences of any new EU level regulatory authority would need to be carefully assessed, to ensure there is no duplication of authority; and that this approach does not create any regulatory gaps.

Irrespective of the model adopted, the end-goal for the Commission should be to achieve the effect of a one-stop-shop in the digital communications sector, taking lessons from the benefits this has brought in adjacent markets. We would welcome the opportunity to work through the potential benefits and risks of both models proposed, and other alternatives to reach this goal, with the Commission.

EECC Reform: Going beyond a new approach to governance, we believe that changes will be required to the underpinning framework of the communications sector to achieve further harmonisation. As the Code is implemented as a Directive, it allows for Member States to account for national circumstances when implementing. This creates several challenges for operators when trying to develop and scale up consumer and business services.

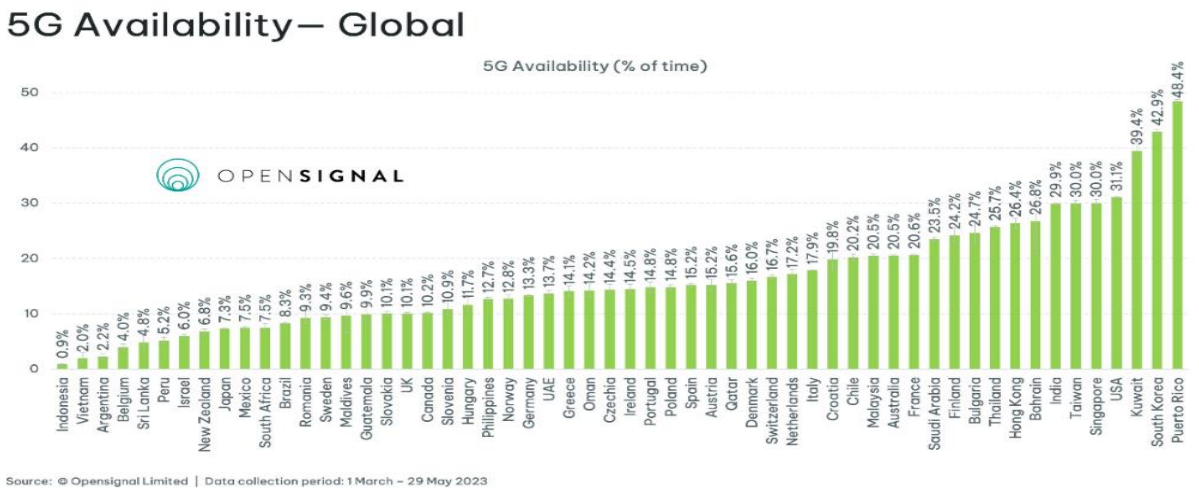
Therefore, we call upon the Commission to view its end-goal as an overhaul of the Code into an overarching umbrella Digital Communications Framework for the sector, which:

- Achieves **greater levels of harmonisation** in the application of sector specific rules, considering evolving the EECC into a Regulation. As a starting point, the Commission could undertake a study of best practice throughout the Member States, obtaining input from stakeholders, which ultimately could be integrated into the Regulatory framework.
- **Consolidates the fragmented regulatory frameworks** that apply to the sector (e.g. open internet, ePrivacy).
- Creates **clear distinctions between the rules applicable for infrastructure vs services,** and better distinguishes between **business and consumer services.**
- Captures the **full range of actors** within the digital communications ecosystem.
- Takes a **one-stop-shop approach to governance and enforcement.**

Market Structure / In-market consolidation / Merger Control

In Scenario 6, the Commission points to the need to build scale but refrains from specifically addressing **market structure** and **in-market consolidation** (although this was reference in the Letta report)**.**

The **structure of European telecoms mobile markets** is **inefficient** when compared to other regions of the globe, which have more scale, higher returns on capital employed and thus invest more. It does not come as a surprise that these regions are ahead in terms of 5G availability (as per the graph below in which none of the top ten countries are from the EU), 5G standalone deployment and inherent customer experience.



To achieve an efficient market structure, Europe must **change its the short-term, one-dimensional and dogmatic approach to merger control**. In fact, there is a better and more strategic way to ensure a better equilibrium between investment and competition and that generates more consumer welfare and supports European Competitiveness.

Three fundamental principles must be recognised to ensure the approach to merger control in the EU mobile sector promotes investment and tackles innovation and investment gaps:

Mergers can be transformational for service quality and pricing

Competition Authorities' analyses to date have assumed that the services provided to customers post-merger are broadly the same as those provided pre-merger. In many sectors, this is probably true. However, when mobile companies merge, there is a transformational effect on service quality. This is because combining existing network grids and spectrum holdings has a multiplicative impact on network capacity and availability. The short-term result for business customers and consumers is higher speeds, more available network capacity, less congestion and bigger data bundles. Practically speaking, this means lower prices when adjusted for quality. The same goes for mergers' impact on accelerating capacity expansion and upgrades to latest mobile generations (for example, from 4G to 5G, or even 5G standalone), which involves leapfrogging of both network quality and capacity. It is those cycles of significantly improved capacity and quality that are the predominant driver of medium to long term quality-adjusted price deflation and consumer welfare benefits in the sector.

Yet, Competition Authorities have typically focused on post-merger pricing in isolation and have thereby failed to understand how network expansion and pricing are two sides of the same coin. This manifests most clearly in the tools Competition Authorities use to assess mergers. While they have a well-established (albeit theoretical) and consistent modelling framework (GUPPI) to predict post-merger price rises, no such framework exists for post-merger network changes or enhanced investment incentives.

A new market structure can deliver investments, and investment competition in 5G

Competition Authorities typically seek to maintain the market structure status quo through structural remedies. This is even in the case of smaller operators in the market trying to achieve the scale to compete with the market leader(s).

However, such a narrow approach directly undermines the logic for a merger which is to create a new competitive dynamic whereby merger efficiencies enable more investment by all. Instead, the starting point for merger analysis should be whether a change in market structure can deliver more for customers. In practice, this would yield a much more permissive approach in cases where market shares are heavily

skewed (with sub-scale network operators unable to inject durable investment competition onto the larger/scaled operators) or where the market as a whole is unprofitable (where everyone is holding back on investments due to inadequate returns compared to the cost of capital). This is currently being observed in the UK where speculation is mounting that BT – the market leader by a distance – will have to put more investment into mobile as a result of the £11bn investment plan that is the basis for the merger of Vodafone and Three[12].

As a result of failing to consider the lack of investment competition with the prevailing market structure, Competition Authorities have also largely overlooked the role of behavioural remedies, for example holding the merging parties to account for their joint investment plan, which would guarantee a better market outcome for the country and its citizens (by ensuring better coverage and faster 5G roll-out).

This has been evident in the most recent mobile to mobile mergers in Europe. In chronological order, TeliaSonera/Telenor Denmark (2015) was abandoned and Three UK/O2 (2016) was blocked due to *inter alia* failure to agree on sufficient remedies. Three Italia/Wind (2016) was approved with a structural remedy allowing Iliad to enter the market. Orange Spain/Masmovil (2023) was approved subject to structural remedies that would allow DiGi to become a network operator and Vodafone Portugal/Nowo (2023) will most likely be rejected despite the offer of extensive structural and behavioural remedies. Only T-Mobile Netherlands/Tele2 (2018) was approved without structural remedies.

This also discounts the fact that changes in technology open opportunities for different forms of competition. In particular, network slicing capabilities will allow MNOs to offer considerably more sophisticated wholesale access and network facilities to MVNOs, which would reduce 'competitive risk' of relying on MVNOs to facilitate competition.

Merger impacts reflect the investment cycle of seven to ten years

Competition Authorities have typically ignored (or heavily discounted) merger benefits that only accrue after two to three years, or beyond.

This is inappropriate for a sector with a significantly longer investment cycle and where the most significant merger benefits for consumers comes from a transformed network experience. In this context, Competition Authorities also largely disregard the significant capital intensity increase arising from each of these cycles, which requires both more industrial scale to allow operators to absorb these capital expenditures and more time to recover the costs incurred of upgrading the entire network to next generation mobile technology.

It is for good reason that connectivity targets are set over many years: most recently the Digital Decade targets which were agreed in 2021 and set the ambition through to 2030. Yet, the current approach of short term (narrow) merger assessments ignores – and can often directly contradict – those overarching political and policy targets, as well as the reality of the industry's investment cycles.

This was most clearly seen in the Three Italia/Wind decision where the Commission stated:
"*in order to be considered as a balancing factor the efficiencies must be timely. In the present case the Commission's assessment of the efficiencies considers the benefit to consumers expected during the period 2016-2019.*"

[12] The working-class Glaswegian woman defending BT from takeover (telegraph.co.uk)

Our detailed views on policy actions needed:

As set out above, current merger policy in telecoms limits scale and therefore hampers investment incentives. There is thus a need for change in relation to merger control in the telecommunications' sector.

1. The current competition analysis is one-dimensional and needs to be adapted, in particular the GUPPI framework: Current one-dimensional assessment does not take into account the true complexity of the mobile market in three ways:

- It does not reflect the true nature of the retail market. MVNOs and sub-brands of the Network Operators exercise a strong competitive constraint post-merger (particularly in light of new technologies such as 5G network slicing enabling more sophisticated forms of mobile network access) but are not explicitly included in the theoretical model. The theoretical model (GUPPI framework) should be adapted to recognise these additional constraints.
- The post-merger analysis focuses exclusively on price by assuming the product sold is unchanged. This is inappropriate in the telecoms sector where the combination of two networks has a significant impact on network quality especially in relation to congestion/service quality. The GUPPI framework should be adapted to reflect product enhancements post-merger (quality adjusted prices).
- Competition authorities do not consider the dynamic nature of competition. Mergers can create a stronger operator that acts as a catalyst for the other network operators to compete harder for both retail and wholesale customers[13]. The competition analysis should incorporate the dynamic competition effects from sub-scale operators achieving scale.

2. Competition analysis should be long-term focussed: The typical merger analysis is too short-term in focus. This is inappropriate given the long-term and capital-intensive nature of the typical investment cycle. There are three specific longer-term effects which are insufficiently reflected in the merger analysis:

- A high 'discount factor' is applied to efficiencies[14] and other relevant consumer benefits from the merging parties' business plan which are treated as 'speculative' by virtue of the time it takes for them to be realised. On the other hand, post-merger price increases based on a theoretical model (but which are not included in any merger business plan) are treated as near-certain. Greater weight should be given to merger efficiencies that can offset any harm predicted by the (revised) GUPPI framework.
- No recognition of changes to the minimum scale necessary to deploy next generation technology. With high fixed costs associated with 5G and 5G standalone compared to 4G, sub-scale operators are unable to invest in next-generation technology. This can put the market in a low investment equilibrium. Enabling sub-scale operators to achieve scale can result in all operators in the market having both the incentive and capability to invest resulting in lower pricing when adjusted for quality. An exponential increase in data demand by consumers is anticipated. This increase in demand will be encouraged by the roll-out of 5G. Operators will need to invest heavily in rolling out new sites and upgrading existing sites to meet this demand. The merger analysis should recognise the major investments that will need to be made in order to roll out 5G and 5G standalone networks.
- Authorities have tended to ignore emerging capital constraints in today's economy. There is an implicit assumption that sub-scale operators can and will continue to have access to capital allowing them to invest *ad infinitum*. In today's market, operators are unable to invest/borrow

[13] When a merger simulation model is used to supplement the GUPPI analysis, it is assumed that post-merger the non-merging MNOs have less incentive to compete.

[14] Examples include network and retail efficiencies and other relevant consumer benefits such as revenue opportunities from market entry/market development.

where providers of capital see structurally deficient markets with low returns. A full counter-factual analysis recognising capital constraints should be incorporated in the analysis. Specifically, that capital will be restricted for operators earning returns below the cost of capital.

- There is no recognition of the multiplicative nature of combining two networks[15]. Simple analyses assuming pre-merger and post-merger network performance is additive – the implicit assumption in the GUPPI framework - is inappropriate in the telecoms sector. Longer term network modelling should be used to ensure the full benefits to consumers are considered in the merger analysis.

3. Merger analysis and consideration of remedies must be more consistent: Both the merger analysis and the consideration of remedies for telecoms mergers is highly inconsistent. The following differences are observed:

- Inconsistent approaches between National Competition Authorities and DG Competition. Most recently in Spain on Orange/Masmovil, DG Competition has taken[16] a far stricter approach than would have been taken by the Spanish competition authority (CNMC). CNMC had signalled its willingness to accept behavioural/investment remedies. However, DG COMP has insisted on structural remedies (assisted market entry for DiGi). The Portuguese Competition Authority has taken an even stricter approach than DG Competition in Vodafone/Nowo. It has not accepted structural remedies similar to those offered in Spain even though the market share of Nowo is immaterial compared to Orange Spain or Masmovil. There should be a fully articulated approach for merger control in the telecoms sector.
- Inconsistency between Competition Policy and overall sectoral policy. There has been a long-standing *a priori* aversion to behavioural remedies in the mobile sector. This is even the case when they appear to address the competition problems identified and can easily be monitored/enforced with NRA supervision. Given that the Commission has set far-reaching Digital Decade targets for 5G deployment, there is an urgent need to reconsider the role of behavioural/investment remedies and better recognise the mid-long term investment commitments by the merging parties for the achievement of the said political goals. Otherwise, the application of merger control rules will continue to yield sub-scale network operators that will hold back sectoral investment. If required, remedies should address both the competition problem identified and ensure over-arching industry investment targets can be met.
- Inconsistency between merger control and the *ex-ante* regulatory framework. Since 2012, the Commission has found that the post-merger market structure would result in a significant impediment to effective competition in seven out of eight cases. This is despite all mobile markets being removed from the list of relevant markets that are susceptible to *ex ante* regulation and not a single case of mobile market SMP or Joint SMP in any Member State[17]. The results from merger control procedures – based on the changes recommended above – should be fully consistent with the findings from the sector-specific *ex ante* regulatory framework.

In summary, there is a need for a new approach that is multi-dimensional, long-term in focus, applied consistently across the EU and yields conclusions consistent with those from the sector-specific *ex ante* regulatory framework. This will ensure the sector can deliver the quality networks and lower prices (when adjusted for quality, size of bundle) that businesses and consumers need.

[15] Using a simplified example, if pre-merger both networks of the merging parties have 10,000 sites and 200 MHz of spectrum, combining the networks and deploying all spectrum on all sites would result in a new grid of 20,000 sites with 400 MHz of spectrum – a four times increase in capacity.

[16] Based on our information of the merger control process to date

[17] The Czech NRA's finding of joint SMP for the three Mobile Network Operators in Czechia was overturned by the Commission.

Scenario 7: Greening of Digital Networks

The Commission may consider facilitating greening of digital networks through promoting the timely switch-off of copper networks and the move to a full fibre environment and a more efficient use of networks (codecs) throughout the Union territory.

Vodafone response

The Commission proposes two 'concepts' with a view to greening digital networks.

The first is a timely switch-off of copper networks and shift to a full fibre environment. Vodafone shares the goal of a full fibre environment, and this something we support and heavily invest in already. However, a switch from copper to fibre is a multifaceted and gradual process, and not something that can happen in a short timeframe. Current infrastructure, for example coaxial cables, can be combined with fibre technology (FTTC/FTTB) to deliver many of the advantages of 'fibre' already, without a forced migration. In any case, a transition to fibre will require extensive investment which need to be looked at in the light of the investment gap.

Consequently, while fibre has numerous advantages, the financial and environmental impact of replacing the current infrastructure must be taken into consideration and compared to the advantage in individual cases and in the different Member States.

As mentioned under Scenario 5, Vodafone recommends the Commission or BEREC to adopt guidelines on copper switch-off. These should build on article 81 of the EU Code, the Gigabit Recommendation safeguards and existing BEREC Guidelines on the topic. Concrete recommendations and best practices on copper switch-off should be put forward which ensure the right safeguards and incentives are in place and avoids copper to fibre migration reversing competitive gains.

For further details, please see our response under Scenario 5.

The second proposal relates to the more efficient use of codecs.

In relation to this point, we reiterate that internet traffic has grown exponentially in the last decade and continues to grow steadily. With the increasing expectations in higher quality content and new use cases, a yearly growth of at least 20%-25% is foreseen up to 2030.

This is driven by the business model of many significant traffic contributors, which are typically based on maximising engagement. We have seen growth in practices that lead to significant traffic increases, such as:

- The auto-playing and pre-fetching of content;
- Delivery of advertisements in HD and a higher 'advert to content' ratio;
- Shift to longer video content in higher quality;
- Application designs that maximise engagement such as 'endless scroll';
- Frequent notification traffic or 'nudges' which stimulate app engagement; and
- Significant volume of DNS requests triggered simply by opening an app (for trackers, cookies, ads, social plugins).

Furthermore, consumers of said content appear to have limited awareness of the impact of their consumption, or on measures that could be taken at their end to reduce impact such as turning on data saving modes or reducing the automatic quality at which content is delivered (despite this functionality already being available in some cases).

As a consequence, the pressure on networks continues to intensify, despite the deployment of more advanced codecs in the market.

Whilst codecs are an important tool to mitigate the impact of traffic on networks, it will not be sufficient to rely on these alone. In particular:

- Codecs (typically) require updates to hardware to operate effectively. It can therefore take years for a new codec to have an impact (given we do not want to encourage unnecessary device upgrades, as this also has an environmental footprint).
- Some codecs are proprietary and can only be used for certain content.

Therefore, relying on codec development alone will not be sufficient. However, we are already working on several technical measures working with a number of large CAPs and CDNs to help mitigate the impact of their traffic. For example, we are working on projects with different large content generators, including:

- Video Delivery Optimisation is a project with large CAP to optimise their video resolution and pre-fetching algorithm, in a manner that reduces the volume of traffic, but does not reduce the end-user experience.
- Network-Application Information Exchange is a long-term project with large CAPs to develop mechanisms that facilitate information exchange between devices, networks and the application servers. For example, this would allow for the network to inform the application server that the network was 'running hot', which in turn would encourage the application developer to make decisions on the configuration of their traffic to minimise impact on the network.
- Codec Adoption: We are working with CAPs, chipset makers and operating systems to encourage more widespread adoption of effective video codecs, such as the AV1 codec (which helps reduce bandwidth consumption whilst ensuring the same level of quality). For example, we have specified AV1 support as a requirement to our device and chipset vendors, and we are exploring options for AV1 to be included in 3GPP standards; we have also been analysing how best to maximise the support for AV1 through a combination of hardware and software solutions.

To date, however, such measures are put in place on an entirely voluntary basis, and there is no obligation on parties to cooperate on minimising data impacts.

Therefore, and as articulated in relation to Priority 5, we call upon the Commission to build upon the recognition in the White Paper that all parties should play a role in ensuring an efficient use of networks, by building a framework that underpins this.

In particular, we call upon the Commission to develop a Code of Conduct that would apply to the different players with a role in the design and conveyance of traffic, that will encourage them to design said services in an eco-friendly way.

In this regard, the Commission should look to the 'General Policy Framework for the Eco-design of Digital Services' developed by French regulators, which sets out a range of voluntary criteria that service providers should follow to be more sustainable. This is subject only to voluntary self-assessment which providers can then certify against, but is a step in the right direction and would give more visibility to consumers of the environmental impact of their products and services.

A similar approach should be taken on a pan-EU basis to signal that all players should take responsibility for the sustainable use of networks. The Commission should also build on this work by maintaining the list and updating it regularly to reflect the current state of the art, and to collect and share best practice based on compliance with the criteria identified.

The Commission, as a starting point, should build on the work undertaken in Identifying Common Indicators for Measuring the Environmental Footprint of ECN and ECS,[18] but must go beyond just 'telecommunications' providers to look at all actors having an impact on the emissions of the digital communications ecosystem.

The Commission should ensure any new Code of Conduct developed as a consequence of this work is included as part of the overarching regulatory framework for the sector (i.e. the DNA and/or revamped EECC) to ensure utmost account is taken of it.

[18] JRC Publications Repository - Identifying common indicators for measuring the environmental footprint of electronic communications networks (ECNs) for the provision of electronic communications services (ECSs) (europa.eu)

Pillar III: Secure and Resilient Digital Infrastructures

Scenario 8: R&I in Networks

The Commission will promote the reinforcement of advanced R&I activities across the EU in support of new fibre and cable technologies.

Vodafone response

We welcome the Commission focus on the economic security and resilience of network infrastructure and the need to reinforce R&I activities across the EU which can support new fibre and cable technologies.

As rightly pointed out by the Commission, **quantum** and **post-quantum technologies** (chapter 3.3.1) can materially impact encryption and thus the end-to-end security in digital networks and technologies. We thus fully support the need to develop transition strategies towards a quantum-safe digital infrastructure as a matter of priority, especially in light of the "store now, decrypt later" risk.

The development and implementation of Post Quantum Cryptography (PQC) already plays a key role in data security. We support the need for a coordinated approach by Member States, including by ensuring awareness and the skills required, and consider key that the EU steps up efforts on PQC standardisation, including by taking a leading role in international standardisation. We look forward to further work from the Commission in this regard.

While PQC is a developed method, research on Quantum Key Distribution (QKD) is still at a very early stage and standards and evaluation methodologies for certification remain areas of study and development: there are still no recognised certification programmes for QKD based solutions. Physical implementation of QDK also brings challenges. However, QKD remains a potential long term complementary approach to PQC.

When it comes to the **security and resilience of submarine cable infrastructures** (chapter 3.3.2), we absolutely concur with the fact that this is a pressing issue for EU sovereignty and a challenge to EU resilience. We therefore welcome the mentioned reinforcement of R&I activities in this field and would support a centralised funding approach (e.g. similar to that for CPEIs), which would enable private finance to drive innovation and technological development.

More **generally on R&I,** we suggest the EU creates a Joint European Agency for Technology Research and Standardisation (or to broaden the scope of an existing EU agency) akin to the US National Institute of Standards and Technology [19].

The agency's main task should be to:

- conduct research in technology areas which are currently not – or only insufficiently – pursued by the EU companies (telcos and suppliers) but which are of strategic importance to Europe, such as spectrum, energy and security; and
- develop high quality technical contributions for Standards Developing Organisations (SDOs), in selected areas of European interest, further ensuring liaison with SDOs.

In this regard, it is important to note that over the past 20 years, operators in Europe have reduced their research and innovation capacity as well as their participation in standardisation bodies. This is in part

[19] See National Institute of Standards and Technology (nist.gov)

attributed to the health of the sector challenges and market fragmentation and leads to the concerning conclusion that the EU is not taking a leading role in research, innovation and standardisation. These shortcomings need to be addressed as a matter or priority.

We note that this new agency would also help the Commission gain more “in-house” expertise in areas of strategic importance. The agency’s know-how on actual standardisation of technologies of strategic importance would be key: standardisation is a crucial step in technology research and innovation lifecycle, enabling technology visibility, accessibility and global scalability, which in turn contributes to lower costs.

Scenario 9: CEF Expansion

The Commission may consider establishing a CPEI list and related labelling system by a Delegated Act under the Connecting Europe Facility.

Scenario 10: Cable Projects of European Interest

The Commission may conduct a review of available instruments, in particular grants, procurement, blending operations under InvestEU and grant blending facilities, with a particular focus on leveraging private investment to support CPEIs, including the possibility of an equity fund.

Vodafone response (to Scenarios 9 and 10 in combination)

We **welcome** the development of a **list of CPEIs** and related **labelling system** that would address risks, vulnerabilities and dependencies of submarine cable infrastructure. We agree that these should be conceived to comply with the most advanced technological standards, such as sensor capabilities for their own monitoring and to support EU policies in the field of security, sustainability, or civil protection.

We are of the view that **appropriate funding of CPEIs** and **pooling Member State** and **EU funding instruments** is key. In fact, increased investment in submarine cables by the EU and its Member States is important to help ensure sufficient redundancy in networks, improve the diversity of ownership, and strengthen the EU's digital sovereignty, thus allowing for greater control over the information flowing on cables into the EU.

Regarding financing of submarine cabling infrastructure (new or existing), a key aspect that needs tackling is to ensure **funding is allocated equitably** and based **on transparent criteria** that consider factors such as scale, expertise, and operational capacity, regardless of the location of the companies' headquarters. In fact, there are currently EU funding instruments which, given headquarter location requirements, exclude companies like Vodafone – important providers of submarine cables, with a strong and/or predominant European footprint – from a participation. This is detrimental to the European economy and consumers as it brings inefficiencies and competitive distortions. It is imperative that **funding is accessible to all trusted industry partners**, including those from non-EU countries, to ensure fair competition and the best outcomes for the sector and its customers.

Funding programmes should contribute to **reinvesting in critical cables at the end of their lifecycle**, not only on the deployment of new cabling. This contributes to ensuring redundancy and an efficient allocation of private and public resources.

Funding mechanisms for **monitoring** and **maintenance** of submarine cables is essential to ensure sustained functionality and resilience. Funding should allow for effectively monitoring the seabed, leveraging technologies such as satellite tracking in areas that are inaccessible to operators.

Adequate funding envelopes should also be made available for **mapping** and **risk assessment.** These risk assessments must be carried out in consultation with industry, with a proper assessment of impacts before any measures are taken. The principles and rules for CPEI programmes should be included in future legislation and the EC work programme by **2026**.

The implementation of the **Global Gateway initiative** could become an efficient lever for new EU financing programmes.

Scenario 11: Submarine Cable Infrastructure

The Commission may consider proposing a joint EU governance system on submarine cable infrastructures.

Vodafone response

We **support** the EC's proposal for a **joint EU governance system on submarine cable infrastructure**. In fact, greater collective oversight of the ownership and operation of cables and related infrastructure, adequate risk assessments and a new governance process with Member States reporting to a common authority is essential to guarantee that deployment and repair of submarine cables is streamlined, risks are addressed and mitigated, and funding is allocated efficiently.

One issue of particular relevance to be considered in the EU joint governance system is the development of a **harmonised approach to authorisation and permitting processes for submarine cables**, including the dissemination of **best practice guidelines** across EU Member States (e.g. provided for in final NIS2 legislation **by 2026**). This would assist in streamlining the development process significantly and thus allow for more efficient deployment of infrastructure. A mechanism must be put in place to ensure **non-EU countries** are able to participate in such harmonisation efforts.

The EU joint governance system could support the **granting of permissions** and **issuance of permit exemptions**. In fact, subsea cables often bypass or even land in regions of instability, which means submarine cabling providers may be unable to repair cables when the countries issuing permits are under international sanctions (e.g. in the Red Sea). This issue must be considered and addressed.

Scenario 12: Harmonising Security Requirements

The Commission may consider harmonising security requirements in international fora, which may be recognised through a dedicated EU certification scheme.

Vodafone response

We believe that to ensure an optimum approach to security and resilience, Europe needs a security framework that is based on a set of increasingly harmonised rules that are risk-based, fact-based and proportionate, and allow for the use of best-in-class technology and operator expertise.

However, and as discussed in detail above, the current security frameworks that apply to our sector remain fragmented and localised in nature, and in some cases go beyond the principles outlined above. This is perhaps unsurprising given that 'security' remains a devolved competence of the Member States, and there is to date limited transparency regarding the process, or information sharing on best practice and approaches.

The consequences of this are significant. For example, the requirement to adopt different approaches in each Member State has led to limitations on the use of state-of-the art facilities and skills, given that these cannot be used across border, and ultimately the inability to deploy a cross-border core network or develop pan-European connectivity solutions.

We therefore urge the Commission to address these challenges. We welcome the suggestion in the WP that security requirements should be harmonised and recognised through a dedicated EU certification scheme.

The scenario lacks detail as to how this could be achieved. However, we urge the Commission to take note of the recommendations as set out in relation to Priority 4 above, and to make sure it takes concrete steps to: i) issue guidance on implementation of security measures within regulations such as NIS2; and ii) seek to develop global technical standards in a transparent way and in conjunction with industry to ensure a harmonised approach to the implementation of new security technologies (in particular developing technologies such as quantum encryption). Existing forums such as the NIS Cooperation Group, or other international fora, could be used to facilitate this.

In addition, the Commission should seek a more harmonised approach to law enforcement obligations, as fragmentation of these rules has a similar scale-limiting impact as with security obligations. We refer again to the key recommendations made against Priority 4, and would also ask that the Commission acts on the recent recommendations of the High-Level Group on Access to Data for Effective Law Enforcement, which clearly recognises the lack of consistency with respect to data retention rules from a geographic perspective, and for the need to further review of the differing application of regulation, dependent of the type of service provider (an inappropriate regulatory asymmetry).

It therefore makes several recommendations, including on steps to further harmonise national legal frameworks with respect to lawful intercept.

Again, new international forums could be used to facilitate this. Vodafone has recommended the establishment of a permanent board on law enforcement, consisting of the Commission, technical experts, relevant authorities and industry, which could be the right place to develop these harmonised frameworks.