

European Commission's White Paper on How to master Europe's digital infrastructure needs?

TIM's response to public consultation - 30 June 2024

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Executive summary

TIM welcomes the opportunity to comment on the White Paper, which recognizes the challenges Europe's telecoms sector has been facing in the last years and outlines possible ways forward to address these challenges.

TIM believes there is an urgent need for the Commission to translate these ideas into concrete measures and legislative proposals. In particular, the most critical areas that would require swift intervention are the following:

- **Building scale:** Adoption of more flexible approach towards in-market consolidation, including the important European objectives of competitiveness and financial sustainability of the sector among the efficiencies of a merger, is needed to allow operators to acquire a size within the national market that is sufficient to exploit economies of scale and guarantee the investment capacity for the transformation of secure and sustainable networks and the high quality of services to end customers.
- **Fairness into the extended digital ecosystem:** Clear, transparent and balanced relationships between telecom operators and OTTs, should be fostered, overcoming current bargaining power asymmetries by introducing measures to facilitate commercial negotiations and agreements between market actors.
- **Level Playing Field:** a new framework should be established for all digital players, streamlining the rules, by abolishing unnecessary sectorial rules, and extending the scope of the revised framework, applying the same rules to analogous services, thereby ensuring a regulatory level playing field and equivalent rights and obligations for all actors and end-users of digital networks.
- **Spectrum:** the frequency assignment (and renewal) of spectrum should be modified, adopting the “cashless auction” model, with minimum financial outlay and commitment to network investments, and providing for an indefinite duration against coverage obligations.
- **Access regulation:** the list of relevant markets should be deleted. Competition law and (symmetric) access obligation to physical infrastructure pursuant to the Gigabit Infrastructure Act are by default sufficient to guarantee that competition of retail markets will continue to flourish. Residual ex ante regulation (primarily symmetric) should focus only where a bottleneck persists.
- **Sustainability:** telco infrastructures should be included in the taxonomy for green investment. Inclusion also in the CEAG community guidelines is key to extend the benefits provided for energy-intensive industries to the telecommunications sector. Also, the extensive use of data compression techniques by CAPs should be fostered for greater energy efficiency.

Introduction

TIM warmly welcomes the European Commission's White Paper since it correctly represents and identifies trends and challenges that currently characterised the electronic communications industry and which TIM also highlighted in response to the public Exploratory Consultation on the future of the electronic communications sector and its infrastructure.

TIM is pleased to have the possibility to further comment on the crucial issues addressed in this important document that proposes significant and necessary regulatory and policy reforms with the aim of addressing digital infrastructure needs while reflecting the fundamental current transformation of the sector.

In the following TIM provides detailed comments on the White Paper. These comments are organized according to the 3 pillars identified in the White Paper and also address the 12 different scenarios.

1. Pillar I – Creating the “3C Network” - “Connected Collaborative Computing”

Scenario 1 - *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**.*

Scenario 2 - *The possibility of following-up the accomplishments of IPCEI 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.*

Scenario 3 - *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.*

- **Acknowledging the transformation process of the industry**

TIM welcomes that the White Paper focuses on the major and somehow disruptive transformations that the electronic communications sector is currently undergoing. At the same time, this attention is rightfully echoed by a few BEREC reports and external studies.

Indeed, network virtualisation/softwarization, edge cloud, artificial intelligence, open networks are new technologies/models that will have a significant impact on the electronic communications sector, while legacy networks are being replaced by VHC networks.

In this evolving context, TIM greatly appreciates the EC's accurate understanding that technological capacity and deployment of digital networks, including edge computing infrastructure, are essential to *"meet future connectivity needs of all end-users, underpin competitiveness of our economy and ensure secure and resilient infrastructures and the Union's economic security"*.

We also commend the clear recognition that *"the delivery of advanced data services and AI-based applications depends on them."* There is indeed *"a strong correlation between the deployment of capable digital networks and the take-up of modern technologies, which are currently not developing at large scale"* and *"take up of high-speed services is of paramount importance, as it affects the capacity of the sector to invest"*.

Nevertheless, it is worth pointing out that an extensive take-up will only be possible once services will be fully developed and available, which will require further investments. More importantly, in order for the take-up to trigger new advanced investment it is essential that the added value is at least partially absorbed by our sector.

Therefore, the significant financial and economic pressure that European operators currently face due to these disruptive transformations must be duly considered in any policy and regulatory assessments. Indeed, increasing uncertainty over future monetization opportunities, exacerbated by growing competition from very large digital platforms, cannot be overlooked.

- **Defining an EU industrial policy to guide and support the Industry**

At this stage, it is crucial for the EU to develop and implement a forward-looking concrete industrial policy. European operators couldn't implement a cohesive industrial strategy so far, on the one hand, due to a strict competition policy enforcement and regulation and, on the other, because of the lack of a high-level future-oriented industrial policy from the EU and national institutions.

Therefore, we consider this White Paper a good starting point, long overdue, for discussing and developing such an industrial policy and making strategic choices for the future of the Union. The White Paper must be swiftly translated into an effective European industrial policy action plan and legislative initiatives giving rise to a structured set of measures, supported by dedicated European and national funds for its concrete execution.

Firstly, TIM agrees with the EC's vision about ensuring that today's connectivity providers become tomorrow's collaborative and computational connectivity providers, able to orchestrate the different elements of the digital ecosystem. However, to date, public funds dedicated to the evolution of the connectivity networks have been insufficient if compared to the outstanding funding gap necessary to deploy state-of-the-art digital infrastructure. Those are essential to have a direct and significant impact on the EU competitiveness and on the possibility for EU citizens and businesses to enjoy the advanced services they need.

In fact, the EU telecom sector has not yet been able to find the financial capacity to invest in cloud-native, programmable, and highly automated networks, which are essential for powering a plethora of industrial use-cases, as well as to develop cloud-native 5G core, necessary for 5G standalone, which will unlock new services and user experiences through network slicing; an Open RAN/Cloud RAN architecture at the edge exploiting the cloud infrastructure which can provide operators with greater flexibility in selecting and optimising network components and services while reducing dependency on a few vendors proprietary solutions; and an edge software and hardware blueprint for computational power and sustainability.

Many other extra-EU Countries' industrial models have already dedicated much more important funds to this purpose. Even more so we will need public support to be granted fast and swiftly. Well-designed infrastructure projects can stimulate economic recovery and stability, after all, the economic multiplier for public investment (including infrastructure) is 1.5 times greater than the initial investment within two to five years (2020 study by the Global Infrastructure Hub (GI Hub)).

- **Strengthen, simplify and coordinate financing mechanisms**

Current public funding should be strengthened and it is crucial that those funding mechanisms are streamlined and coordinated, as the White Paper is generally proposing.

As envisaged by the White Paper, all funding opportunities on digital infrastructure such as IPCEIs, Multi-Country Projects, the Connecting Europe Facility, Horizon Europe, and Digital Europe programs, should enjoy the management of a central governance entity to ensure synergies, coherence and alignment with a common strategic industrial ecosystem evolution plan.

Furthermore, the simplification of funding processes to make them effectively useful is a key point. IPCEIs for example, being a valuable instrument to enable Member States to support important and innovative projects bringing value to several Members States, should be streamlined to become more open and approachable for all interested enterprises and all Member States. It should be avoided to keep the industrial capabilities for research, innovation and development of new technologies and services frozen during several years because of a too burdensome screening-process for the assessment of market failure. The IPCEIs' rationale is to finance the launch of new disrupting technologies: keeping a project at a standstill for three years will distort its main objective. The layer of selection of projects at national level, the multi-country synergy and governance and the state aid analysis must be as clearer and transparent as possible. For example the market failure with respect to a certain sector of research should be clearly identified in advance and technical experts should support legal experts of the Commission to make the evaluation more rapid; each member state could select the winning projects with potential multi-country synergies, before bringing the industries to the further layer and the multi-country governance and "chapeau" text would therefore be developed at a later stage when projects would be assessed and clearly identified.

Because of the high relevance of such projects for the whole European Union, it would be important also to provide for the co-financing by a Union Fund of a certain percentage of each IPCEI project in order to sustain the industry with the costs incurred in participating to the process and to eventually speed up the kick off of at least part of the project that still has, after state aid clearance by the Commission, to undergo the national bureaucracy procedure to touch the first instalments .

Lastly, TIM strongly invites the Commission to make sure that any funding system that the EC will launch in order to enhance the evolution of digital networks includes telco operators among other stakeholders (academia, infrastructure providers, industry interested in specific use cases,), also in the researching, piloting, testing and industrial development.

2. Pillar II – Completing the Digital Single Market

Scenario 4 - *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;

The Commission recognizes that the goals of the current framework of promoting investments and competition have not been reached and that the achievement of most of the Digital Decade objectives are at risk.

In this context, TIM is pleased that finally the White Paper recognizes that this risk is strictly interlinked with the challenges Europe's telecoms sector has been facing in the last years. These challenges include the difficult financial situation of the EU telco operators, characterized by a decreasing profitability, low ARPU, fragmentation, lack of assets with sufficient scale, hyper regulation. All these factors have led to the sector's unattractiveness to private investments. This is particularly concerning considering that the Commission has already detected an investment gap of over 200 billion euro to reach the Digital decade targets in 2030.

- **Introducing Fairness into the extended digital ecosystem**

A profound rethinking of the whole regulatory framework is needed to address all these issues, taking into account the rapid technological evolution (i.e., virtualization and cloudification of the networks) and the converged ecosystems between electronic communication network/service providers, cloud and other digital service providers.

Indeed, the White Paper rightly describes an ecosystem where the roles of the different players are becoming more and more blurred and characterised by an array of different relationships, as complements and/or substitutes. Therefore, an asymmetric regulatory treatment for 'traditional' electronic communications providers, on one side, and cloud/digital services providers, on the other, is not (any longer) justifiable.

This is even more true in a context where digital markets and services are very concentrated, and few large Content and Application Providers (CAPs) – VLOPs/Gatekeepers - have significant and entrenched market power and supply “must-have” content/application to end-users.

TIM welcomes that the Commission maintains in the White Paper that “*the stable bedrock of any future regulation should be the European Declaration on Digital Rights*”, thereby confirming its commitment to “*develop adequate frameworks so that all market actors benefiting from the digital transformation assume their social responsibilities and make a fair and proportionate contribution to the costs of public goods, services and infrastructures, for the benefit of all people living in the EU.*”

Acknowledging the transformation of the overall architecture of the internet and of interconnection, in a context in which volumes of traffic, stemming from a very few large players, are constantly increasing, it is paramount to find a way to rebalance the market and bargaining power along the value chain, while addressing the current asymmetries between telecom operators and large over-the-top players.

Therefore, to establish a level playing field, regulatory measures need to be adopted to stimulate **clear, transparent and balanced relationships** between telecom operators and OTTs:

- on the one hand, volumes of traffic introduced into the networks by the largest CAPs must be contained through, inter alia, advanced compression tools, and obligations must be imposed to the largest traffic generators also to disclose accurate mid-term forecast about their data traffic.
- on the other, clear rules must be established to ensure a fair contribution from the main traffic generators to the investments necessary to manage those growing volumes (on the transport and access part for the mobile network and in particular on the former for the fixed network). This outcome would also force large traffic generators to discipline their data traffic, under an economic (and not technical) viewpoint, whereas now there is no incentive for large CAPs to optimize their traffic, especially for those “contents” not requested by end-users (e.g., advertising and auto-play content).

In this regard, TIM warmly welcomes the Commission’s intentions to facilitate commercial negotiations and agreements between market actors, and we are looking forward to contributing to identifying and assessing future concrete proposals. TIM is of the opinion that this action should be undertaken immediately, since the current number of disputes occurred so far is not a correct indicator of the well-functioning of transit and peering markets. As a matter of fact, the contractual and economic relationships between the market actors are currently influenced by asymmetric bargaining and market power as well as by situations of economic dependence, favouring the largest CAPs. Regulatory constraints (i.e. Net Neutrality rules) also further exacerbate the bargaining power asymmetry.

Consistently, it is important to underline that the opposite narrative, i.e., the exploitation of a bottleneck situation by an ISP is no longer possible, as rightfully acknowledged by the recent German case Deutsche Telekom vs Meta, rejecting all Meta’s allegation about DT exploiting market power. Indeed, network operators, when not constrained by large CAPs market and bargaining power, tend not to provide IP data transport services (which are valuable services) on a settlement-free basis to networks with a significant traffic asymmetry.

- **Regulatory level playing-field**

TIM welcomes the Commission’s acknowledgement that today’s traditional telco providers, cloud and other digital service providers are all part of a complex converged ecosystem and that the application of different rules to different actors is no longer justified.

The White Paper correctly highlights that cloud providers are not currently subject to telcos sectorial rules, while number-independent interpersonal communication services (ICS), albeit being included in the Code, have much lighter obligations compared to number-based ICS and are even exempted from the General Authorization regime and from contributing to the Universal Service funding.

TIM has always supported the “*same service same rule*” principle and therefore agrees on the need to establish a new framework for all digital players, streamlining the rules and extending the scope of the revised framework, applying same rules to analogous services, thereby ensuring a regulatory level playing field and equivalent rights and obligations for all actors and end-users of digital networks.

This levelling should take place both on the supply and on the demand side.

- a) **Regulatory level playing-field on the demand-side**

As for the demand side, the main assessment for a revised regulatory framework should concern whether horizontal consumer legislation (i.e., the Directive on unfair contract terms, the Directive on unfair commercial practices, and the Consumer rights Directive), rather than sector-specific one, could address all demand-side issues. Indeed, provisions concerning information requirement for contracts as well as contract duration and termination could be effectively tackled by horizontal consumer rules since there is no sector-specific issue there. Along the same lines, sector-specific rule about e-privacy should be eliminated and rely on the solid horizontal ones enshrined into the GDPR.

Of course, a harmonised horizontal legislation would result *per se* in a level regulatory playing field for all actors of the extended digital ecosystem.

Likewise, to ensure maximum harmonization within the EU with the aim of creating a true Single market, Member States should not be allowed to deviate from consumeristic rules established at EU levels by introducing, as is currently the case, additional layers of regulation at national level (e.g. indirect price regulation, customer care/helpdesk, parental control). Firstly, these costly national demand-side obligations (with wide differences from country to country) create high fragmentation and are an incredible obstacle for the consolidation of EU single market. Secondly, those rules are often imposed only on IAS and number-based interpersonal communications services, augmenting the EU regulation's asymmetry.

Therefore, the revised EU framework should enforce a strict and effective maximum harmonization approach, by eliminating the several possibilities for Member States, currently available in the Code, to include additional or stricter provisions, as these national provisions jeopardize the single market and often fail to support customers' interests.

Any remaining demand-side sector-specific rule must be justified by a sector-specific issue which requires a differentiated intervention. Those obligations (e.g., data retention/legal interception) should be extended to all the actors in the digital ecosystem (harmonised in-market and across markets). This is especially true for those services that are classified as electronic communication services, e.g. NI-ICS, which are substitute and direct competitors of the traditional number-based services.

Finally, the extension of consumer rules to NI-ICS, cloud and other digital services must ensure a correct interplay with the Digital Markets Act (DMA), Digital Service Act (DSA) and the Data Act. TIM urges the Commission to continue along the path undertaken with the implementation of those pieces of legislation.

b) Regulatory level playing-field on the supply-side

As for the supply side, the creation of a level regulatory playing field must imply the broadening of non-discrimination and disciplining of market power to all actors in the extended digital ecosystem. However, current rules should not be just merely extended *as they are* but should be re-assessed against the objective to streamline asymmetric sector-specific regulation and rely on symmetric rules and competition law as far as possible.

This implies that a specific revision of the regulatory regime should be devoted to those relationships among the different actors in the ecosystem, which are often and often characterised by enhanced substitutability or complementarity and linked to extensive network and ecosystemic effects. Those are important in shaping markets and bargaining power and existing interdependences and trade-offs

can't be neglected, otherwise (unintentionally) generating other contractual or market power situations.

First, a convergent regulatory regime should reconsider the ambiguous 'double nature' of NI-ICS, which are currently classified both as electronic communications services and as content and applications. Consequently, their usage of access network is currently misrepresented by the regulatory framework and should be reconsidered. Indeed, under an economic viewpoint, NI-ICS's usage of access networks is not different from the usage that any number-based access seeker is doing. Either is both substitute for the downstream services of an integrated provider and a complement for the same integrated provider's upstream services.

As for cloud services, it is quite evident that those services are not effectively disciplined by the DMA: no cloud service provider has been designated as gatekeeper so far. This is mainly because cloud services' value chain is not a two-sided market (unless we consider "cloud marketplaces"), yet it is a vertical value chain, intersecting (and overlapping) with electronic communication networks and services. In this regard, the definition of an extended ecosystem should represent a preliminary step for a revised regulatory approach aimed at preventing leveraging of market power across different segments of that ecosystem.

- **Regulatory playing field as for Net Neutrality**

Along these same lines, the Open Internet Regulation (OIR) should be modified in order to embrace a more flexible approach (i.e., according to the general regulatory principle of "proportionality") that should be extended to the whole ecosystem. Indeed, significant technological and market changes happened in the last few years. These evolutions transformed the largest CAPs market position both in terms of (i) countervailing power vis à vis ISPs and (ii) their increasing ability to influence end-users' internet experience.

In this changed context (compared to OIR's year of adoption), net neutrality regulation should focus on its economic impact on the ecosystem, while continuing to protect consumer rights by revising the interpretation of "end user". According to the BEREC guidelines, the current regulation grants CAPs the same protective rules as to other end-users, notwithstanding the fact that their position in the market is very different. The main drivers for a revised approach should be (i) to avoid that net neutrality rules inhibit the ability of telecom industry to fully enable the capabilities of new technologies (namely 5G), and (ii) allow ISPs to properly value and monetize their network's services.

An example of how operators are enhancing their networks to support advanced 5G capabilities is the evolution 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, through the development of network APIs (e.g. the Open Gateway initiative led by the mobile industry). However, these kinds of services, which offer a stricter link between content and connectivity, are in contrast with the principle of 'equal treatment of traffic' of the Open Internet regulation, and it does not appear clear if they could be included in the "specialised services" category.

The full obtainment of the above mentioned objectives requires an update and clarification by the Commission of the interpretation of the Open Internet Regulation, considering technology and market evolution, as well as a rethinking of some rules, allowing more freedom for quality differentiation, e.g., for premium quality services, as well as for zero-rating offers, and more certainty in relation to

use cases that would be considered compatible with the Open Internet principles, within the category of “specialised services”.

Scenario 5 *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.*

- **Switch-off**

TIM agrees with the Commission that the copper switch off and FTTH take-up should be supported. However, setting a centralized deadline at the EU level for the switch-off of copper networks seems completely inadequate, considering the very different level of VHCN deployment and take-up across Member states.

This process instead would require a higher flexibility at national level, also considering the significant investments needed to deploy fibre networks and, consequently, the graduality in the coverage of the different geographical areas across the national territory.

To support the process, NRAs should streamline procedures so that the switch off is not delayed after the SMP operator has announced its willingness and technical possibility to undertake this process. In particular, NRAs should provide for as short as possible notice periods and avoid imposing conditions, not in the SMP operator’s control (e.g. reaching a certain take-up threshold), that prevent the starting of the notice period, unjustifiably delaying the implementation of the SMP operator’s decommissioning plan. Regulatory measures supporting customers’ migration are also needed, for instance by imposing a mandatory migration of customers once the technical migration has been completed.

Without this approach and a well advanced FTTH coverage of the national territory, that would also ensure that end users can still have a sufficient range of fibre offers, setting any cut-off date would not be helpful both for operators and end users.

As regards **2G/3G switch-off**, TIM would like to stress that these are already well under way across Europe, according to operators’ own timetables and should remain within the remits of operators’ commercial decisions.

- **Access regulation**

TIM welcomes the EU Commission’s awareness that the Europe’s regulatory approach to access regulation for telecom network operators must change.

TIM strongly agrees with the Commission’s proposal to delete the list of relevant markets and thus to remove the presumption that ex ante asymmetric remedies are needed in each EU country. This is

the necessary consequential evolution of a proportional regulation, considering the development of competition throughout EU markets. Market and technological trend support this view, confirming the competitiveness of fixed markets as well as of the mobile ones.

Competition law and (symmetric) access obligation to physical infrastructure pursuant to the Gigabit Infrastructure Act (GIA) are by default sufficient to guarantee that competition of retail markets will continue to flourish. Under this new approach, TIM also agrees that NRAs should monitor the well-functioning of retail markets and be enabled to intervene in case of endurable competitive issues that needs an ex ante regulatory intervention (safety net).

The detecting of any residual bottleneck should be based on an NRA's granular geographical analysis at local level, by applying a revised three-criteria test, that would focus on the assessment of any bottleneck in the retail fixed access markets (and not in artificial wholesale markets pre-defined at EU level).

Indeed, in this new scenario, a differentiated geographical approach to market and remedies definition is even more pivotal to allow residual regulation to focus only in those geographical areas where a bottleneck persists. The bottleneck should be assessed first of all at retail level, by assessing whether *"customers benefit from a variety of competing services based on at least two independent fixed broadband networks"* (see EC White Paper). We support in this regard the Commission's view that areas where at least 2 fixed broadband networks are present should be deemed competitive and no asymmetric regulation is needed (i.e., competition law and the symmetric obligations guaranteed by the GIA are sufficient to safeguard competitive dynamics). Also, we believe that a bottleneck would be absent at retail level where, even with only one network, there are at least two independent wholesale access offers (or even only one in the case of subsidised areas). This would allow to take into account emerging co-investment and wholesale-only access models. The Commission should immediately recommend the application of this criterion to NRAs, avoiding the application of non-harmonised regulatory approaches across EU countries and the application of too conservative criteria.

Where a bottleneck is identified, the first option should be relying on symmetric access obligations to be applied on the network operator that is present in the concerned geographical local area (in this transitory period before the EECC review, article 61(3) could be the right legal instrument).

Finally, we deem that, pending the forthcoming revision of the EU framework, the abovementioned new regulatory approach should already be implemented based on a revised Recommendation of relevant markets (not recommending any market) and a more effective application by the Commission of article 32 EECC, by actually monitoring that comments are duly taken into account by NRAs.

Indeed, considering the lengthy and cumbersome procedures for a legislative revision, and in order not to put at risk the sustainability of the sector and the achievement of the digital decade targets by 2030, it is pivotal that the Commission adopts as soon as possible a revised regulatory approach that effectively and efficiently enforces the current pro-investment Code's provisions in order to support investments in VHCNs and the achievement of digital decade targets.

As a perspective for the revision of the Code, the enforcement of the European framework should be as much as possible harmonized through a more central role of the Commission, starting from the recognition of the veto power also on remedies. Indeed, today NRAs enjoy a great degree of discretion in implementing the regulatory framework, creating a patchwork of 27 national markets with their

own rules, also in similar circumstances. Pursuing a true harmonization is a necessary step towards the single market, which would support the advancement of a stronger and more digitalized Europe.

- **Standardised EU access product**

Concerning the possible definition of a standardised EU access product, we understand that the Commission has in mind a virtual/central access service that could be provided by operators in alternative to physical infrastructure access and that the aim is to facilitate the emergence of pan-European operators.

We deem it risky to impose that kind of additional regulation, unless and until full harmonization of rules is reached within the EU, since this approach would facilitate and incentivize hyperscalers' vertical integration (providing electronic communications services), while not generating any significant increase in scale for EU players investing in the networks.

In our opinion this scenario shouldn't be pursued at present. We believe that access to physical infrastructure should remain the safeguard against the removal of an ex-ante definition of relevant markets subject to regulation.

In addition, it should also be considered that VHCN architectures and technologies vary across the EU countries. The principle of technology neutrality renders it difficult to define standardised products. Therefore, we are very sceptical about the definition and regulation of any standard EU service, absent market analysis and impact assessment, as done in the case of international calls and other services (which originated politically-regulated prices).

As already mentioned, the single market should not pass through the imposition of new obligations but through the harmonization of rules and the support to infrastructure investment.

- **Universal service obligations**

As far as Universal Service Obligations are concerned, as also highlighted by the EECC in 2018, fixed broadband connectivity is as of today available everywhere and in principle there's no longer the need to designate specific undertakings for ensuring availability.

Moreover, today also affordability is no longer an issue that requires obligations, due to price decreases in the last years and the low level of prices applied in the EU in respect to other geographies. The decreasing uptake of discounted offers dedicated to low-income consumers demonstrates that this instrument is no longer needed. Markets largely fulfil the special needs of citizens; any residual need of vulnerable consumers may be satisfied with welfare policies. Also, European consumers with disabilities have access to a variety of offerings to communicate easily (e.g. text telephony being replaced by chat/video telephony) and the European Accessibility Act applies.

Therefore, USO should be phased out in light of well-functioning markets and also considering the inefficiency of the USO compensation mechanism (i.e. high level of litigation and difficulties for the USO provider to have the net cost incurred compensated).

Scenario 6 *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 harmonized 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).*
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- **Building scale**

TIM agrees with the European Commission about the current fragmentation of the European market for electronic communications networks and services and the lack of a true single market.

In this regard, the EU Commission generally emphasizes that a more intense harmonisation (e.g., for spectrum management) would allow European operators to scale up and become pan-European providers.

The White Paper focuses on measures it esteems could facilitate the cross-border consolidation and the creation of pan-European operators: a regulatory harmonization for the Single market is certainly an important necessary condition for pan-European operators to develop, but the current and most urgent situation of the telecommunication market in Europe is much more complex than that. Achieving first of all the financial sustainability to survive the current more pressing urgencies and demands of the market is the most essential preliminary condition for any possible future prospect of consolidating at European level for any European operator today.

The European operators are faced with the immediate necessity to transform their national networks in order to ensure deployment and transformation of secure and performant networks in a context where the digital market-ecosystem has widened and the complex technological-market dependencies from non-European players are strengthening. In such a context, the most efficient means to enable, in the short term, the investment capacity for the transformation of the digital infrastructure needed to ensure the security and quality of services that customers deserve remains getting scale.

The electronic communications sector is generally characterised by intense scale economies, but the relevant scale for improving cost-efficiency for network operators is only relative to their own networks at national level, by increasing the network utilization and achieving economies of density, whereas any cross-border consolidation (absent a preliminary in-country one) would only have marginal impacts in terms of incremental economies.

Therefore, a preliminary crucial step in the direction of creating pan-European operators is to allow in-country consolidation, by expanding the customer base on each national network as opposed to the current distribution of end-users among too many networks and consequent higher costs and constant competition merely based on too low prices to expand the customer base. A persistent lack of consolidation - when market dynamics would push towards it - may also produce an adverse effect on network deployment and service quality, which is magnified by the scarce attractiveness that a low ROCE has on private financing for further infrastructure investments.

Merger rules are principle-based; therefore, they allow (and require) an interpretative adaptation to changing market circumstances - that clearly has taken place in the electronic communication sector, also because to powerful roles played by very large digital platforms.

In this regard, we understand that, when the 2004 Merger Regulation was introduced, the Commission did not have historic data regarding the actual effects of similar transactions on prices and competition. After nearly 20 years of enforcement, now it is possible to look back and observe such consequences.

This observation leads to the conclusion that the few in-market mergers that have taken place in Europe have, in fact, led to quality improvements without any significant negative price effects [see *“Do four-to-three mobile mergers harm consumers?”* Compass Lexecon, 2023].

In such a context, we consider that there are sufficient elements for the Commission to operate the mentioned interpretative adaptation and adopt a more flexible approach as regards in market consolidation. As an example, considering sufficient the mere elimination of an important competitive constraint between the merger’s parties should be revised.

Another example of such revised approach would for instance be a more flexible approach as regards the merger-specificity of the efficiencies deriving from the transactions in question. The important European objectives of promoting the competitiveness and the financial sustainability of the industry should also be taken in the utmost account and influence the final assessment.

The White Paper acknowledges the importance of attracting private investment for the evolution and resilience of the European digital networks and go further specifying that, for all the reasons specified above, nowadays investors consider the fragmentation of the sector at national level an important hurdle to investment.

Also, TIM notes that the Merger Regulation is one of the few pieces of legislation that has not been adapted to the evolved market situation. In this context, we believe that an assessment on the opportunity of a revision should be started by the Commission.

- **Spectrum policy**

TIM welcomes the Commission’s proposal to better harmonise the release and licensing of radio spectrum for mobile services. It is necessary that all MSs assign spectrum (a scarce resource) efficiently, however current pricing mechanisms in many countries, such as Italy, have not performed this function well in recent years.

First, TIM is of the firm opinion that financial burden of spectrum licensing should be softened and harmonised, by not allowing auctions design to artificially enhance scarcity in order to raise prices. MSs should assign spectrum based on commitments to provide coverage or otherwise invest in improving the quality of the infrastructure on which the spectrum is used for a minimal financial outlay (so called “cashless auction” model).

Likewise, the duration of spectrum licences should be harmonised across Europe and extended compared to the current approach: a 40+ years (ideally indefinite) duration would allow MNOs to invest in network deployment and improvement rather than on periodic retendering of spectrum as it has occurred in the past years. Moreover, this approach would minimise uncertainty about renewals and the risk of discontinuity, which disrupts investment and disincentivise spectrum trading practices (which are encouraged under Article 51 of the EECC).

TIM also welcomes the proposal to strengthen EU level coordination of spectrum assignment timing, as aligned availability avoids early and late release of spectrum that both create difficulties to the operators. However, more emphasis should be given to the coordinated availability of spectrum and the definition of technical usage conditions.

Moreover, TIM welcomes a possible EU spectrum roadmap towards 6G, like any measures that increase the predictability of the spectrum availability and, therefore, an EU level planning of sufficient spectrum for future use cases.

All in all, TIM appreciates the Commission proposal for a more uniform spectrum authorization landscape, aligning national authorisations and conditions, and possibly including the establishment of a notification system (akin to art. 32 EEC as an alternative to the peer review process).

The Commission is exploring the possibility to request competent authorities for operators of EU core networks or pluri-national licensees to seek better aligned national spectrum authorisation processes and conditions (e.g. alignment conciliation procedure) for existing usage rights or general authorisations including on duration, QoS obligations and possibility to integrate satellite and terrestrial networks. As such a request is expected to come directly from operators to the relevant spectrum authorities in each country, it would therefore be useful to understand if the Commission envisages a role for itself in such a process and whether the proposal requires any changes to the current framework, keeping in mind that any such approach could be potentially discriminatory for single-country operators.

On the possibility of single EU-level selection or authorization processes for terrestrial, satellite and other innovative applications, TIM is of the opinion that special attention should be taken to avoid market distortions. On the issue of a potential EU-level authorisation scheme, TIM is of the view that the associated risks and costs are too high where differing national circumstances play a role.

Furthermore, TIM believes that the role of CEPT in EU decision making process is well defined and the mechanism of the EU technical mandates to CEPT has provided good results and therefore should not be changed. TIM does not see any sovereignty issues in it, as the contribution given from CEPT provides the technical details only.

- **Limitation of exposure to electromagnetic fields**

Finally, an additional crucial harmonisation issue that the EC should consider is about the electromagnetic limits.

The limits recommended by international guidelines depend on the frequency of the electromagnetic field, but as far as relevant for systems currently in use such as 4G and 5G, they indicate a value of 61 volts per metre. Almost all European countries have transposed the limits recommended by ICNIRP into national legislation. Even countries that had higher limits have recently decided to adapt.

As for EU legislation, Recommendation 1999/519/EC set guidelines on limits for public exposure to electromagnetic fields (0 hertz to 300 gigahertz). This measure - which, among its various effects, indirectly introduced the so-called 'precautionary principle' in the field of environmental protection - established minimum and maximum values in terms of exposure to electromagnetism. That EU Recommendation under analysis has not changed over the years, although the new guidelines on the subject promulgated by ICNIRP in 2010 and 2014.

This EU Recommendation - by nature non-binding on EU member states - has allowed individual states to establish their own national regulatory framework on electromagnetism. Italy set unreasonably low electromagnetic limits, only recently addressed by an amendment resulting in a slight increase. Nevertheless, Italian limits are still the lowest in the EU.

It is important to highlight that those limits have important economic consequences and setting lower limits than those of other countries translate into a disadvantage in terms of deployment of network applications such as 5G, which plays a key role in the digital transformation of many sectors.

For this reason, TIM invites the EC to consider including the definition of electromagnetic limits within a binding piece of legislation, approaching its threshold definition with a “proportionality principle” and aiming for a “maximum harmonisation” across all EU member states.

- **‘Country of origin’ principle**

As for the application of the ‘country of origin’ principle for authorizations of ECNs, although appreciating a possible streamlining of red tapes in view of a pan-European service provision, TIM is ultimately very sceptical about it. In our opinion, this approach would finally facilitate and incentivize the development of pan-EU operators not providing at all own core-network elements, while relying on bitstream services and/or the proposed standardized EU access product.

First, there are obligations related to network operations that are not related to authorization, which would give those pan-EU access-seekers a big competitive advantage as infrastructure network operators wouldn’t be able to scale up on an equal footing.

Second, since the Electronic Communications Code provides for the possibility for national authorities to set a series of obligations to the Authorization that are generally applied in a non-homogeneous way at a local level (e.g. administrative burdens, interceptions, conditions of use of the spectrum and numbering, etc.), the ‘country of origin’ principle would likely generate a regulatory competition among different jurisdictions. Yet, differently from information society services, this could possibly involve an unbalanced assignment of scarce resources in different jurisdictions, e.g., mobile numbers or important network identifiers such as MNCs (“mobile network codes”). This would again create an unlevel playing field and generate an easy path of entry to the wider telecoms value chain.

All in all, TIM is of the opinion that application of ‘country of origin’ principle would not allow ECS provider to build more scale or to better compete with the providers of cloud network (by operating a unified core network). It would rather facilitate large CAPs to vertically integrate, as they are not subject to those obligation that would go on constraining network operators at national level.

To effectively encourage the development of pan-European networks and services, it is therefore necessary to first overcome the current fragmentation, harmonizing the rules linked not only to authorizations, but to access networks and retail services.

Scenario 7 *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.*

- **Sustainability**

TIM appreciates the inclusion of sustainability in the White Paper and the recognition of the key role of ICT infrastructures for sustainability: innovative ICT infrastructures (fibre, 5G, 6G) are more efficient from an energy point of view (reduction of more than 50% of emissions between 2019 and 2022) and enable digital solutions that allow the development of new business models with indirect emissions reductions also in other sectors (smart cities, precision agriculture, healthcare, transport, energy, etc.).

Sustainable finance is therefore a possible vehicle to attract investments and try to partially fill in the existing investment gap.

Therefore, there is an urgent need to define common EU indicators to measure the carbon footprint of ECS and to develop a Code of Conduct for ECS sustainability by 2025, which can guide the definition of these KPIs.

TIM, along with the trade associations ETNO and GSMA, believes that sustainable finance should be separated from the work done by the European Green Digital Coalition, to which the EC refers in the White Paper. As a matter of fact, its methodology recognizes ICT infrastructures as having a mere passive role, by enabling green digital solutions, whereas the new ICT infrastructures (fibre, 5G, 6G) should be considered *per se* green.

TIM advocates for a revision of the Delegated Regulation on the climate, in order to insert an *ad hoc* category on infrastructures with *ad hoc* technical alignment criteria (amendments expected in the second half of 2024/first months of 2025).

Furthermore, it is worth underlining the importance of defining regulatory measures allowing the sector to structurally contain energy costs and ensure supply continuity, not only in the short term in response to exogenous shocks, but also in the medium to long term. Two regulatory areas are proposed: in the short term, leveraging the EU's 'temporary framework' for the Ukrainian crisis, and in the medium to long term, integrating the Community Guidelines (CEAG) with specific measures for telecommunications. The goal is to extend the benefits provided for energy-intensive industries to the telecommunications sector, recognizing its strategic importance in terms of digitalization, national security, social and territorial cohesion and its contribution to energy efficiency.

Furthermore, it is essential that all players in the digital network ecosystem cooperate towards an efficient use of resources, including CAP's, which must invest in optimising their traffic and therefore helping in reducing energy consumption. TIM strongly supports measures for data traffic compression ('codecs') for greater energy efficiency, believing that energy efficiency is a responsibility not only of telecommunications companies, which can contribute to this goal by converging towards consolidation models or, as a second best, towards network sharing agreements, but also a responsibility of content providers in data management.

Regarding renewable energy and energy communities, TIM believes it is important to allow the sector to self-generate renewable energy (inclusion within the scope of energy communities), considering not only sites but also land and buildings as the perimeter for generation.

Regarding the switch-off, please refer to the aforementioned paragraph within scenario 5.

3. Pillar III – Secure and resilient Digital Infrastructures in Europe

- **Security rules in an evolving technological scenario**

TIM and its international carrier Telecom Italia Sparkle (TIS), leader in submarine cables, welcome very much the attention paid by the EC to the development of secure and resilient digital infrastructures in Europe.

The EU has recently issued several legislations, concerning the management of cyber risk and reporting obligations (e.g. GDPR, NIS2, CRA, DORA, EECC, CER), alongside national security requirements, supervised by different enforcement authorities. It is important to assess the interplay of these rules and enhance their cross-consistency and coordinated enforcement in order to minimise uncoordinated actions, compliance costs and legal uncertainty.

These assessments and legislative fine-tuning must also consider the technological and market evolution. Indeed, the major transformation taking place in the extended digital ecosystem with virtualized, software-defined, and cloud-dependent infrastructures clearly calls for a sharing of the responsibilities (and costs) in ensuring high levels of security across the whole telecom supply chain.

Indeed, investments in network security become more and more extensive and expensive. Operators' efforts to develop and deploy OpenRAN should be supported. Should any regulatory/policy requirements deriving from geopolitical consideration be introduced restricting the free selection of vendors by operators, additional security costs and investments should be adequately supported by public funds.

- **Toward 'unconditional quantum security'**

TIM particularly appreciates the Commission highlighting the importance for the EU to be ready against the challenges that quantum computing will raise for the security of Digital Infrastructures. However, what the White Paper portrays as lying ahead in a very distant future is already a reality today and the EU cannot linger. Whereas, regrettably, Pillar III scenarios don't seem to explicitly address this issue.

TIM appreciates the recently published recommendation on a Coordinated Implementation Roadmap for the transition to Post-Quantum Cryptography and urges the Commission and Member States to act swiftly to set the pace of this important transformation.

As correctly reported, 'quantum security' can be achieved with two different approaches: PQC and QKD. These should not be considered as alternative but as complementary. Indeed, the PQC (which is a mathematically based approach strengthening algorithmic processing), does not ensure the so-called "unconditional security": you can strengthen the algorithm as much as you want but sooner or later a quantum computer will come along and crack it. Therefore, although PQC is a valid tool, it does not guarantee the unconditional security that is achieved with QKD, which takes advantage of the properties of quantum mechanics and is therefore the most effective solution to face the threats of today and tomorrow.

QKD as a technology is currently at TRL 9 and there are QKD systems commercially available on the European market. Not prioritizing QKD as the first-best EU technology, with a related stable

ecosystem, will leave room to other countries, especially Asian ones, to become global market leaders. This will lead to a limited role for the EU that has all the necessary know-how and technologies to become a major global player in this field.

Scenario 8: *The Commission will promote the reinforcement of advanced R&I activities across the EU in support of new fibre and cable technologies.*

Scenario 9: *The Commission may consider establishing a CPEI list and related labelling system by a Delegated Act under the Connecting Europe Facility.*

Scenario 10: *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.*

- **Resilient submarine cable infrastructures**

In an increasingly evolving market where traditional physical infrastructure are interlinked with software, service platforms, cloud, achieving the highest security and resilience along the entire value chain is of utmost importance. The EU Commission emphasizes the importance of security in terms of common and interoperable security standards for all key infrastructure, including also submarine cables and satellites.

In this context, TIM/TIS welcome the initiative of CPEIs as a mean of supporting the cable industry, particularly if the selected projects are not limited to laying new cable routes (unless due to lack of private investment) but to the enhancement and protection of existing infrastructures. However, the development of an autonomous EU manufacturing industry and adequate repair fleet should be among the strategic priorities to be considered.

Moreover, operators have developed certain experience with the CEF terms and conditions and would welcome stability within the process for the years to come in order to facilitate the submission of submarine cable projects, which are complex by nature. We call on EU policy makers to confirm, and even increase, the budget allocated to the CEF programme in the coming years, especially related to the backbone and submarine cable workstream.

TIM/TIS also welcome actions to promote the reinforcement of advanced R&I activities across the EU in support of new fibre and cable technologies. However, this should not be limited to technologies focused on higher capacity but have a specific focus on technologies allowing for faster repairs of submarine cables, as well as sensing technologies allowing cables to be better protected from both natural and man-made hazards.

Scenario 11: *The Commission may consider proposing a joint EU governance system on submarine cable infrastructures.*

Scenario 12: *The Commission may consider harmonising security requirements in international fora, which may be recognised through a dedicated EU certification scheme.*

- **Joint European governance and certification for submarine connectivity**

TIM/TIS welcome the proposal to promote the adoption of best-in-class solution within international fora and the development of an EU certification scheme for the security of submarine cables.

Moreover, TIM/TIS appreciate a joint EU governance system for submarine cables if complemented by a common regulation for cable assets at EU level. Any governance models of submarine cables should be pragmatic, and their impacts should be carefully considered in order to safeguard market rationales and the need to find new sources of funding.

Submarine cables are considered as networks, but whether these networks are considered to be public or not remains unclear, both in the EECC and in national legislation. There is therefore no specific category for submarine cables, in the current legislation, where the same obligations apply to wholesale operators (as in the case of cable operators) and retail operators. Many of the obligations derived from the qualification of submarine cables as "public networks" (mainly those related to security issues) are justified by the protection of end users/consumers, which has a material implication to the operation of wholesale networks, such as cable.

Finally, TIM/TIS are of the opinion that a harmonization of security requirements regarding both the manufacturing and the operation of undersea cables (at least at EU level, if not worldwide) is an important first step to guarantee the improvement of resilience and security of submarine cables.

4. Conclusion

TIM warmly welcomes the European Commission's White Paper and is of the firm opinion that the EC is undertaking the correct regulatory and policy paths, which are based on extensive data gatherings and stakeholders' involvement.

TIM is aware of the current uncertainties about the timing and the outcome of this consultation, i.e., whether this would only feed the revision of the EECC or lead to a brand-new Digital Network Act.

In any event, TIM urges the Commission to define and implement the main steps and concrete actions in advance of any legislative revision, using the hard and soft-law tools already at its disposal.

Finally, TIM wants to emphasise its support to the trend towards an EU Digital Single Market, underlying the entire White Paper. This is justified by the overarching and paramount objective of reducing regulatory fragmentation and finally achieving a true digital single market as a prerequisite for defining an effective and future-proof EU industrial policy.