

Position Paper on the EU White Paper

How to master Europe's digital
infrastructure needs?

At a glance

White Paper on digital infrastructure needs

Initial position

In February 2024, the Commission published the White Paper »How to master Europe's digital infrastructure needs?«. The White Paper sets out the challenges and opportunities that Europe is currently facing in the development of future connectivity networks and proposes possible scenarios for action. It is intended to provide the basis for a possible future legislative action of the next Commission.

Bitkom rating

Europe's economy and society need performant, efficient, secure and resilient digital networks. Bitkom therefore highly welcomes the EU Commission's intention to prepare a review of the current framework to foster competitiveness, competition and investment in the European telecommunications market. An EU-wide harmonised market improves the conditions for investment and expansion in the telecommunications sector. This will strengthen the competitiveness of European companies, which depend on the digital infrastructure in all areas. Bitkom therefore highly appreciates the efforts of the EU Commission to stimulate the roll-out of connectivity, as set out in the targets for the Digital Decade 2030.

The most important takeaway

In light of Bitkom's broad and diverse membership, which includes companies from the digital sector such as telecommunications providers, content and application providers with different business models and contributions to the Internet ecosystem, Bitkom focuses on a joint opinion regarding the following key messages without disregarding the importance of other discussion points that lack a common industry view:

■ **Creating a Single Market for Telecommunication**

Bitkom encourages and supports the Commission to remove national barriers to encourage operators to launch cross-border services. If there are sufficient incentives, the market might move in the direction of offering cross-border services in the long term, but this needs to happen voluntarily and not be imposed through any regulatory intervention, particularly regarding access.

■ **Fostering investment in sustainable infrastructure**

Bitkom advocates for telecommunications networks being integrated in the EU taxonomy framework as they deliver a credible contribution to the green transition.

■ **Ensuring future-proof wireless connectivity**

Bitkom favours a clear roadmap for increased spectrum to meet increasing capacity demands.

Content

1	Introduction and general assessment	4
2	Completing the Digital Single Market (Pillar II)	5
	Single Market	5
	Spectrum Policy	6
	Harmonisation of frequency policy	6
	Accelerate 5G and preparing for 6G	7
	5G corridors	7
	Mobile network and photovoltaic sites on rooftops	8
	EMF Budget	8
	Copper switch-off	9
	Facilitating fibre-rollout & reaching connectivity goals	9
	Universal service and affordability of digital infrastructure	10
	Sustainability / EU Taxonomy	11
3	Secure & resilient digital infrastructure for Europe (Pillar III)	12
	Secure communication using quantum and post-quantum technologies	12
	Security and resilience of submarine cable infrastructure	13
4	Creating the »3C-Network« (Pillar I)	15

1 Introduction and general assessment

A high-performance digital network infrastructure is essential for Europe's economic development and prosperity, as well as for the transition to a green economy. Secure, reliable and high-performing connectivity will be crucial to support the digital transformation, which promises to be a major contributor to Europe's economic well-being and global competitiveness in the future. Today, the EU is still lagging its Digital Decade targets in very high-capacity network deployment. In the coming years, it is important that the EU and the member states work together to bring the digital infrastructure in Europe to a higher level and thus secure Europe's future viability. The right framework conditions must be set for this.

Bitkom therefore welcomes the fact that the Commission's White Paper addresses the question of how Europe's digital infrastructure needs can be mastered. We support the EU Commission's plans to create a true European single market for telecommunications. An EU-wide harmonised market improves the conditions for investment and expansion in the telecommunications sector for all market players. This will also strengthen the competitiveness of European companies across sectors, as they highly depend on a functioning and advanced digital infrastructure.

We agree with the EU Commission's assessment that a major challenge will be to ensure and continue investments in high-capacity networks.¹ European telecommunications operators – competitors and incumbents – and Content and Application Providers (CAPs) have invested immense resources in upgrading and expanding Europe's network and internet infrastructure over the past decade. Yet, further investments are needed to realise Europe's connectivity targets. The Commission identified an overall investment gap of at least EUR 148 billion to meet connectivity targets. However, a competitive and secure telecommunications sector is urgently needed to provide the much-needed infrastructure for technological advancement and the green transition. In addition, the sector would profit from an inclusion in the EU taxonomy as this would unlock further investments in the greening of digital infrastructure and its role in enabling emission reductions across industrial sectors.

Bitkom therefore welcomes that the Commission is considering a reform of the EU telecommunications framework with the aim of delivering effective policies to

- Ensure a sustainable, competitive, and pro-investment approach, also to allowing for scale of the sector.
- Improve conditions for the allocation of spectrum with extended long license periods as well as early renewals across the EU respecting to promote business certainty and long-term investment.

¹ Considering Bitkom's broad and diverse membership, which among other companies from the digital sector includes telecommunication-providers as well as content-and-application-providers with varying business models and contributions to the Internet ecosystem, Bitkom has decided not to issue a joint recommendation on how to address the pertinent issue of financing infrastructure costs.

- Act on excessive spectrum costs, and the asymmetry of rules applying to the spectrum across Member States.
- Stimulate demand for digital services, with a focus on supporting SME.
- Ensure the security of Sub-Sea Cables.
- Evaluate Mobile roaming cost models.

The recent legislative mandate has experienced a considerable amount of tech legislation that, to work in the interest of all European citizens and businesses, requires interoperability of different legislative files from the early stages. It also requires thoughtful implementation of the many different pieces of legislation that have just been adopted and yet to be fully put in place. The recent mandate has already brought significant regulatory interventions in the tech sector by introducing a suite of legislation that has reshaped the landscape.

The operationalisation of the current regime should be kept in mind when introducing possible new legislative proposals, such as a »Digital Networks Act«. Duplication and conflict between different legislations should be actively avoided.

2 Completing the Digital Single Market (Pillar II)

Pillar II deals with many different topics that are relevant to the completion of the digital single market. We would like to comment on the following points in detail:

Single Market

Bitkom encourages and supports the Commission to remove national barriers (e.g. security and consumer protection requirements) to encourage operators launching cross-border services.

If there are sufficient incentives, the market might move in the direction of offering cross-border services, but this needs to happen voluntarily and not be imposed through any regulatory intervention.

Furthermore, to foster growth of the Digital Single Market we encourage the European Commission to adopt an open innovation approach.

Spectrum Policy

Harmonisation of frequency policy

The White Paper states that the high cost of acquiring spectrum licences through auctions has been a burden on the European telecommunications sector in the past. The Commission therefore proposes to counter the approach of auctions, which is often aimed at maximising revenue.

We welcome the recognition that artificially high spectrum prices cause roll-out delays and suboptimal network quality. However, while the text of the White Paper includes many important points of analysis in relation to possible changes to EU spectrum policy, it falls short in suggesting meaningful change in the more concrete scenarios envisaged by the Commission.

Bitkom considers that the following elements are key:

- Establish a clear roadmap for increased spectrum to meet increasing capacity demands.
- Ensure long-term business certainty and alignment with investor timeframes through extended licence periods as well as early renewals across the EU to promote long-term investment in mobile networks.
- Ensure that all suitable spectrum is actually available and not artificially decreased through unjustified set-asides or license-related obligations that are not based on thorough socio-economic analyses.
- Avoid inflating spectrum prices for mobile broadband by ensuring that they reflect opportunity costs and that the bidding process is fair and transparent.

The further expansion of 5G, and supporting a timely roll-out of 6G, requires undertaking the necessary efforts to make additional spectrum available for mobile communications. The expected demand, traffic growth (e.g. an expected factor of 3 by 2029), and connectivity targets – especially while keeping power consumption and cost levels down – cannot be met without additional low- and mid-band spectrum. This holds true even though refarming, shared approaches and densification are pursued. The commission should consider these demands in the upcoming review of 470-694 MHz band for use after 2030.

Bitkom considers that the European harmonisation of spectrum is well-organised by the current role of the European Conference of Postal and Telecommunications Administrations (CEPT). EU countries are already taking a leading role in CEPT. As a recognised ITU regional organisation, a harmonised CEPT position is essential to influence a global spectrum policy. It is further our understanding that an EU spectrum harmonisation policy will be developed in EC and associated like the RSPG (Radio Spectrum Policy Group).

Accelerate 5G and preparing for 6G

The evolution of mobile communications will offer further increases in speed, capacity and reliability over 5G and beyond, towards 6G. This will enable entirely new use cases: immersive user experiences in the metaverse, the expansion of digital twins to control smart cities, and medical care even in the most remote areas of our world are all within reach. The funding programs that have been launched must be continued and further developed.

If the EU intends to reap the benefits from its leading position in 5G technology development, it needs to set the right incentives and motivate investment to actually deploy and upgrade to mid-band networks.

An EU 6G strategy and spectrum roadmap should be launched to provide investment certainty to market players, already during the current R&D and standardization stages. An early available ecosystem of equipment and devices with affordable pricing, combined with reasonable licensing fees will allow accelerated network deployments and an uptake of new services. Together with well-coordinated spectrum releases, the spectrum harmonisation minimises cross-border interference coordination issues and facilitate international roaming.

However, it is important to note that 5G deployment is still ongoing and must remain a priority to enable the full set of benefits associated with it. The European Union has set ambitious Digital Decade targets for 2030, among them the objective to cover all populated areas with wireless high-speed networks of at least 5G performance. Therefore, European telecom operators will continue to focus on 5G roll-out in the coming years. In this context, the deployment of 5G standalone (5G SA, i.e. a network that uses a 5G core network without dependency on LTE Evolved Packet Core) will progressively become a priority.

Maintaining legacy networks like 2G and 3G is not supported. It is counterproductive and also not sustainable to allocate resources maintaining obsolete networks.

In general, the EU framework is technology neutral, as operators are suited best to balance demand and supply and thus implement the optimal schedule for the introduction of new technologies. Action by the EU should be limited to make new spectrum bands available as soon as possible, but neither to interfere with the deployment of new technology generations nor the decommissioning of outdated technologies.

5G corridors

We consider the promotion of 5G cross-border corridors along transport paths throughout Europe to be particularly relevant. Against this backdrop, it is crucial to enable a smooth corridor deployment.

At present, however, the permitting processes for mobile telecommunication towers are often very time-consuming and involve many stakeholders, such as building, nature conservation, monument protection, and regulatory authorities. In the case of corridor projects along railways or motorways where many towers are being erected,

the situation becomes even more complex as additional stakeholders such as railway, motorway and tunnel operators are involved.

Even if the Gigabit Infrastructure Act (GIA) can help to accelerate permitting processes, this does not change the fact that permits must be obtained for each individual tower. However, this does not reflect the roll-out practice for 5G corridors, as the entire corridor tower infrastructure is usually planned and built as one coherent layout. The permitting procedure should reflect this and not be required for each individual tower, but for the entire corridor. We therefore propose the introduction of a corridor permit. This would reduce the bureaucratic burden, simplify and condense the procedure and thus significantly accelerate the roll-out. Considering the significant investment required to achieve the Digital Decade targets, it may also make sense to reconsider the current approach of not counting coverage achieved based on subsidised infrastructure towards coverage targets for future spectrum obligations. As coverage of the remaining underserved areas is particularly costly, easing this restriction for future spectrum obligations could make investments not only in 5G corridors but also in white spots more attractive and thus help to swiftly provide VHCN connectivity to all European citizens.

Mobile network and photovoltaic sites on rooftops

While we fully support the EU climate targets, and efforts to reduce greenhouse gas emissions and to expand renewable energies, we would like to emphasise that these endeavours must not compromise the Digital Decade targets. It is becoming apparent that the new Energy Performance of Buildings Directive (EPBD), which stipulates the installation of photovoltaic systems on buildings, will have a negative impact on the availability of roof space for 5G infrastructure.

The use of rooftop sites is essential for 5G roll-out in urban areas. However, due to the requirements of the EPBD, there is a risk that solar installations and 5G roof masts will compete for suitable roof space. In the long term, this could hamper the roll-out and efficiency of 5G networks. In Member States where photovoltaic obligations have already been introduced, this has already led to landlords being quite hesitant when it comes to concluding and renewing contracts with TowerCos.

We would like to encourage the European Commission to investigate strategies for the coexistence and better coordination of rooftop solar energy installations with 5G network infrastructure. The implementation of the EPBD must not hamper the roll-out of 5G networks. Instead, possible synergies between digital and energy policy objectives should be explored and promoted.

EMF Budget

To ensure a smooth user experience and a comprehensive choice for customers, mobile network operators (MNOs) must be able to deploy their networks wherever coverage is required. At the same time, they need to comply with national safety regulations for electromagnetic fields (EMF). Authorisation procedures for sites in the EU vary, which means that EMF calculations are sufficient at some sites without the need for on-site measurements. However, this can lead to inefficient use of the EMF budget and

exhaustion, especially in urban areas where antennas are often installed close to each other or even in the same location.

To accelerate authorisation processes, we ask the Commission to consider providing all stakeholders, including TowerCos, with information on the utilised EMF budget, within the limits required by competition law, protection of trade secrets and securing critical infrastructure. The commission should also aim to increase harmonisation of EMF limits as defined by Council Recommendation 1999/519/EC. The aim is to realise the full potential of MNO co-location while ensuring emission protection. This would provide citizens and businesses with faster access to high-quality connectivity, regardless of the chosen network operator.

Copper switch-off

The White Paper discusses switching off the copper network in the European Union by 2030. The expansion of fibre networks in Germany has made great progress in recent years. However, due to limited planning and construction capacities available, as well as different technology choices in member states – Germany, for instance, has adopted a VDSL/ Vectoring approach instead of early FTTH fibre deployment – it is unrealistic for the German market that the copper network can be completely switched off by 2030. This is also valid for other Member States so that uniform EU-wide binding targets will not achieve the intended goal. It also does not consider national fibre roll-out levels.

To preserve competition, the switch-off must only be initiated by the copper network owner according to the framework determined by the NRA and must recognize the transparency and non-discrimination obligations under national laws (such as § 34 TKG – German Telecommunications Act) to achieve planning security for the market. Thus, we are strongly against any mandatory switch-off deadline for Europe, as such a regulatory interference is not suitable for the current transition from copper to fibre and we also undermine that – in line with the current framework – it is the sole discretion of the copper network owner to decide when and where to switch-off.

Switching-off copper when all commercial preconditions are reached is a viable policy target. It must recognize and enable competition based on informed choices of customers and operators. However, instead of a binding deadline, policymakers should support fibre roll-out as a basic requirement for the copper switch-off.

Facilitating fibre-rollout & reaching connectivity goals

To achieve the EU connectivity goals, it is important to continue improving the basis for the fibre roll-out and to acknowledge the chosen technologically neutral approach considering also other networks capable of delivering VHC. This includes HFC-Networks and, especially regarding remote areas, 4G/ 5G FWA or other technologies as a complement or combination to fibre.

To further facilitate the fibre-roll beyond the GIA, we invite the European Commission to contribute to

- Simplify the approval processes
- Actively support the introduction of new technologies and roll-out methods to improve the efficiency of network deployment and reduce costs (e.g. trenching/micro trenching, plough, aerial fibre deployments etc.)

The White Paper rightly focusses on strengthening private investments in order to address the investment needs to reach the connectivity targets. Complementarily, State Aid will be needed to support the coverage targets. However, the complexity of the State Aid framework rather impedes than supports reaching the 2030 connectivity targets. Member States should therefore at least be granted more flexibility than is currently the case in the framework of State Aid notification procedures, with the aim of reducing bureaucracy and strengthening investment incentives.

Universal service and affordability of digital infrastructure

Bitkom believes that the chapter on Universal Service lacks a clear vision for the future. Even though the relevance of the Universal Service has declined over the years, the framework is still necessary to ensure that consumers have access to basic broadband services at an affordable price. In our view, the White Paper missed the opportunity to critically reflect on the affordability criteria as well as the inclusion of services providers in the obligation as the market converges.

Due to strong competition, telecommunications services are made available to all EU citizens in the European Union at affordable prices. In general, prices for telecommunications services in the EU have been decreasing over the years and with a huge variety of offers, consumers have the choice to select any offer according to their need. Thus, competition has created an environment where almost all end-users have access to affordable broadband services.

However, there are still areas without sufficient broadband services. Existing gaps in the network should be closed in the first place with public funding and with a technology neutral approach (recognizing new technologies such as advanced technologies like 5G Fixed Wireless Access and Low Earth Orbit satellite). Only in exceptional cases, there is still a need for a universal service regime which ensures connectivity for affected households. This universal service regime may, therefore, only be seen as a safety net for those who have no access to affordable basic broadband services. Due to further network deployment and coverage with fixed, mobile and satellite networks, the relevance of universal service is likely to decline. Until then, universal service obligations will remain necessary.

Citizens with special social needs or low income are best supported by the public welfare system, which is already the case in most Member States. Furthermore, publicly financed end-user vouchers may help to increase take-up rates for services on fibre networks and increase the number of citizens benefiting from the best available networks and services. These issues cannot be tackled with the universal service

regime, as it is only a safety net to prevent social exclusion. In conclusion, the universal service regime is still necessary, but the principles on which it is based could be the subject to a fitness check.

Sustainability / EU Taxonomy

Discussions surrounding the deployment of sustainable digital infrastructure, as well as reducing the carbon footprint of the digital sector, are crucial to enable a successful twin digital and green transition. Several aspects should be kept in mind, and considered, in the pursuit of this goal.

Digitalisation and sustainability are closely linked and cannot be viewed in isolation: On the one hand, digitalisation itself consumes energy through the operation of devices and networks, which is continuously optimised in terms of a sustainable business. On the other hand, digital technologies enable significantly greater resource savings across all sectors, for example in production, mobility, and agriculture. This means that the telecommunications sector on the one hand, must invest in the roll-out of more efficient networks, and on the other hand, has to provide the basis for sustainable digitalisation and thus, will make an important contribution to reducing greenhouse gas emissions.

The telecommunications industry is endeavouring to make the expansion and operation of gigabit networks as sustainable as possible. Optimising energy and resource efficiency not only makes ecological sense, but also contributes to cost efficiency and social responsibility. The expansion of sustainable telecommunications networks is therefore in the original interest of telecommunications companies and the capital market, due to increasing interest in ESG-related investment criteria.

Other technologies, such as cloud computing technology, can in addition contribute to reduce energy consumption and increase sustainability. Also, the respective advantages of different wireless technologies and network topologies should be exploited to maximize energy efficiency, whatever is better suited to provide sustainable connectivity. Furthermore, today's development of technologies focuses strongly on more sustainability e.g. in more energy-efficient chip sets or more efficient codecs. Codecs minimise the outgoing energy and power by compressing the data, while still providing the same video quality thus providing a sustainable, yet still digitally competent alternative. Codecs are only becoming more energy efficient at the same resolution for the user, bringing great benefits to the ecosystem as a whole. Many content application providers already implement such codecs.

Mastering the green transition depends heavily on the access to the capital market and investments in green technologies. The EU Commission has expressed its intention to work together with operators in the development of adequate Key Performance Indicators (KPIs) which qualify as »Technical Screening Criteria« with regard to EU taxonomy. We fully support this intention, keeping in mind that sustainability is a global challenge not limited to Europe. Therefore, we recommend that the EU supports the development of global standards. This would not only recognise the significant efforts made by European telecommunications network operators to reduce their emissions and environmental impact, but also the fact that these networks are the

basis for a green economy. In addition, the inclusion of telecommunications networks in the EU taxonomy will boost investments in digital infrastructure.

Only if telecommunications networks are being integrated in the EU taxonomy the framework can be a credible contribution to the green transition. Europe cannot afford to ignore the positive effects of the twin-transition in pivotal investment instruments. The EU Taxonomy should develop into a reliable instrument to channel green investments into secure and sustainable networks that support Europe's green transition.

3 Secure & resilient digital infrastructure for Europe (Pillar III)

Bitkom fully supports a harmonised security framework with common standards, common certification, common reporting, and notification requirements that increases resilience for the EU. At the same time, it allows operating efficiently and effectively across the entire EU, leveraging centralised network architectures that could benefit from economies of scale.

We very much support the secure by design approach, the development of common end-to-end standards and common technical certification schemes that underpin an open strategic autonomy approach.

Furthermore, Bitkom is fully supportive of the need for security regulation but asks that consideration is given to ensure that the requirements are risk-based and proportionate. We support a pro-investment approach that incentivises strong security as unpredictability hampers investment with negative impact on security, skills, and innovation. These principles should be holding material-, origin- and vendor-neutrality.

We support the fair and balanced application of regulation equitably across different actors operating in the same fields.

Secure communication using quantum and post-quantum technologies

We welcome the fact that the Commission discusses quantum and post-quantum technologies for secure communication. We believe that a hybrid approach of post-quantum cryptography (PQC) and quantum key distribution (QKD) is the right way forward. Especially, QKD is a promising and forward-looking technology approach that

requires further development and testing. To further support the development of a European QKD platform, we recommend strengthening the customer-centric view, i.e. to work on service definitions and to understand customer demands more detailed.

To facilitate the development toward a timely realization of quantum-resistant cryptography, standardization work is already ongoing in relevant standardization and industry bodies, which are developing technologies and guidelines to utilize quantum computing, quantum communication, and the development of quantum-resistant cryptography, including contributions to NIST PQC standards, IETF, 3GPP, GSMA Post Quantum Task Network, CISA/ DHS, and ATIS.

To ensure international policy consensus on PQC, Bitkom encourages timely and increased intergovernmental and international policy coordination in relevant forums and formats. This will allow the industry to realize secure, internationally harmonised, and interoperable PQC solutions on a global scale.

ITU-T, ETSI, and CEN/ CENELEC have been active in defining the QKD conceptual framework and operational requirements, including interoperable interfaces for using QKD devices, with further standardization including specifications for physical parameters ongoing or planned.

Furthermore, policymakers should also stimulate more research into quantum computing, cryptographically relevant quantum computers (CRQC), and quantum communication including quantum key distribution (QKD) networks. Quantum computing and sensing will also benefit resource allocation, reducing energy use and environmental footprint, and boosting security measures. Encouraging additional research to further development of quantum random number generation should also be advocated.

Security and resilience of submarine cable infrastructure

Submarine cables ensure international data traffic and are therefore a crucial part of the connectivity infrastructure. Against the background of the changed geopolitical situation and the recent attacks on submarine cables, we welcome the fact that the Commission is having a closer look at the security and resilience of submarine cables.

Europe needs more connectivity, not less of it and the benefits of diverse subsea cables routes, which include improving network reliability, ensuring resiliency and increasing global connectivity, thus reducing the digital divide, are broadly shared. Multiple, diverse routes help ensure that outages have minimal to no impact on the services that depend on the cable. When physical damage does occur, redundant network paths can reroute traffic to minimize service disruption for customers and users.

It is important to ensure strong and secure connectivity by establishing a regime that maximally promotes investment in submarine cable infrastructure. It is crucial to reinforce maintenance and repair capacity at EU level, which would mitigate the impact of any attempts to sabotage submarine cable infrastructure. Repair ships that are responsible for maintenance and repair of submarine cable infrastructure are scarce resources and therefore reinforcement of such maintenance and repair capacity at EU level is required to ensure security of existing infrastructure. Governments and

regulators can help reinforce diversity and thus resilience, by making it easier to land and maintain subsea cables. This can be done for example through:

- Creating sea and land corridors for the installation of cables, including a transparent and clearly laid out procedure to obtain licences and permits for laying and landing submarine cables. It is important, if this approach is taken, to ensure that adequate geographic diversity is enabled, clear restrictions are established on activities that could endanger the cables (e.g., activities resulting in anchor dropping/ dragging within such corridors) and that robust enforcement efforts are undertaken.
- Undertaking measures to ensure geographic diversity of routes and landings to avoid single points of failure. This could include periodically reviewing established cable corridors to avoid over-concentration and creating new landing areas/ corridors where such concentration is evident.
- Ensuring spatial separation of submarine cable systems from other maritime activities, regularly updating nautical maps and charts and designating submarine cable protection zones, to avoid cable incidents.
- Minimizing regulatory barriers to build and repair cables, including avoiding sabotage or crewing restrictions for such activities.
- Establishing surface surveillance of civil maritime activities and enhancing submarine surveillance, to enhance prevention and to gain threat intelligence. Establishing procedures for sharing threat information with allied countries also could help maximise impact.
- Enlisting the use of AI/ ML technologies to help detect potential threats to submarine cables from sea vessels in the area of underwater infrastructure.
- Creating an open cable landing station which provides non-discriminatory and cost-oriented access to landing parties and an open investment policy for subsea cables.

We support the initiatives and recommendations set out in the White Paper. We also welcome the development of cable projects of European interest (CPEI) and favour a fair distribution of financial resources. Such an allocation of funds should be based on transparent criteria, considering factors such as scale, expertise, and operational capacity. It is essential that all trusted industry partners have equal access to such funding to ensure fair competition and the best outcomes for the sector and its customers. The mapping and risk assessment outlined must be linked to adequate funding envelopes for European funding programmes to address any identified vulnerabilities and reduce dependencies, to support the delivery of CPEI and the replacement of redundant systems, and to achieve the objective of a secure and resilient network.

The creation of single points of contact for parties interested in making submarine cable investment and for cooperation between competent authorities of different countries, would help apply funding in a more efficient way, strengthening institutional capacity. This should be complemented with the establishment of simplified licensing regimes for submarine cables. We believe that strong and secure connectivity will be best achieved by a regime that maximally promotes investment in submarine cable infrastructure and flexible deployment of its landing zones.

Bitkom believes that, while aiming for EU-level harmonisation, it would be sensible to explore the creation of new minimum obligations for cooperation among the Member States on physical security of cables, e.g., in close cooperation and coordination with NATO. This could potentially result not only in prevention as well as deterrence of potential adversaries from physically damaging and jeopardizing this critical infrastructure, but also in the reduction of the high cost of implementing comprehensive protection measures. At the same time, the EU should take a comprehensive perspective linking the security and resilience of submarine networks to both the security of terrestrial networks and the foundational technologies that enable modern submarine technology. R&I&D investment in fibre technology and microelectronics are pivotal for advancing the submarine cable technology.

Also, the EU is well advised to promote its submarine cable technology beyond Europe, e.g. by instruments such as Global Gateway, as Europe's resilience in the submarine domains does not end in European waters.

4 Creating the »3C-Network« (Pillar I)

The right infrastructure is crucial to support the next wave of data and AI-enabled technologies and is a key factor in the EU's long-term competitiveness and economic security. An industrial policy strategy for digital infrastructure is needed, similar to the existing efforts for chips or cloud. We encourage the European Commission to adopt an open innovation approach and e.g. recognize collaboration within the European telecommunications sector with international partners in emerging technologies, particularly in the realm of cloud and edge computing, based on European Rules. This collaboration will guarantee that European businesses gain access to cutting-edge technologies, thereby fostering competitiveness and innovation in the region.

Bitkom welcomes the fact that the White Paper takes an industrial policy approach. We fully support the commission's goal to create a so-called »Connected Collaborative Computing« Network (»3C Network«), an ecosystem that spans semiconductors, computational capacity in all kinds of edge and cloud environments, radio technologies, to connectivity infrastructure, data management, and applications. However, the focus should be clearly on connectivity and therefore be approached as »Collaborative Computational Connectivity«.

It is important that such an industrial policy approach takes a holistic view of all relevant technology trends impacting the connectivity ecosystem, defines key technology priorities and identifies strategic challenges.

However, the current lack of coordination between the various 6G R&D&I activities at EU and national level is problematic. This refers to Horizon Europe, Eureka clusters,

national activities and also Important Project of Common European Interest (IPCEI). The SNS JU is executed well, and under certain conditions, could be the right platform to join related strings taking a leading and coordinating role. Most importantly, the JU should not become an umbrella instrument for other topics that are also covered in other instruments, potentially derailing 6G financing. 6G cellular research, next to other important topics such as microelectronics, AI, cloud, software and security, should remain an important part of this.

We support the idea of strategic capacity building in key technology areas. The exploratory consultation on the future of connectivity that was launched last year revealed a number of key priority areas. In the summary report on the consultation, it is noted that *»open networks, network virtualisation and edge cloud are technological break-throughs that will jointly have the largest impact in the coming years«².*

Accordingly, the focus of a new industrial policy approach on digital infrastructure should reflect these priority areas. While the White Paper rightfully discusses the importance of network cloudification and telco edge cloud extensively, not enough attention is given to open and disaggregated network architectures such as Open RAN.

Finally, Bitkom fully supports the idea of establishing a single-entry point for industrial policy on digital infrastructure which brings together the various technologies and actors in the value chain. It is important that such a policy approach not only focuses on R&D, but also aims to support the transition from research to market. This is necessary to facilitate the deployment of new and innovative technologies at scale.

² *»Results of the exploratory consultation on the future of the electronic communications sector and its infrastructure«*, European Commission. 2023

Bitkom represents more than 2,200 companies from the digital economy. They generate an annual turnover of 200 billion euros in Germany and employ more than 2 million people. Among the members are 1,000 small and medium-sized businesses, over 500 start-ups and almost all global players. These companies provide services in software, IT, telecommunications or the internet, produce hardware and consumer electronics, work in digital media, create content, operate platforms or are in other ways affiliated with the digital economy. 82 percent of the members' headquarters are in Germany, 8 percent in the rest of the EU and 7 percent in the US. 3 percent are from other regions of the world. Bitkom promotes and drives the digital transformation of the German economy and advocates for citizens to participate in and benefit from digitalisation. At the heart of Bitkom's concerns are ensuring a strong European digital policy and a fully integrated digital single market, as well as making Germany a key driver of digital change in Europe and the world.

Published by

Bitkom e.V.

Albrechtstr. 10 | 10117 Berlin

Contact persons

Nick Kriegeskotte | Head of Infrastructure & Regulation

P +49 30 27576-224 | n.kriegeskotte@bitkom.org

Janine Welsch | Telecommunications Policy Officer

P +49 30 27576-234 | j.welsch@bitkom.org

Jana Gaulke | Manger EU Affairs

P +32 471929743 | j.gaulke@bitkom.org

Responsible Bitkom Committee

WG Telecommunications Policy

Cover image

Margaret Weir – unsplash.com

Copyright

Bitkom 2024

This publication is intended to provide general, non-binding information. The contents reflect the view within Bitkom at the time of publication. Although the information has been prepared with the utmost care, no claims can be made as to its factual accuracy, completeness and/or currency; in particular, this publication cannot take the specific circumstances of individual cases into account. Utilising this information is therefore sole responsibility of the reader. Any liability is excluded. All rights, including the reproduction of extracts, are held by Bitkom.