Anitec-Assinform

Anitec-Assinform comments to the White Paper "How to master Europe's digital infrastructure needs?"

Introduction

Anitec-Assinform welcomes the opportunity to comment on the white paper published by the Commission and to contribute to the identification of the most effective strategies to successfully overcome the challenges facing the digital infrastructure sector in Europe today.

As highlighted in this document, the competitiveness of the European economy is closely dependent on a robust and competitive ecosystem of advanced digital infrastructures and services, capable of seizing opportunities for innovation and keeping pace with the evolution of technologies and markets in the complex and delicate global geopolitical scenario.

Cloud, edge, artificial intelligence, quantum encryption are today among the prevailing enabling technologies benefitting citizens, businesses and public administration: through the massive adoption of these technological enablers, the verticals will be able, on the one hand, to improve their management processes and their offer of services and products and, on the other hand, to withstand the growing international competitive pressure by adopting new, more modern and advanced business models.

The same technologies are also fundamental tools to reach the ambitious sustainability goals that the international community has set itself, reducing the consumption of natural resources and the environmental impact of human activities, while mitigating the negative effects of climate change on society.

At the same time, the availability in Europe of advanced, widespread, secure and reliable communication networks is a prerequisite for enabling technologies to be able to benefit society and economy in the EU.

For this reason, it is necessary to create the conditions for the telecommunications sector to enjoy adequate conditions to prosper and consolidate itself on the

Associazione Italiana per l'Information and Communication Technology (ICT)
Milano, Via San Maurilio 21, 20123
Telefono 02 0063281
segreteria@anitec-assinform.it – anitec-assinform@pec.it – www.anitec-assinform.it
P.IVA: 10053550967 C.F.: 10053550967

internal market, also thanks to its long industrial history in the EU and the importance of European global suppliers of network equipment.

The points raised by the white paper offer an opportunity to complement the positions expressed by Anitec-Assinform in the previous EU consultation[1] regarding digital infrastructures, presenting some policy recommendations on aspects relevant to the industry represented by the Association.

Interaction between the different sectors of the digital economy

The white paper underlines the existence of an expanding convergence between electronic communications and information technology ecosystems, between connectivity and computing, between networks and cloud services, and that such convergence could generate risks for competition and for the security of the European market.

In this regard, it should be noted that, like many other industrial sectors, the telecommunications sector is also among the recipients of services enabled by innovative digital technologies.

In particular, edge cloud and network virtualization make it possible to offer secure and powerful connectivity solutions, which offer greater flexibility and speed in the provision of network services, allow to optimize the use of frequency bands and improve the user experience. Artificial intelligence improves customer user experience, enables predictive maintenance of operations, improves the reliability of networks and services, reduces human error, and increases efficiency. In addition, as an integrated service in 5G networks and even more so in 6G networks, AI applied to the telecommunications sector paves the way for new use cases, such as dynamic management of data traffic and network resources, or sophisticated energy-saving mechanisms.

While it is true that the two sectors operate in the same ecosystem and that in this context both mutually benefit from the application of the same enabling technologies, it should nevertheless be stressed that, from a market and value chain perspective, the actors operating in the two sectors carry out different activities and substantially continue to have distinct roles. Convergence between the two sectors, at least in the terms suggested by the white paper, is therefore

[1] Exploratory consultation on the future of the electronic communications sector and its infrastructure, 2023

not detectable. It would be more appropriate to consider them as complementary sectors.

Having a clear vision on this aspect is crucial to proceed with a correct analysis of the overall market scenario and, consequently, to identify the most suitable strategies to guide the digital transition in the Union, promoting the development of a system of advanced network infrastructures in the Member States and supporting the competitiveness of the telecommunications sector and the entire digital ecosystem.

Evolution of the regulatory framework

In order to foster the development of the European single market, the white paper outlines several possible revisions to the European Electronic Communications Code. One hypothesis mentioned is the extension, in various respects, of the field of application of the Code to subjects who are currently excluded from it, in order to overcome any critical issues arising from the presumed convergence between electronic and cloud communication services.

In this regard, it seems appropriate to recall the considerations expressed in the previous section of this paper regarding the lack of a real convergence between the two sectors, while highlighting that such a far-reaching regulatory intervention should be conducted on the basis of evidence that justifies the need to modify the current framework and an in-depth assessment of the implications of such regulatory intervention on all stakeholders involved.

Account should also be taken of the duplication and interference with existing legislation that an extension of the Code would entail; from this specific point of view, it should be noted that cloud services are already subject to a wide range of regulatory measures, both general and sector-specific, already aimed at preventing potential threats to competition or market safety and consumer protection (among others, NIS2, DSA, DMA, AI Act).

The white paper also hypothesises possible interventions on regulation in the field of interconnection of IP networks, conjecturing a possible increase in disputes between operators. However, there does not seem to be a cause for such concerns, since there is no market failure yet and the document itself recognises that the current provisions are working well.

To this end, regulatory interventions should aim to address market failures, and the use of cloud services in the telecoms sector does not raise any specific cause for action, either from an economic or security point of view.

In addition to the arguments above, it is important to underline that a possible extension of the scope of application of the Code, aimed at including entities such as cloud service providers, private network operators and even end users, would impose additional and unnecessary regulatory constraints that would create more obstacles to the development of the European digital market and innovation throughout the entire ecosystem.

In terms of level playing field, instead of introducing new regulatory obligations, it would be appropriate to aim at reducing the ex-ante regulatory pressure on telecom operators. This would allow the entire sector to liberate resources and produce sufficient economies of scale to consolidate itself in the market and meet innovation challenges.

Sustainability

In the field of digital communication networks, the solutions currently available and those under development aim to improve and support decarbonization programs and a more efficient and secure use of resources.

The development of new solutions by network equipment providers aims to continuously reduce energy consumption and improve the energy efficiency of products not only individually, but also for the whole of the network.

Opportunities to optimize network performance and minimize energy consumption are constantly being evaluated by all actors involved in the life cycle of solutions and products; In many cases, solutions based on the use of "intelligent software" to dynamically manage the grid and improve its energy efficiency are increasingly important, with constant proposals and developments.

A starting point for combining the evolution of networks and services with the needs of sustainability is the example of 5G technology, natively greener than previous ones; In addition, thanks to the adoption of new use cases that take into account both energy efficiency and environmental efficiency, 5G can help reduce energy consumption in different sectors of society and industry.

Cloud technologies have led to a revision of the criteria for evaluating energy consumption, based on the efficient use of infrastructure and have introduced further optimization possibilities, such as, for example, the control of network functions based on traffic, the optimization of the use of resources and processes, and the ability to monitor consumption in real time with access to dashboards and KPIs.

The innovations are not only present in 5G networks and have also involved the solutions adopted for data transport such as IP, optical, wireless and fixed access networks.

Likewise, for these types of networks, especially in solutions for IP networks and transport, the development of new products is driven by the development of more powerful and efficient components and algorithms that improve the intelligent data aggregation functions that allow the same services to be provided with a smaller number of devices, thus reducing energy consumption.

As far as radio transport networks are concerned, in addition to the development of energy-efficient components and solutions that reduce the footprint of installation sites, algorithms are available that reduce consumption as traffic conditions change. New link design criteria are at an advanced stage of study and will allow further energy savings, considering traffic statistics.

Fixed access networks also feature new processors developed to improve performance and reduce power consumption.

On the other hand, several green software solutions and systems are developed by implementing algorithms and processes based on artificial intelligence:

- predictive algorithms for monitoring and energy management of network equipment, to achieve a reduction in energy consumption without impacting performance and the end customer experience;
- advanced management of ancillary network components;
- processes for collecting data to be included in companies' ESG reports and reports.

Digital content and application providers and data center operators are also already committing to investments and direct actions to make the entire digital ecosystem more sustainable.

Important progress has already been made in terms of adopting high-efficiency content compression encodings, optimization of content delivery networks, and design and commissioning of sustainable data centers with energy consumption optimisation and efficient heat reuse.

Anitec-Assinform agrees with the Commission's vision regarding the need to promote innovation in the digital ecosystem, towards development models with a lower environmental footprint, including the use of metrics and requirements based on global standards. The association believes as well that the use of technologies that enable the digital and sustainable twin transitions in all sectors of society should be encouraged.

Network Security and Quantum Technologies

Quantum technologies undoubtedly represent a promising area for the development of solutions for the market, for the national security of the various Member States and for the well-being, first and foremost, of citizens; moreover, the EU Single Market is a strategic resource to maintain EU competitiveness vis-à-vis other major global players: primary research and development of *go-to-market* applications are the two unavoidable assets to invest in.

To remain competitive, the European Union should support domestic quantum chip fabrication capabilities, to avoid to avoid following the same path as chips. At the same time, quantum cryptography and quantum communications, which are both known as applications of quantum computing, have made substantial advancements in their own right, with their own supply chains and applications that need to be safeguarded and consolidated.

These technologies are still very expensive, and some of them can already be used but require a significant investment for their industrial integration and diffusion. In order to allow the European Union to consolidate its presence in the field of quantum communications and to protect its digital sovereignty and the security, it is therefore essential to create a virtuous system of collaboration between the public and private sectors.

In the vast panorama of quantum technologies, QKD (Quantum Key Distribution) and QRNG (Quantum Random Number Generation) are among the most mature and ready-to-be acquired solutions by the industry for the creation of new products and solutions that allow to increase the security of digital communications. This leads to the opportunity to evolve the current European

communication network towards a very high level of security with the gradual introduction of quantum systems in current networks, starting from application areas with the most strategic market advantage, and then later develop network solutions in support of national Quantum Communications Infrastructure (QCI) initiatives, in the context of EuroQCI, with a view to the mutual recognition of the technological solutions identified.

In a more specific manner, we recommend the Commission to ensure regulatory and market conditions necessary for stakeholders to be able to:

- deploy a fixed network infrastructure for QKD and consolidate related testing activities, e.g. in metropolitan QKD networks (fibre optic networks, terrestrial and satellite optical links);
- create interconnected national quantum supply chains;
- develop a cryptographic key distribution wide network as a security service;
- integrate university training plans to create specific skills in the field of advanced cryptographic systems to ensure security in the use of high-performance cloud computing (HPC);
- ensure the use of encryption from the design stage of networks, applications, and services.

Today it is not easy to make forecasts on the market value and trend of industrial initiatives in this field. However, waiting for market conditions to be ripe would mean not positioning oneself within these markets in favour of extra-EU players, who in the meantime will invest and develop technologies and skills.

It is therefore clear that there is a need to strengthen public-private collaboration, in order to intensify technological development projects and thus achieve an adequate level of strategic autonomy in the sector, ensuring the security of the European digital communication system.
