

**TECHNOLOGY, MEDIA AND TELECOMMUNICATIONS**

Draft BEREC Report – AI solutions in telecommunications

Public consultation

Introduction

Although most artificial intelligence (AI) systems in the telecommunications sector are still at the development stage, AI is expected to play an important role in the sector in the medium term.

In this context, the Body of European Regulators for Electronic Communications (BEREC) has published a draft report that seeks to identify such developments in selected use cases and assess whether these use cases may have an impact on the regulation of AI. BEREC also aims to raise awareness among the various stakeholders in the ecosystem of the different use cases of AI systems. It also aims to identify the benefits and risks associated with the application of AI in the telecoms sector.

In particular, the BEREC report develops the analysis of AI use scenarios in the following areas of telecommunications: (i) network and capacity planning and upgrading, (ii) channel modelling, prediction and propagation, (iii) dynamic spectrum sharing, (iv) quality of service optimisation and traffic classification, (v) security optimisation and threat detection as well as fraud detection and prevention.

The report was prepared based on issues raised by various stakeholders in the electronic communications value chain in surveys conducted by BEREC.

In this report, the body that brings together European regulators in the electronic communications sector seeks to identify AI developments for specific scenarios of the use of this technology.

Subject of the consultation

The draft Artificial Intelligence Law is currently being discussed by the European legislature and the aim is to ensure that AI systems in the European Union are safe and compliant with EU legislation. One of the other objectives of the AI legislative process is to provide legal certainty to facilitate investment and innovation in AI. AI depends on the use of several facilities, including access to large amounts of reliable data, sufficient capacity to store and process such data, and connectivity to electronic communications networks.

BEREC also highlights the importance of standardisation in the industry to reduce development costs in the market.

Therefore, in the draft report, BEREC analyses the extent to which difficulties in accessing one or more of these facilities may lead to imbalances between different stakeholders in the development and adoption of AI. BEREC also highlights the importance of standardisation in the industry to reduce development costs in the market and ensure a level playing field, interoperability and innovation, market oversight and mitigation of potential lock-in effects.

Specifically for the telecommunications sector, the widespread use of AI systems may have an impact on the design of electronic communications networks. This will lead to new hardware requirements and the integration of different hardware and software components. In terms of connectivity, AI systems based on cloud services require low latency. This may imply the decentralisation of networks in terms of the distribution of data centres along the networks. Furthermore, AI systems deployed in conjunction with Internet of Things (IoT) infrastructure - which implies a high number of devices connected to a system - may impact network capacity in the event of a malfunction.

As a result, telecoms market players believe that the use of AI in operational processes should be standardised by the end of the next decade at the latest. Changes will mainly take place at the level of network virtualisation, which is already possible today in networks based on 5G technology. This is the ideal technology to enable the ‘softwareisation’ of the network through ‘network slicing’, using network virtualisation based on software-defined networks (SDNs), network functions virtualisation (NFV) and cloud computing technologies. Other developments could potentially influence what networks do and how networks operate, or allow network resources to be automatically designed and managed.

The use of AI in electronic communications will also have the benefit of providing personalised services to users and improving network quality. This is because these systems make it possible to extract value from the analysis of large amounts of data and to improve forecasting and decision-making processes. Indeed, the volume of data that electronic communications network operators collect from both their customers and their networks enables them to use technologies such as AI to optimise network operations, improve customer service and identify new business opportunities.

AI systems also promise significant savings and can help automate complex processes, as well as techniques to support the expansion and densification of network infrastructure and devices in communications networks. In addition, the appropriate application of AI can improve the energy efficiency of networks. This, in turn, can have a positive impact on reducing the environmental impact of these networks, in addition to the cost savings associated with reduced energy consumption.

However, there are risks associated with the use of AI, including the availability of unbiased and reliable data. Here, the digital divide between urban and rural areas can have a significant relevance, as if this imbalance is not addressed, operators will have less data on rural areas. This lack of data can then affect the provision of networks and services to users living in different areas.

Another risk is liability in the event of a failure due to the complexity of AI systems. The implementation of AI-based cloud solutions in networks involves several participants in the value chain. These include network operators and providers of AI algorithms/applications, as well as external data providers used by AI systems. Given the heterogeneous nature of the ecosystem and the automation of AI systems, uncertainty may arise as to who is responsible for the decisions made by AI systems in the event of errors in the decision-making context.

The issue of accountability also affects trust in decision-making processes. The results provided by AI systems need to be understood and evaluated, especially the “explainability” of the results. This is essential to ensure that disputes between stakeholders in the telecommunications sector can be resolved. In other words, the means used should enable users to understand and trust the results of AI, especially when they involve decisions or profiling of data subjects. In these situations, decisions will require human intervention and an explanation of their meaning, as follows from Recital 71 and Article 22 of the General Data Protection Regulation.

The report also focuses on the potential use of AI solutions by NRAs. BEREC expects that AI systems could be used by government bodies such as NRAs to improve policy-making processes, and to support the delivery of public services and the internal management of these bodies. While some NRAs have explored the use of AI in the telecommunications industry, few have yet explored how AI can be applied within internal processes.

Final considerations

The BEREC report concludes that, given the growing importance of AI, NRAs should familiarise themselves with the risks associated with the use of AI, such as monitoring and evaluation methods. In addition, BEREC notes that NRAs could play a role in the implementation of the AI Law at national level, notably where this technology is used in the provision of electronic communications networks. In particular, NRAs could coordinate with the other bodies involved and provide technical support based on their expertise, knowledge and experience in the sector. NRAs should also be equipped to address potential sector-specific competition concerns that may arise in the future regarding the application of AI.

BEREC encourages all stakeholders and interested parties to provide their views and contributions to this draft report, and they can do so until **12:00 UTC on 3 February 2023** by email to: ai_consultation@berec.europa.eu. ■