

# **An overview of the BEREC work on the Open Radio Access Network (RAN)**

10 March, 2022

Open RAN is a software-based network solution based on open and standardized modular interfaces within a disaggregated Radio Access Network (RAN). Open RAN introduces new interfaces in the RAN and aims to make them more interoperable to allow for hardware and software components to be provided by multiple suppliers. Virtualisation and cloudification (of interfaces and other elements) will enable operators to run network functions on generic hardware. Essentially, Open RAN is a possible evolution in the technological development of communications networks.

Although Open RAN is not mentioned in the EU toolbox on 5G Cybersecurity<sup>1</sup>, it is perceived as one way to implement some of the measures in the toolbox, notably strategic measure 5 related to the diversification of suppliers. BEREC conducted a survey of the opinion of MNOs on certain aspects of Open RAN. The general areas covered in the survey included the following:

- Areas of focus and interest
- Maturity level of Open RAN
- Standardization and certification
- Motivation and challenges for deployment
- Impact on cost

These aspects were covered in a questionnaire which was aligned with the European Commission and the NIS Cooperation Group. BEREC collected information from mobile operators from July 5<sup>th</sup> to August 23<sup>rd</sup> 2021. The responses from the MNOs were anonymised and returned to BEREC by the NRAs. Responses were received from 73 MNOs operating within the EU, these responses were analysed and an initial report presenting a summary of the answers to the questionnaire was shared with the NIS Cooperation Group through the European Commission on October 6<sup>th</sup>.

BEREC analysed the survey responses and drafted an internal BEREC report where the Open RAN survey results are complemented by BEREC's observations on the predominant opinions expressed by MNOs on each area of the survey. An internal-only report was developed, due to the confidentiality and sensitivity of the responses received from the MNO's. In the Conclusions chapter BEREC puts forward the main findings, the open issues observed and a possible way forward.

From the responses received from the questionnaire to the MNO's, BEREC made the following findings:

- Open RAN is not yet deployed at a significant level in the operations of commercial networks;
- Open RAN will become a commercial reality in the near or medium-term future;

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<sup>1</sup>[https://ec.europa.eu/newsroom/dae/document.cfm?doc\\_id=64468](https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=64468)

- The implementation of Open RAN in its different aspects will take some time due to the lack of maturity;
- Open RAN will transform the current relationship between MNOs and their suppliers;
- Ensuring interoperability is essential for the successful implementation of Open RAN;
- The impact that Open RAN will have on CAPEX and OPEX is not yet clear.

Results of the analysis of the responses to the questionnaire indicate a number of possible issues that could be investigated further, such as:

- The interoperability of Open RAN and compatibility with existing networks and legacy systems;
- The efficient management of equipment from different vendors;
- The technical, performance, security and organisational risks related to the introduction of Open RAN;
- The overall dependency of MNOs on vendors and vendor diversity;
- How will Open RAN influence the barriers to enter the market;
- Who will be involved in the Open RAN ecosystem and what are their responsibilities (providers, vendors, cloud service providers, etc.);
- Timeframe for commercial availability of the different pillars and the impact this may have on the deployment of Open RAN;
- Whether the current regulatory approach to the interoperability and security challenges to be brought about by the introduction of Open RAN is adequate;
- The possible relationship between the size of MNOs and their ability to deploy Open RAN and the impact it could have on competition between MNOs.

BEREC identifies a need to establish a greater understanding of the commercialization path of Open RAN deployments, the opportunities this will bring, as well as the need to investigate further how challenges associated with Open RAN are being addressed by stakeholders other than MNOs (vendors, service providers, policy makers, testing facilities, etc.).

In this context, BEREC will as part of its Work Program for 2022<sup>2</sup> organise an external workshop to identify and discuss some of the potential gains and limitations of Open RAN.

BEREC will continue its collaboration with the NIS Cooperation Group, ENISA and the European Commission on the cyber security related topics, including Open RAN.

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<sup>2</sup> [https://berec.europa.eu/files/document\\_register\\_store/2021/12/Work-Programme-2022.pdf](https://berec.europa.eu/files/document_register_store/2021/12/Work-Programme-2022.pdf)