

2024

Work Programme

BEREC

The logo for BEREC, with the letters 'BEREC' in a bold, sans-serif font. The 'B', 'E', 'R', and 'E' are in blue, while the 'C' is in red. Below the letters, there is a horizontal line of small white stars, similar to the European Union flag.A large, abstract graphic composed of several overlapping squares and rectangles in various shades of purple, blue, and orange. The shapes are arranged in a grid-like pattern, with some squares containing curved lines or patterns. The overall effect is modern and dynamic.

**#empowering
EUconnectivity**

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2024

Work Programme

BEREC

Body of European Regulators
for Electronic Communications



BEREC aims to foster the independent, consistent and high-quality regulation of digital markets for the benefit of Europe and its citizens.

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I. Introduction



Konstantinos Masselos
BEREC Chair 2023

The Body of European Regulators for Electronic Communications (BEREC) aims to foster and promote the independent, consistent and high-quality regulation of digital markets for the benefit of Europe and its citizens. BEREC was established by Regulation (EU) 2018/1971 of the European Parliament and of the Council of 11 December 2018, amending Regulation (EU) 2015/2120 and repealing Regulation (EC) No 1211 (the ‘BEREC Regulation’).

The BEREC Work Programme 2024 sets out the priorities that the Board of Regulators has identified for 2024. These areas may be complemented by other emerging topics of interest during the year.

The objectives of this Work Programme are based on the BEREC Strategy 2021-2025¹, with a close focus on three priorities: promoting full connectivity, supporting sustainable and open digital markets, and empowering end-users. It also draws on the Medium-Term Strategy for relations with other institutions². The Work Programme 2024 aims to be aligned with the priorities of the European Commission for the 2020-2024 legislative cycle as well as the vision, targets and avenues for Europe’s digital transformation by 2030, set out in the Digital Compass and the Policy Programme ‘Path to the Digital Decade’. Finally BEREC has recently published its Action Plan for 2030³ describing how BEREC can contribute to the regulatory environment in Europe that is fit for the digital age and the global context. This Work Programme is well aligned with the strategic priorities set out in the action plan.

In 2024, BEREC will continue its support the further implementation of the European Electronic Communica-

¹ <https://www.berec.europa.eu/en/document-categories/berec/berec-strategies-and-work-programmes/berec-strategy-2021-2025>

² <https://www.berec.europa.eu/en/document-categories/berec/berec-strategies-and-work-programmes/berecs-medium-term-strategy-for-relations-with-other-institutions-2022-2025>

³ <https://www.berec.europa.eu/en/document-categories/berec/others/berec-action-plan-for-2030>

tion Code (EECC) at national level and will continue to take stock of track the national implementation status throughout the European Union (EU). BEREC will also consider check to what extent the new electronic communications framework is enabling the achievement of the EECC’s objectives and whether the framework’s provisions are effective for achieving that end. Building on the NRA workshop held in 2023, the assessment activity will continue in 2024 and there will be a public workshop to exchange views with stakeholders about how the EECC has been working to date.

Promoting full connectivity for consumers and businesses remains a key priority for BEREC in 2024. In line with the European ambition to create a Europe that is fit for the digital age, BEREC will contribute by facilitating the roll-out of very high capacity networks (VHCNs) and actively support their role in closing the digital divide. Through cooperation with other competent authorities and stakeholders, BEREC will also help to ensure that future network technologies meet their connectivity targets in line with European values and societal needs such as (cyber)security, safety and environmental challenges.

In the context of rapid technological change and growing importance of end-to-end connectivity, it is vital that the regulatory practices remain fit for purpose. To this end, BEREC will continue to analyse the technological de-

developments and their impact on sustainable competition on the telecom markets. In 2024, the BEREC workstreams will cover a wide range of developments, from managing a copper network switch off to the evolution of private and public 5G networks across Europe.

Closing the digital divide entails more than just the roll-out of very high capacity networks. It also requires providing end-users with the kind of access that matches their needs. BEREC will empower end-users by further enhancing transparency in the sector and will continue its work on defining an adequate broadband Internet access service and on giving guidance about the Quality of Service parameters.

Open and sustainable European digital markets are a cornerstone of a Europe that is fit for the digital age. In line with both BEREC's strategic priority to support sustainable and open digital markets and BEREC's role in the European High-Level Group of Digital Regulators for the enforcement of the Digital Markets Act (DMA)⁴, BEREC will keep monitoring and analysing developments in the digital markets and the impact and effects of the practices

implemented by large on-line platforms. During 2024, BEREC will continue to monitor the legislative process relating to fair access to and use of data, and the implementation of the enacted legal acts (the Data Act, the Digital Services Act (DSA)⁵).

BEREC will work intensively on several essential tasks that have been entrusted to it by the co-legislators to provide the best advice to the European Parliament, the Council and the European Commission in the field of electronic communications. This will include a review of the Roaming Regulation, and Opinion on the national implementation and functioning of the general authorisation as well as the Opinion on the technological developments and their impact on the application of the end-users' rights.

BEREC will continue to enhance its own working methodology and engage cooperatively and effectively with stakeholders, in particular by exploring how collaboration can be strengthened with other European institutions so that BEREC is ready for the future challenges.



Tonko Obuljen
BEREC Chair 2024

BEREC will reinforce its coordination on innovative networks and emerging technologies internally, in order to prepare for future developments and, more particularly to better understand them and identify their possible impact on regulation in the sector. This approach will be an integral part of all the projects in this Work Programme.

Furthermore, BEREC will review three strategic documents as to set out its objectives for the period 2026-2030 in view of the latest and expected relevant market, technological and regulatory developments during the next five years.

⁴ Regulation (EU) 2022/1925 of the European Parliament and of the Council of 14 September 2022 on contestable and fair markets in the digital sector and amending Directives (EU) 2019/1937 and (EU) 2020/1828 (Digital Markets Act)

⁵ Regulation (EU) 2022/2065 of the European Parliament and of the Council of 19 October 2022 on a Single Market For Digital Services and amending Directive 2000/31/EC (Digital Services Act). Available at <https://eur-lex.europa.eu/eli/reg/2022/2065/oj>

II. Background

The four objectives in Article 3(2) of Directive (EU) 2018/72 of the European Parliament and the Council establishing the EECC remain the foundation for the work set out in BEREC's annual work programmes, and are the guiding force for the Work Programme 2024. These four objectives are:

- promoting connectivity and access to very high capacity networks (VHCN);
- promoting competition and efficient investment;
- contributing to the development of the internal market;
- promoting the interests of the EU citizens.

The EECC, the BEREC Regulation and the mandatory tasks resulting from the relevant legislative instruments provide the basis for the BEREC Work Programme 2024.

The BEREC Strategy 2021-2025 is fundamental for steering BEREC's work in 2024. However, as 2025 is the last year covered by the BEREC Strategy 2021-2025, the work on the new strategy will be intensified during 2024. Therefore, a separate working item has been created for this purpose (see Chapter 5.1.). The Work Programme 2024 seeks to address current regulatory challenges while preparing BEREC for future new challenges resulting from political, public policy, economic, social and technological developments.

The Work Programme 2024 contains items launched in 2023 that are to be finalised in 2024, some ad hoc or recurring items, and new workstream proposals that have been identified and prioritised by BEREC members and stakeholders. According to the BEREC Regulation, when developing its annual work programme, the Board of Regulators of BEREC must seek the views and proposals of the EU institutions and other interested parties. This includes the national regulatory authorities (NRAs) participating in BEREC and BEREC's own Working Groups, and third parties and stakeholders (Article 21(1) of the BEREC Regulation). BEREC therefore organises a forum for stakeholders (the 'Stakeholder Forum') to enhance transparency and give stakeholders an opportunity to express their views on BEREC's current and future work, in particular, for preparing the work programmes. The Outline BEREC Work Programme 2024 was adopted and published by the Board of Regulators on 26 January 2023. On 15 March, BEREC launched an early call for input as the first stage of the consultation process for the Work Programme 2024.

III. BEREC work in 2024

The objectives of the Work Programme 2024 are aligned with the BEREC Strategy 2021-2025, as well as the three high-level priorities (promoting full connectivity, supporting sustainable and open digital markets, and empowering end-users), and the priorities set for institutional and international cooperation. The BEREC Strategy 2021-2025 is based on market developments and relates to the strategic objectives of the EECC. In addition to the three priorities, facilitating successful implementation and consistent application in all areas of the EECC, including spectrum, universal service and consumer protection, are important horizontal principles that form an essential part of the high-level priorities. In this context, BEREC will continue monitoring developments in digital markets and emerging electronic communication services (ECS) in order to anticipate any potential regulatory needs in a fast-changing environment.

There is a detailed description of the main projects to be carried out by BEREC in 2024 in the following sections.

Strategic priority 1: Promoting full connectivity

Promoting full connectivity will remain a strategic priority in the coming three years for BEREC, in line with the focus on promoting very high-capacity networks within the European regulatory framework. This means prioritising work that improves the general conditions for the expansion and take-up of secure, competitive and reliable high-capacity networks (both fixed and wireless) across Europe, while ensuring a smooth transition from the legacy infrastructures and access as well as end users interests.

1.1. Report on the regulation of physical infrastructure access

Together with the digital decade targets and the expectations concerning the quick and efficient deployment of Gigabit networks, physical infrastructure is gaining more and more in relevance. Already at the time of the revision of the previous Recommendation on relevant markets susceptible to *ex ante* regulation (2019-2020), the European Commission reflected on the possibility of identifying a separate market for physical infrastructure access (PIA) which may warrant the imposition of an *ex ante* regulation because of the fulfilment of the three criteria test at EU level. Eventually, the 2020 Recommendation did not propose such a market, but in the accompanying Explanatory Note it was indicated that a separate market for PIA is particularly relevant in Member States where one operator owns a physical infrastructure network, and particularly, when this network is ubiquitous and suitable for the deployment of alternative fibre networks. The Explanatory Note is based on WIK's study⁶ and provides other examples where a PIA market identification would be appropriate, by contrast to a PIA remedy imposed in a related downstream market. Therefore, BEREC plans to procure an in-depth review on the PIA regulation applicable in Europe given the high relevance of this topic.

More specifically, BEREC has a twofold objective with this work item: (i) on the one hand, to focus on market notifications of the NRAs who define a separate market for access to physical infrastructure susceptible to *ex ante* regulation, describe the market definitions applied (both from a product/service, as well as a geographical perspective), as well as reflect on the competitive situation assessments, and pinpoint conclusions regarding the existence or, on the contrary, inexistence of significant market power providers on the identified markets, and (ii) on the other hand, given the limited number of stand-alone PIA market identified to date, examine the physical infrastructure access remedy imposed in markets 1 and 2/2020, and provide some reflections on the approaches taken, the motivations behind them and the expected evolution.

In both cases, BEREC will also assess the impact of these regulations on the deployment of very high capacity networks (VHCN). BEREC could describe certain more prevalent/important issues for NRAs as regards the physical infrastructure under regulation, providing some relevant description, elements on pricing, as well as on coordination of civil works in the context of mandated access to the SMP operators' infrastructures. More generally, other regulatory aspects with impact on PIA may be looked at. Depending on the findings, BEREC may conclude

⁶ <https://www.wik.org/en/publications/publication/future-electronic-communications-product-and-service-markets-subject-to-ex-ante-regulation>

with some recommendations. This report will also build on the previous work from 2019, when BEREC adopted on a wider note a Report on access to physical infrastructure in the context of market analysis⁷.

Deliverable: Report on the regulation of physical infrastructure access

Public consultation: Yes

Adoption of the draft report for public consultation at Plenary 4, 2024

Adoption of the final report at Plenary 2, 2025, for publication

1.2. Workshops on the ex-ante regulatory experience of commitments, wholesale-only undertakings, and commercial agreements' review

Article 76 on the Regulatory treatment of new very high capacity networks (VHCN) elements, Article 79 on the Commitments procedure and Article 80 of the EECC on Wholesale-only undertakings, all have as a common denominator alternative approaches to the establishment of remedies in cases of SMP designation, following the ex-ante market assessments. After carrying out a market review and after identifying dominant operators, NRAs may, under several circumstances set out in the provisions of aforesaid articles, adopt alternative measures to incentivise the roll-out of VHCN by making certain commitments binding for the identified operators instead of imposing the typical access, non-discrimination, transparency and/or price control obligations. Such commitments may concern conditions for access to the operators' networks, co-investments, or both. In particular, the new regulatory tools (i.e. commitments for co-investment/cooperative arrangements/access in case of voluntary separation, and wholesale-only operator approaches) provided in the EECC would fall within the scope. BEREC previously looked in detail at the provisions of Article 76(1) on co-investments, and document BoR (20) 232⁸ that provides guidelines on the consistent application of the conditions and (minimum) criteria for assessing co-investments in new VHCN.

Since BEREC expects that, by now, some experience has been gained with the application of these articles in the market notification procedures (both in terms of procedural aspects, as well as on the substance of the application), it is considered timely to reflect on these developments. To that end, BEREC seeks to promote an experience sharing forum, where NRAs can learn from each other and, taking stock of the progress in the application of the provisions of the EECC, check on the opportunity to review the Co-investment Guidelines in the near future. At the same time, as the analysis of commercial agreements between the operators is gaining momentum in the context of regulatory reviews, this is seen as an opportunity to explore further the way in which those have been taken into account into the market analyses. Therefore, BEREC will hold an internal workshop to exchange views and experiences as regards the use of these tools.

⁷ Document BoR (19) 94

⁸ <https://www.berec.europa.eu/en/document-categories/berec/regulatory-best-practices/guidelines/berec-guidelines-to-foster-the-consistent-application-of-the-conditions-and-criteria-for-assessing-co-investments-in-new-very-high-capacity-network-elements-article-76-1-and-annex-iv-eecc>

At the same time, the stakeholders have manifested their direct interest into having a debate with the regulators concerning the importance of these legal provisions, their application and the monitoring, assessment and guidance that go together, during a stakeholder workshop. This would be also highly relevant in the context of the harmonization duties that BEREC holds. Thus, in light of these suggestion, BEREC will also organize an external workshop.

Some potential topics of relevance may be the conditions regarding the network sharing commitments, including in the context of 5G network deployments, the mechanisms for risk sharing for VHCN elements investments, the potential impact of commercial agreements, or fair and reasonable pricing in the case of wholesale-only operators.

Deliverable: Workshops on the ex-ante regulatory experience of commitments, wholesale-only undertakings, and commercial agreements' review

Public consultation: No

Adoption of the summary of the external workshop at Plenary 2, 2024, for publication

Adoption of the summary of the internal workshop at Plenary 4, 2024

1.3. **Workshop on the design, enforcement and monitoring of remedies in sub-national markets with multiple SMP operators**

Once effective competition develops, but only in some areas of the countries, there is a tendency towards a geographical segmentation of markets and/or remedies. Additionally, with the incentivised deployment of alternative VHCNs, more situations may be identified in the future where several operators are deemed to have significant market power in different sub-national markets. There is therefore a need to anticipate the possible regulatory approaches, depending on the potential different, particular scenarios that could be identified. There are a few NRAs that have already gained experience in this area, whose cases are worthwhile studying closer. Other NRAs currently facing or expected to face similar scenarios in the short and medium term are to contribute to the further deepening of the understanding of the approaches towards market regulation in a sub-national environment.

In this context, the report will focus on the design, enforcement and monitoring of remedies to be imposed in such situations. In this sense, there are characteristics of SMP operators or networks that may require different approaches to remedy the competition issues identified through *ex ante* regulatory means. Factors such as the operator's business model (wholesale only, vertically integrated), size (large, small), type of services provision (under commercial agreements or regulated services only), past behaviour or different network topologies, underlying infrastructures or use-mix between own vs built may, among others, be considered when formulating appropriate regulatory measures.

The project will build on the experience of NRAs with different SMP operators serving sub-national markets. Currently, the main countries of interest are Denmark (M1/2020), Finland (M1/2020) and Hungary (M3b/2014), but there may be others from which the learning and collective knowledge-building exercise could inform the BEREC report in the field. Within the forementioned countries, there are several operators with SMP and, in the first two cases, different sets of remedies have been imposed.

Such a report would be a welcome complement to the recently published BEREC work on the competition amongst multiple operators of NGA-networks in the same geographical region⁹. It may also address specific questions related to geographical segmentation in light of the Gigabit Recommendation expected to be in place by 2024.

Overall, this project aims to facilitate knowledge exchange between NRAs, build upon past experiences, and prepare for potential future challenges, by ultimately contributing to the effective regulatory approaches to geographically segmented markets with multi-SMP situations.

Deliverable: Internal Workshop on the design, enforcement and monitoring of remedies in sub-national markets with multiple SMP operators

Public consultation: No

Adoption of the summary of the internal workshop at Plenary 3, 2024

1.4. Workshop on economic replicability test practices in the context of Article 61(3) of the EECC

Article 61(3) EECC stipulates that the regulator can impose access obligations on ‘wiring and cables and associated facilities inside buildings or up to the first concentration or distribution point as determined by the NRA, where that point is located outside the building where this is justified on the grounds that **replication** of such network elements would be **economically inefficient** or physically impracticable’ (emphasis added). In December 2020, BEREC published the Guidelines on the Criteria for a Consistent Application of Article 61(3) EECC.¹⁰ Article 61(3) of the EECC applies to providers of electronic communications networks¹¹ regardless of the finding of SMP (‘symmetric regulation’). The BEREC Guidelines on Article 61(3) analyse the concept of economic (and technical) replicability in the context of Article 61(3) of the EECC.

⁹ BEREC Report on competition amongst multiple operators of NGA-networks in the same geographical region: <https://www.berec.europa.eu/en/document-categories/berec/reports/berec-report-on-competition-amongst-multiple-operators-of-nga-networks-in-the-same-geographical-region>

¹⁰ BoR (20) 225, https://www.berec.europa.eu/sites/default/files/files/document_register_store/2020/12/BoR_%2820%29_225_BEREC_Guidelines_on_the_Criteria_for_a_Consistent_Application_of_Article_61%283%29_EECC_P4.pdf.

¹¹ Or other providers when they are the owners of such wiring and cables and associated facilities.

This work programme item will serve the exchange of current practices on the economic replicability test (or economic viability) applied by NRAs in the context of Article 61(3) of the EECC to get a better understanding of the practices and the criteria that are relevant for this assessment. However, as it is unclear whether, and which, NRAs have already applied the 'economic replicability test' in the context of Article 61(3) of the EECC, a short survey should be conducted before setting a date for a workshop. Subject to this survey, the work programme item will be delivered with a workshop.

Deliverable: Internal workshop on economic replicability test practices in the context of Article 61(3) of the EECC

Internal workshop to be held in Q4 2024

1.5. Managing copper network switch-off

The requirements concerning the capabilities of electronic communications networks are constantly increasing and the response to that demand is to bring optical fibre closer to the end-user. In the EU, the FTTP coverage increased by approximately 4% per year between 2013 and 2020 and in 2021 already reached 50%, in eight countries even more than 75%.¹² Therefore, SMP operators increasingly want to decommission (parts of) their legacy copper-based access network. In 2021, already in 15 EU countries the NRA set rules for the migration process and copper switch-off, and in 11 EU countries the SMP operator already closed copper-based network elements (e.g. MDFs), however, in 9 of them only less than 10% of its main distribution frames (MDFs).¹³ Therefore, the comprehensive decommissioning of the copper-based access network still lies ahead.

In Article 81, the EECC lays down rules for the migration from legacy infrastructure and the decommissioning of the copper-based access networks. According to these provisions, the SMP operators have to notify the NRA in advance and in a timely manner when they plan to decommission parts of the network. The NRA has to ensure that the decommissioning process includes a transparent timetable and conditions, including an appropriate notice period for transition, and the NRA also has to establish the availability of alternative products of at least comparable quality if necessary to safeguard competition and the rights of end-users. The NRAs also have to take into utmost account the European Commission Gigabit Connectivity Recommendation, which also includes provisions for the decommissioning of the copper network.¹⁴

Managing the copper network switch-off of SMP operators is an ongoing process and particularly important to safeguard competition and the rights of end-users, even if the decommissioning of the legacy copper-based access networks is progressing to a significant extent. The objective of this project is therefore to examine the progress made by the NRAs and the lessons learned so far in order to best prepare for the copper switch-off phase, when significant or most parts

¹² BoR (23) 109, pp. 10-11, see <https://www.berec.europa.eu/en/document-categories/berec/annual-reports/berec-annual-report-2022>

¹³ BoR (22) 69, p. 7, see <https://www.berec.europa.eu/en/document-categories/berec/reports/berec-report-on-a-consistent-approach-to-migration-and-copper-switch-off>

¹⁴ Points 75 to 81

of the copper access network will be switched off. The project will be based on previous examinations, the BEREC internal workshop on the migration to VHCN networks and copper switch-off with a focus on the needs of the end-users in September 2023, the BEREC Report on a consistent approach to migration and copper switch-off published in 2022 and the BEREC internal workshop on migration from legacy infrastructures to fibre-based networks in 2019.¹⁵

Deliverable: Progress Report on managing copper network switch-off

Public consultation: Yes

Adoption of the draft progress report for public consultation at Plenary 4, 2024

Adoption of the final progress report at Plenary 2, 2025, for publication

1.6. Report on cloud services and edge computing (carry-over)

One of the 2030 targets included in the Digital Compass: The European way for the Digital Decade Communication¹⁶ is that 75% of the European enterprises use cloud computing services, big data and Artificial Intelligence (AI). This objective forecasts a significant growth of these services as, according to Eurostat's data, only 36% of EU enterprises used cloud services in 2020, mostly for simple services such as e-mail and storage of files (only 19% of enterprises use advanced cloud services). At the same time, the European Commission has proposed looking at new digital opportunities and trends, such as the metaverse¹⁷ and cloud and edge computing which are, among other technologies, key enablers of these developments.

In this context, BEREC considers that there is merit in assessing the provision of cloud and edge computing services. Among other issues, the report will map the different providers within the Internet ecosystem. The competition implications of the increasing concentration of the public cloud market in Europe¹⁸ will be taken into account. The report will also consider the role of ISPs and other providers in the value chain for the provision of the services, as well as the bundles of cloud and edge computing services with business ECS/ECN.

Deliverable: Report on cloud services and edge computing

Public consultation: Yes

Adoption of the draft report for public consultation at Plenary 1, 2024

Adoption of the final report at Plenary 3, 2024, for publication

¹⁵ BoR (23) 205, BoR (22) 69, BoR (19) 236

¹⁶ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021DC0118&from=en>

¹⁷ https://ec.europa.eu/commission/presscorner/detail/en/STATEMENT_22_5525

¹⁸ Study on the switching of cloud service providers in 2017: <https://op.europa.eu/en/publication-detail/-/publication/898aeca7-647e-11e8-ab9c-01aa75ed71a1>

1.7. **BEREC Report on the authorisation and related framework for international connectivity infrastructures (carry-over)**

In March 2021, most of the European Member States adopted the Ministerial European Data Gateways Declaration, which is a key element of the EU's Digital Decade strategy. The Declaration highlights the fact that Europe's digital sovereignty and global competitiveness depend on strong and secure internal and external connectivity. Leveraging both dimensions is a precondition for the EU to become 'the most attractive, most secure and most dynamic data-agile economy in the world'.

The subscribing Member States welcomed the inclusion of the European Data Gateway Platforms concept in Europe's Digital Decade Communication and they call on the European Commission to address several initiatives, including conducting a study to map digital public and private connectivity infrastructures (terrestrial, submarine and space) outside the EU and designating telecom submarine cables as part of the EU's critical infrastructure.

To ensure connectivity throughout the EU (and especially in its outermost regions) and with other continents, it is essential to invest and modernise telecom submarine cables. In this respect, an important factor for reducing the costs related to such investments is the streamlining of the licensing and authorisation processes for submarine cables.

BEREC included this work item in its Work Programme 2023. During 2023, BEREC collected information via a survey of NRAs and other competent authorities. BEREC also organised a public workshop with a view to collecting the market players' views on international submarine connectivity in the EU in September 2023 and an internal workshop during the 4-lateral Summit during Plenary 3, 2023.

In line with its remit in the electronic communications sector, in 2024 BEREC will adopt a report on the current authorisation and related framework in place in the EU in relation to installing international connectivity infrastructures.

The report may also identify possible solutions for streamlining procedures and reducing costs regarding licensing, authorisation and registration requirements applicable to submarine cable international connectivity and, in general, to promote investment in this sector and to strengthen the EU's geostrategic position in terms of international submarine connectivity.

For this purpose, this report should:

- a) Outline the applicability of the electronic communications framework to international submarine cables networks and services, and to their connection with terrestrial networks and services.
- b) Examine NRA powers regarding international submarine cable networks and their connection with terrestrial networks.

- c) Identify other licensing, authorisation and registration procedures applicable to international submarine cable networks in each Member State.
- d) Gather information on initiatives taken by Member States in order to increase international submarine cable connectivity and to strengthen its resilience and security.

Deliverable: Report on the authorisation and related framework for international connectivity infrastructures

Public consultation: Yes

Adoption of the draft report for public consultation at Plenary 4, 2023

Adoption of the final report at Plenary 2, 2024, for publication

1.8. Report on Connectivity Indicators for the Digital Decade Policy Programme

Decision (EU) 2022/2481 of the European Parliament and of the Council establishes the Digital Decade Policy Programme 2030 (DDPP) that is designed as a guide for Europe's digital transformation. It establishes digital targets and objectives in relation to digital skills, digital infrastructure, digitalisation of business and of public services. Article 5(1) of the DDPP requires the European Commission to monitor the Member States' progress in reaching the general objectives and the digital targets set out in the DDPP and, to that end, the European Commission is required to set out, by means of an implementing act, the KPIs (key performance indicators) for each digital target.

In March 2023, BEREC published its feedback¹⁹ on the European Commission's Draft Implementing Decision setting out the KPIs for the DDPP. In its feedback, BEREC focused on the connectivity KPIs to measure the progress towards the DDPP targets. Based on the BEREC Guidelines on Geographical survey on broadband network deployments (see item under 1.9), BEREC proposed certain amendments to the definitions and KPIs in the European Commission's Draft Implementing Decision and suggested, among other things, more technologically neutral definitions.

In this work programme item, BEREC will look at the European Commission's final Implementing Decision and analyse the proposed connectivity KPIs with specific reference to their measurement in order to effectively monitor the progress towards the DDPP targets.

¹⁹ BoR (23) 50, <https://www.berec.europa.eu/system/files/2023-03/BoR%20%2823%29%2050%20BEREC%27s%20feedback%20to%20the%20EC%20draft%20KPIs%20for%20the%20DDPP%202030.pdf>.

Besides the analysis of the proposed connectivity KPIs set out in the DDPP, this work programme item will also give BEREC an opportunity to discuss questions related to the monitoring of, for instance, data on investments in networks.

Deliverable: Report on Connectivity Indicators for the DDPP

Public consultation: No

Adoption of the report at Plenary 4, 2024, for publication

1.9. Implementation report on the BEREC Guidelines on Geographical surveys of network deployments

In the years 2020 and 2021, BEREC published three ‘Guidelines on Geographical surveys’ based on Article 22 of the EECC on the mapping of broadband network deployments. These Guidelines on Geographical surveys are:

1. BEREC Guidelines on Geographical surveys of network deployments acc. to Article 22(1) EECC – the Core GL (GS I, BoR (20) 42 published in March 2020)²⁰;
2. BEREC Guidelines on Geographical surveys of network deployments acc. to Article 22(2) – Article 22(4) EECC – the GL on optional policies or the Procedural GL (GS II, BoR (21) 32 publ. in March 2021)²¹;
3. BEREC Guidelines on Geographical surveys of network deployments – Verification of information acc. to Article 22(1) EECC – the Verification GL (GS III, BoR (21) 82 publ. in June 2021)²².

These three BEREC Guidelines on Geographical surveys of network deployments are also published and compiled in one volume – the Handbook of BEREC Guidelines on Geographical surveys of network deployments (BoR (21) 104 publ. in June 2021)²³.

In point 1.5 (‘Guidelines Revision’), BEREC commits itself to prepare an Implementation Report “to examine how different Member States have transposed and enabled the Article 22 provisions. Following the Implementation Report BEREC will consider to revise and update the Guidelines”.²⁴ In the Implementation Report BEREC will also consider “to elaborate further on the need of a unique data base by country”²⁵.

²⁰ https://berec.europa.eu/eng/document_register/subject_matter/berec/regulatory_best_practices/guidelines/9027-berec-guidelines-to-assist-nras-on-the-consistent-application-of-geographical-surveys-of-network-deployments.

²¹ <https://berec.europa.eu/en/document-categories/berec/regulatory-best-practices/guidelines/berec-guidelines-on-geographical-surveys-of-network-deployments-article-22-2-22-3-and-22-4>

²² <https://berec.europa.eu/en/document-categories/berec/regulatory-best-practices/guidelines/berec-guidelines-on-geographical-surveys-of-network-deployments-verification-of-information>

²³ <https://berec.europa.eu/en/document-categories/berec/regulatory-best-practices/guidelines/handbook-of-berec-guidelines-on-geographical-surveys-of-network-deployments>

²⁴ BoR (20) 42.

²⁵ BoR (20) 42, Footnote 32.

This work programme item is thus aimed at compiling information on the Article 22 EEC transposition by the Member States and the implementation of the Guidelines by the various competent authorities/NRAs. This will serve to assess the usefulness of the Guidelines for conducting the geographical surveys of broadband network deployment and the effect on the broadband deployment. It will also focus on the consistency of the measures in use across the EU and the lessons learnt. Following this wide-ranging assessment, BEREC will propose revisions and updates of the Guidelines, where deemed necessary.

Deliverable: Implementation Report on the BEREC Guidelines on Geographical surveys of network deployments

Public consultation: No

Adoption of the report at Plenary 3, 2024, for publication

1.10. Safety and security opportunities and challenges for networks resilience

BEREC will expand its view and collect relevant NRAs' experiences in network resilience in general, including challenges related to the climate change and adverse weather conditions.

In addition, BEREC is further exploring how the technological developments such as cloudification and softwarisation, 6G, quantum computing, Open RAN and use of AI-based tools could impact the security of the networks and services in Europe, and how BEREC could contribute to mitigating the risks associated with these developments.

Special emphasis is placed on examining how the above mentioned developments impact network resilience. In this context, BEREC is examining how new security and safety solutions are being addressed by the NRAs and the operators in order to identify good practices and experiences that would be useful to share.

Therefore, during 2024, BEREC intends to hold an external workshop to discuss security challenges related to technological developments, and changing climate conditions.

Deliverable: External workshop on the technological advances as security opportunities and challenges for network resilience

External workshop to be held in Q4 2024

Adoption of the workshop summary report at Plenary 1, 2025, for publication

1.11. BEREC Report on the evolution of private and public 5G networks in the Europe

Newer generations of mobile technologies offer more flexibility for applying technologies to specific user groups and use cases. Services provided over some public and private 5G networks complement each other, but in some cases, network differentiation is critical to deployment, and business success. Private 5G-network use may have different or overlapping user groups and service requirements, for instance with regard to QoS, mobility, and roaming.

In the broader context also, trends such as satellite communication, small cells, infrastructure and spectrum-sharing and neutral hosting play a role. Therefore, private and public 5G networks can have different elements for particular environments.

In addition, as public and private 5G networks may hold different requirements, there are different ways of licensing (competitive awards, such as auction for the use of spectrum for wide area public networks, and/or first-come-first-served awards suited to smaller isolated areas for private networks²⁶).

Different regulatory practices on the implementation of public and private networks that may share the same radiofrequency spectrum can help regulators ensure maximum use of the same frequency resource while still maintaining interference-free operations for both network types. In addition, ensuring a proper functioning market, with sufficient capacity for niche services that are in need of a specialised and/or localised approach rather than a one-size-fits-all solution, such as certain mission critical and business critical use cases, also creates opportunities for innovation.

As a result, BEREC intends to report both on the drivers for, and requirements of, private networks and on the evolution of public networks towards meeting new user demands. To the extent that there are relevant 5G case studies to examine, relevant issues and interrelations between private and public 5G networks will be elaborated on by BEREC. The purpose will be to provide a factual overview on the extent of the use of private and public 5G networks in Europe.

Deliverable: Report on the evolution of private and public 5G networks in Europe

Public consultation: Yes

Adoption of the draft report for public consultation at Plenary 3, 2024

Adoption of the final report at Plenary 1, 2025, for publication

1.12. BEREC external workshop about the usage of satellite technologies in mobile communications

Due to their unique characteristics, satellite communications (SatCom) can be an integral part of providing connectivity to remote locations where terrestrial networks are unable to reach and/or serve populations economically. During 2022, BEREC studied SatCom solutions for providing universal service (BoR (22) 83²⁷), which examined this particular SatCom role.

²⁶ Where the same spectrum bands may be licensed to different organisations located at different locations

²⁷ <https://www.berec.europa.eu/en/document-categories/berec/public-consultations/draft-berec-report-on-satellite-connectivity-for-universal-service>

To further BEREC's understanding of SatCom, on 13 April 2023 BEREC organised an external workshop on secure and reliable connectivity from low earth orbit ('LEO') satellite fleets (BoR (23) 112²⁸). The workshop gave BEREC an enhanced understanding of direct-to-device connectivity and identified some preliminary views on relevant regulatory issues which might arise. BEREC's primary interest was to initiate discussions on the market access issues facing relevant industry stakeholders.

BEREC notes that there are more issues which need to be examined to have a better understanding of SatCom including, amongst others:

- EU roaming issues (technical and regulatory) in the context of non-terrestrial networks ('NTNs').
- Other regulatory issues associated with NTNs in the context of the extension of mobile/fixed communications networks ('MFCNs').
- Lawful interception and ground station authorisations.
- Numbering (and impacts on the efficient management of the numbering resources).
- Interoperability of devices on the EU market, even if they are 3GPP compliant.
- Integration of SatCom into radio access Electronic Communication Services and market access and authorisation processes.
- Related competition, consumer security and environmental sustainability issues.

Some mobile operators have announced co-operation with satellite networks to expand coverage across rural parts of territory that they cover where the terrestrial infrastructure is limited or non-existent. Such co-operation would also support the provision of IoT services with no gaps in coverage.

The observations and discussions at the BEREC workshop in 2023 lead to the conclusion that stakeholder engagement should continue in 2024, as this will further enhance BEREC's understanding of the relevant market access issues. It is also clear that SatCom, in particular NGSO SatCom networks, and related services, are evolving fast, so it is reasonable to assume that there will be additional issues to consider.

Therefore during 2024, BEREC intends to hold another external workshop building on aspects of its earlier work.

Deliverable: External workshop about the usage of satellite technologies in mobile communications

External workshop to be held in Q2 2024

Adoption of workshop summary report at Plenary 3, 2024, for publication

²⁸ <https://www.berec.europa.eu/en/document-categories/berec/reports/summary-report-berec-workshop-on-secure-and-reliable-connectivity-from-leo-satellite-fleets-13-april-2023>

1.13. Update of criterion 3 of the BEREC Guidelines on very high capacity networks

Article 3(2)(a) of the EECC contains amongst other things, the general objective to ‘promote connectivity and access to, and take-up of very high capacity networks’. Article 82 of the EECC provides that ‘BEREC shall, after consulting stakeholders and in close cooperation with the European Commission, issue guidelines on the criteria a network has to fulfil in order to be considered a very high capacity network, in particular in terms of down- and uplink bandwidth, resilience, error-related parameters, and latency and its variation’. BEREC approved the BEREC Guidelines on very high capacity networks at Plenary 3 2020 (BoR (20) 165²⁹).

The BEREC Guidelines on very high capacity networks (paragraph 18) define four criteria and any network that meets at least one of these criteria is considered to be a very high capacity network. Criteria 1 and 2 result directly from the definition of the term ‘very high capacity network’ in the EECC (Article 2(2)), while criteria 3 and 4 are also based on this definition but also on data collected from network operators. Criteria 3 and 4 provide that any network providing a fixed-line connection (criterion 3) or wireless connection (criterion 4) which is capable of delivering, under usual peak-time conditions, services to end-users with a certain quality of service (performance thresholds for criteria 3 or 4) is considered to be a very high capacity network.

According to Article 82 of the EECC, ‘BEREC shall update the guidelines by 31 December 2025, and regularly thereafter’. Therefore, the objective of this project is to update criterion 3 based on data to be collected from fixed network operators. This data collection needs to start already in 2024 to complete the project in 2025. BEREC already updated criterion 4 in 2023 (BoR (23) 164³⁰) and criteria 1 and 2 do not need to be updated, as they do not depend on technological developments.

Deliverable: Update of criterion 3 of the BEREC Guidelines on very high capacity networks

Public consultation: Yes

Adoption of draft guidelines for public consultation at Plenary 2, 2025

Adoption of the final guidelines at Plenary 4, 2025, for publication

²⁹ <https://www.berec.europa.eu/en/document-categories/berec/regulatory-best-practices/guidelines/berec-guidelines-on-very-high-capacity-networks>

³⁰ <https://www.berec.europa.eu/en/document-categories/berec/regulatory-best-practices/guidelines/berec-guidelines-on-very-high-capacity-networks-2023>

Strategic priority 2: Thriving sustainable and open digital markets

BEREC will continue to work on topics that relate to the functioning and sustainability of the digital markets. This implies focusing on issues that explore regulatory conditions and address issues for digital service providers and end-users in the digital market.

Furthermore, BEREC will continue to monitor technological innovation, such as AI, AR/VR, 6G or metaverses to identify how these technologies influence electronic communications markets and their potential impact on regulation.

Based on its experience, BEREC will continue to contribute to the implementation of the DMA within the High-Level Group which will remain a priority of the European Commission in 2024.

In addition, BEREC will track the evolution of the NRAs competences in the context of the digital legislative files, such as the DSA, the Data Act or the AI Act, and collaborate with the EU institutions on digital topics.

BEREC will continue to improve its knowledge on environmental sustainability to contribute its expertise to the twin transition and EU Green Deal's targets.

The open Internet has been considered an important building block in the EU telecommunication rules. Thus BEREC will continue monitoring this aspect in several work items.

2.1. Implementation of the Open Internet Regulation and the BEREC Open Internet Guidelines

The Open Internet (OI) Regulation (EU) 2015/2120 prescribes, among other things, that NRAs should 'closely monitor and ensure compliance' with the Regulation, and should 'publish reports on an annual basis regarding their monitoring and findings'.

Since 2017, BEREC has annually published a Report on the implementation of the OI Regulation and the OI WG has provided an internal forum to discussion national cases and questions in order to ensure a predictable and consistent application of the OI Regulation.

Furthermore, the BEREC Guidelines state that any traffic management measure has to be necessary for the achievement of the respective exception and that it may be applied 'only for as long as necessary'. However, it is not explicitly stated whether and how DNS-blocking may and can be used pursuant to Article 3(3)(b) of the OI Regulation to prevent security threats as phishing, malware, spam, etc.

In the 2024 workstream, BEREC will monitor the implementation of the OI provisions among NRAs for the period 1 May 2023 to 30 April 2024. BEREC will collect the annual national OI Reports and the answers to an internal questionnaire to prepare the annual European-level OI Report.

To support the NRAs' obligation to 'closely monitor and ensure compliance' with the Regulation, a forum will be held to discuss questions relating to the consistent application of the OI Regulation on an informal basis. The sharing of experience and exchange of important decisions in national cases is essential to foster a consistent application of the Regulation throughout Europe in light of evolving markets and technologies. In addition to discussing the national cases, the forum covers the sharing of information on relevant market deployments.

When appropriate, the workstream may also include questionnaires, surveys, workshops, etc. to collect information on topics of particular relevance to the OI and to monitor emerging trends, as the market continues to develop and contribute to the work of other Working Groups related to Internet evolution. This workstream should build on the experience from previous years.

Furthermore, BEREC will, within this workstream, hold an internal workshop on the use of DNS-blocking pursuant to Article 3(3)(b) of the OI Regulation. The workshop will serve as an opportunity for the exchange of information between NRAs. There may be a presentation from ENISA which issued 'Guidelines on assessing security measures in the context of Article 3(3) of the OI Regulation'. However, these Guidelines provide no guidance on how and whether to implement such measures. BEREC may also invite the Cybersecurity WG and the European Commission to collaborate in this workshop. The workshop is regarded as particularly relevant given the frequency of security threats, e.g. phishing attacks or cyber-attacks, that seem to be increasing.

Deliverable 1: Report on the implementation of the Open Internet Regulation and the BEREC Open Internet Guidelines

Public consultation: No

Adoption of final report at Plenary 3, 2024

Deliverable 2: Internal workshop on the use of DNS-blocking pursuant to Article 3(3)(b) of the Open Internet Regulation

Internal workshop to be held in Q2 2024

2.2. Collaboration on internet access service measurement tools

In 2022, BEREC published an update of the BEREC Net Neutrality Regulatory Assessment Methodology (BoR (22) 72³¹), originally released in 2017. Together with the Net neutrality measurement tool specification (BoR (17) 179³²), both documents lay the groundwork for BEREC to work towards a harmonised measurement framework. This goal remains important and work has continued. The Open Internet Working Group has provided a forum for collaboration between NRAs to share information and exchange experiences and best practices on the national tool deployment.

³¹ <https://www.berec.europa.eu/en/document-categories/berec/regulatory-best-practices/methodologies/berec-net-neutrality-regulatory-assessment-methodology-0>

³² <https://www.berec.europa.eu/en/document-categories/berec/reports/net-neutrality-measurement-tool-specification>

Through this workstream, BEREC intends to continue the ongoing work with NRAs on their national measurement tool deployment so as to:

- a) provide a forum for NRAs to share information and exchange experiences and best practices related to the development and deployment of national measurement tools, by taking into account the support of new technologies; this workstream will also identify best collaboration practices so as to maximise the benefits of existing NRA cooperation in this area; and
- b) support the migration of interested NRAs towards a harmonised measurement tool by working together to improve the measurements and by sharing codes or components.

Deliverable: none

2.3. BEREC workshop on the perspectives and regulatory/competition challenges of the Internet of Things (carry-over)

In 2016, BEREC prepared a Report on Enabling the Internet of Things (IoT) (BoR (16) 39³³). In this Report, BEREC assessed the state of play on IoT services in terms of sustainable competition, interoperability of electronic communications services and consumer benefits. The report presented the most common characteristics of IoT services and drew conclusions about whether IoT services might require special treatment with regard to current and potential future regulatory issues. Overall, no special treatment of IoT services and/or M2M communication was considered necessary except in the following areas: roaming, switching and number portability.

In January 2022, the European Commission published a report on the findings of its competition sector inquiry into the consumer Internet of Things (IoT)³⁴. The report identified potential competition concerns in the rapidly growing markets for the IoT-related products and services in the EU. According to the European Commission, this is a market with high barriers for entry, few vertically integrated players and concerns about access to data, interoperability or exclusivity practices, amongst others. On the basis of these findings, the European Commission may undertake enforcement and regulatory activity in the future.

In 2023, BEREC organised a workshop with the twofold purpose of reviewing the state of play of the IoT services and discussing emerging regulatory/competition challenges for the IoT services in view of 5G and 6G.

Deliverable: External workshop on the perspectives and regulatory/competition challenges of Internet of Things
Adoption of summary report at Plenary 1, 2024, for publication

³³ <https://berec.europa.eu/en/document-categories/berec/reports/berec-report-on-enabling-the-internet-of-things>

³⁴ https://ec.europa.eu/commission/presscorner/detail/en/IP_22_402

2.4. BEREC Report on the IP interconnection ecosystem (carry-over)

The debate about IP interconnection was revived in 2021/2022 and has gained momentum. In 2017, BEREC published its report on the IP interconnection market (BoR (17) 184³⁵). This report was an update of BEREC's report from 2012 (BoR (12) 130³⁶).

After more than five years, BEREC sees a need to assess the current state of the market and to re-evaluate its earlier findings. In this report, BEREC will assess the current trends and the developments in the market since 2017, such as the relationships between different parties, utilisation of paid peering and CDNs. If necessary, the workstream may also include questionnaires, surveys, workshops, and so on, to collect further information relevant to this analysis.

Deliverables: Report on the IP interconnection ecosystem

Public consultation: Yes

Adoption of draft report for public consultation at Plenary 2, 2024

Adoption of the final report at Plenary 4, 2024, for publication

2.5. BEREC Report on the entry of large content and application providers into the markets for electronic communications networks and services (carry-over)

Providers of electronic communications networks (ECN) and services (ECS) are primarily focused on providing an Internet access service (IAS) and the relevant infrastructure elements, to allow communication between users and between the client and server sides. In recent decades, large content and application providers (CAPs) have become the most prominent actors in the Internet ecosystem. Such companies provide Internet-based services and platforms related to a significant variety of different elements in the Internet ecosystem (from applications to Internet access networks) and have been increasingly investing in telecommunication infrastructures and providing services closely related to ECN and ECS, or directly qualifying as such.

As a result, large CAPs are present across a very significant number of Internet ecosystem elements (including those closely related to ECN/ECS) and can often leverage their position among different services and products, by partnering with ECN and ECS providers, but also directly competing with them.

³⁵ <https://www.berec.europa.eu/en/document-categories/berec/reports/berec-report-on-ip-interconnection-practices-in-the-context-of-net-neutrality>

³⁶ <https://www.berec.europa.eu/en/document-categories/berec/reports/an-assessment-of-ip-interconnection-in-the-context-of-net-neutrality>

Building on the conclusions of the BEREC Report on the Internet Ecosystem (BoR (22) 167³⁷), the current report will aim to provide an overview of the presence/entry of large CAPs in(to) the markets for ECN and ECS. In particular, the report will identify the elements in which large CAPs have been increasingly investing and their strategies for moving upwards along the value chain. It will also depict the dynamics of competition and/or of cooperation between ECN/ECS providers and large CAPs, and present both new services and new business models and strategies implemented by these actors. The report will provide insights on how the current electronic communications regulatory framework (in particular the EECC and the OI Regulation) applies to such actors and services.

Deliverable: Report on the entry of large content and application providers into the markets for electronic communications networks and services

Public consultation: Yes

Adoption of the draft report for public consultation at Plenary 1, 2024

Adoption of the final report at Plenary 3, 2024, for publication

2.6.

BEREC Report on Infrastructure-sharing as a lever for ECN/ECS environmental sustainability

In its previous report ‘Assessing BEREC’s potential limiting the impact of the digital sector on the environment’, BEREC stated that provisions on infrastructure-sharing as foreseen by the EECC could be used to support environmental targets to allow competent authorities to impose the co-location and sharing of fixed and mobile network elements and associated facilities for reducing the environmental footprint of ECN/ECS. Furthermore, as set out in BEREC’s Common Position on mobile infrastructure sharing, BoR (19) 110, sharing might also decrease energy consumption, thereby lowering the carbon footprint of the electronic communications sector and contributing to the fight against climate change.³⁸

The objective of this workstream is to review the practices in this area in the EU Member States and the existing impact studies to identify possible development prospects. BEREC will analyse the implementation of the relevant EU provisions, especially Articles 44 and (if relevant) 61 of the EECC, in the EU Member States, regarding the co-location and sharing of infrastructures based on, or that encompass environmental considerations. The main goal is to gather the BEREC member NRAs’ feedback on how to assess identified benefits of the environmental impact from network-sharing and/or take decisions that promote the protection of the environment.

³⁷ <https://www.berec.europa.eu/en/document-categories/berec/reports/berec-report-on-the-internet-ecosystem>

³⁸ BEREC Common position on infrastructure sharing (europa.eu) please see ‘Benefit 4’ on page 10 therein.

A review of existing studies on the environmental impact of network sharing by competent authorities or stakeholders will be built on a desk research complemented with selected bilateral exchanges and/or expert workshops. Other considerations, which may include the type of network, the type of sharing, the type of the geographical area, the technology, etc., as well as any identified limitations (either technical or operational) or practices, may help refine the understanding of the environmental impact of sharing and derive insightful lessons that would be part of the review.

Finally, elements for strategic reflections could be raised concerning potential trade-offs that will arise in terms of regulatory objectives and competition, as well as regarding the future of the pooling of networks with regard to environmental targets and market developments. It would therefore be a question of considering sustainability implication and the technical developments in the context of network virtualisation as well as the potential regulatory challenges ahead.

Deliverable: Report on Infrastructure-sharing as a lever for ECN/ECS environmental sustainability

Public consultation: Yes

Adoption of the draft report at Plenary 4, 2024 for public consultation

Adoption of the final report at Plenary 2, 2025, for publication

2.7. BEREC Workshop on telecom regulators' role in the development and implementation of sustainability indicators in the ICT sector

Previous work of BEREC highlighted the need to identify the relevant indicators to monitoring the environmental footprint and performance of ECNs/ECSs and to increasing data availability and reliability in this area. Following its Report on sustainability indicators for ECN/ECS (BoR (23) 166)³⁹ published in 2023, BEREC wishes to continue contributing to the work on the implementation and collection of relevant and harmonised environmental indicators in the telecom sector. It also aims to support the European Commission with its expertise in implementing the goal of increased environmental transparency for digital infrastructures, especially ECN/ECS transparency measures set out in its digital strategy “Shaping Europe’s Digital Future”. A relevant work where BEREC seeks to contribute with this workstream is the European Commission elaborating a Code of Conduct on sustainability for telecommunications networks and services that should include a list of relevant environmental indicators in this frame.

Hence, in 2024 BEREC will hold a workshop with its member NRAs, the European Commission, relevant standardisation organisations and other relevant expert stakeholders, to allow NRAs that collect environmental data to share their experience, to contribute to existing initiatives by other bodies especially from the European Commission and to identify levers for telecom regulators to be able to further contribute to the implementation of standardised and reliable sustainability indicators in the sector.

³⁹ BoR (23) 166

This workstream will allow to continue the sharing of experiences between regulators, especially with the first NRAs that are collecting environmental data on telecom and digital players. It will also complete BEREC findings on sustainability indicators regarding technical standards and definitions of the main indicators analysed in its past work and be the opportunity to elaborate on ways regulation can support furthering environmental transparency in the sector. Another focus will be to investigate to what extent a harmonised framework at European level, including a more precise mandate for NRAs to collect environmental data from telecom players and more broadly from the ICT sector could be foreseeable in the near future. BEREC will analyse how to support the sector's efforts on developing lifecycle and multicriteria assessment of the ECN/ECS environmental impact, also in relation to publishing information and open databases from industry players. BEREC will assess possible future actions on the topic, including the possibility to build a BEREC database of sustainability indicators building on the information that could be collected by the NRAs in the future.

The results of the workshop and the next steps for BEREC will be published in a summary report.

Deliverable: Workshop on telecom regulators' role in the development and implementation of sustainability indicators in the ICT sector
Workshop to be held in Q3 2024
Adoption of the workshop summary report at Plenary 1, 2025, for publication

2.8. BEREC internal workshop on the implementation of the Digital Services Act

With the entry into force of the DSA, platforms are required to: i) be open about how they operate, with understandable and auditable policies, (and transparent on their partnerships with outside organisations); ii) inform users about digital services that they use, and help them to assess information on the platform; iii) make well-funded and staffed support programs available for content moderators, in order to minimise harm caused to users; and iv) be accountable to relevant stakeholders.

In addition, the DSA identifies a set of additional risk-mitigation responsibilities for intermediaries that are qualified as Very Large Online Platforms (VLOPs) and Very Large Online Search Engines (VLOSEs).

By 17 February 2024, the Member States have to designate the national Digital Services Coordinators (DSCs), and several BEREC members have already been, or are likely to be designated in the near future. In this context, it is timely and relevant for BEREC to organise an internal workshop to exchange the practical implementation of the DSA, in order to contribute to ensuring a consistent approach across the EU.

Deliverable: Internal workshop on the implementation of the Digital Services Act
Internal workshop to be held in the second half of 2024

2.9. BEREC contribution to the implementation of the Data Act

In 2022, the European Commission published a legislative proposal for a Data Act⁴⁰, a regulation containing harmonised rules about fair access to and the use of data. Following the adoption by the European Parliament and the Council in November 2023⁴¹ the Data Act will soon be published in the EU's official journal. The new provisions will enter into force 20 months later (around the second half of 2025).

BEREC has already been contributing to topics related to the Data Act by producing a variety of deliverables such as the High-Level Opinion on the European Commission's proposal for a Data Act⁴², a workshop on switching and interoperability of data processing services⁴³, a workshop on IoT⁴⁴, a report on cloud services and edge computing⁴⁵, an external study on the trends and policy/regulatory challenges of cloudification, virtualisation and softwarisation in telecommunications⁴⁶. Moreover, BEREC actively contributed to the debate and negotiations of the DMA which also includes provisions concerning data access, vertical and horizontal interoperability, and obligations targeting cloud services.

In the draft Data Act, independent national competent authorities with experience in electronic communications services are considered to be well-placed to ensure the application and enforcement of specific provisions. Several BEREC members may be designated as the national competent authority responsible for the application and enforcement of (some chapters of) the Data Act and BEREC's insights could also be valuable for the preparation of the implementing and delegated acts that the European Commission is required to adopt under this regulation.

BEREC's contribution would be particularly relevant, for instance, in relation to switching between data processing services (such as cloud and edge services), the monitoring of switching charges, interoperability, or complaints handling, IoT and more generally concerning the impact of such services and the Data Act obligations on the telecommunications sector. The contribution could take different forms (opinions, workshops, knowledge-building, exchange of best practices, report, etc.) and will be adapted to the legislative timing and process.

Deliverable: Contribution to the implementation of the Data Act (to be defined, e.g. opinion, workshops, knowledge-building, report, etc.)

Timing: Depending on legislative timing and process.

⁴⁰ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2022:68:FIN>

⁴¹ <https://data-consilium.europa.eu/doc/document/PE-49-2023-INIT/en/pdf>

⁴² <https://www.berec.europa.eu/en/document-categories/berec/others/berecs-statement-on-the-draft-data-act>

⁴³ <https://www.berec.europa.eu/en/events/berec-events-2023/berec-workshop-on-switching-and-interoperability-of-data-processing-services>

⁴⁴ Scheduled for Q3 2023

⁴⁵ Scheduled for public consultation in Q1 2024

⁴⁶ Scheduled for publication in December 2023

Strategic priority 3: Empowering end-users

Engaging end-users in the fast-changing digital ecosystem is becoming more complex. While digital innovation and competition among digital service providers have improved users' empowerment, there is still an important role for regulators to play in ensuring transparency for consumers, increasing and maintaining consumer awareness and further improving digital skills.

The promotion of full connectivity will trigger the demand for high-quality services, provided by very high capacity networks whose development is a key priority for creating effective interactions for end-users.

BEREC will continue its work in promoting choice of services and empowerment for end-users.

3.1. BEREC Report on the Member States' best practices to support the defining of adequate broadband Internet Access Service (IAS) (carry-over)

Article 84 of the EEC provides that the Member States must ensure that all consumers in their territories have access, in light of specific national conditions, to an adequate broadband Internet access service and to voice communications services at an affordable price and to a specified quality, including the underlying connection, at a fixed location. Each Member State has to define the broadband Internet access service with a view to ensuring the bandwidth necessary for social and economic participation in society.

In 2020, BEREC published the first report on the Member States' best practices to support the defining of adequate broadband (BoR (20) 99⁴⁷). The legal provisions further provide that the BEREC report must be updated regularly to reflect the technological advances and changes in consumer usage patterns. The updated best practices' reports will be based on collected and analysed relevant information including information on:

- the continued suitability of the evaluation criteria consulted on in the previous report;
- relevant experiences to support the Member States in defining the adequate broadband;
- the minimum set of services that the adequate broadband is capable of supporting.

⁴⁷ <https://www.berec.europa.eu/en/document-categories/berec/reports/berec-report-on-member-states-best-practices-to-support-the-defining-of-adequate-broadband-internet-access-service-ias>

In 2023, BEREC adopted a draft document for public consultation. In 2024, after detailed assessment of all contributions from public consultation, the final report will be adopted.

Deliverable: Report on the Member States' best practices to support the defining of adequate broadband Internet Access Service (IAS)

Public consultation: Yes

Adoption of the final report at Plenary 1, 2024, for publication

3.2. BEREC Guidelines detailing Quality of Service (QoS) parameters (carry-over)

According to Article 104 of the EECC, national regulatory authorities in coordination with other competent authorities may require providers of IAS and of publicly available interpersonal communications services (ICS), to publish comprehensive, comparable, reliable, user-friendly and up-to-date information for end-users on the quality of their services, to the extent that they control at least some elements of the network, and on measures taken to ensure equivalence in access for end-users with disabilities.

In 2020, BEREC published the first Guidelines detailing QoS parameters (BoR (20) 53⁴⁸).

The guidelines stated that the process of undertaking a review will commence two years from the adoption and publication of the Guidelines by BEREC. This project aims to prepare and publish the review of the Guidelines detailing QoS parameters.

The project addresses the constituent elements of the legislative task assigned to BEREC, including:

1. relevant QoS parameters in relation to ICS and IAS;
2. parameters relevant for end-users with disabilities;
3. the applicable measurement methods for QoS parameters including, where appropriate, the ETSI and ITU standards set out in Annex X to the EECC in relation to ICS and IAS respectively a content and format of QoS information;
4. quality certification mechanisms.

⁴⁸ <https://www.berec.europa.eu/en/document-categories/berec/regulatory-best-practices/guidelines/berec-guidelines-detailing-quality-of-service-parameters-0>

In 2023, BEREC adopted a draft document for public consultation. In 2024, after a detailed assessment of all contributions from the public consultation, the final revision of the Guidelines will be adopted.

Deliverable: Guidelines detailing Quality of Service (QoS) parameters

Public consultation: Yes

Adoption of the final guidelines at Plenary 1, 2024, for publication

3.3. BEREC Report on empowering end-users through environmental transparency on digital products and services (carry-over)

BEREC considers end-users' awareness of environmental issues as critical for end-user empowerment and for ICT sustainability. Environmental information on digital products and services could enlighten user choices in terms of their digital consumption. Complementary to these effects on the demand side, this data-driven approach to end-user empowerment could create positive incentives for digital players to support the deployment of greener digital solutions and limit the risk of greenwashing.

In 2023, BEREC engaged in a fact-finding process to raise NRAs' knowledge of existing work and analysis of this issue in the form of a workshop on end-users' empowerment by providing them with environmental information, in cooperation with relevant stakeholders (e.g., BEUC and the European Environmental Bureau). Main results of the workshop will be presented in a report as well as overview of existing EU regulation and initiatives led by NRAs and other relevant stakeholders regarding the empowerment of end-users in terms of sustainability and recommendations on most effective ways of reaching out to end-users in this regard (e.g., educational campaigns, data collection on end-users' approaches to sustainability, etc.) and to prevent the risk of greenwashing.

This workstream will also include a communication campaign on key facts about the environmental impacts of devices and services for the use of BEREC and volunteer NRAs.

Particular attention will be given to the circular economy, especially in relation to the lifecycle of devices, and principles of equipment durability and repairability (including efforts to counter programmed obsolescence). This proposal could also provide input for discussions on relevant European Commission's initiatives including the Greens Claims directive proposal or the preparatory study on communication and awareness raising campaign on the responsible energy consumption of day-to-day digital behaviours.

Deliverable: Report on empowering end-users through environmental transparency on digital products and services

Adoption of the draft report at Plenary 4, 2023 for public consultation

Adoption of the final report at Plenary 2, 2024, for publication

Other deliverable: Internal workshop in Q3 2023

3.4. | BEREC Opinion on Article 123 EEC

BEREC is tasked with publishing an Opinion on the application of Title III of Part III of the EEC (referring to end-user rights) every three years, or more frequently if at least two Member States make a reasoned request. The last Opinion was published in December 2021⁴⁹.

Considering the obligation for regular periodic monitoring (every three years starting from 2021) of the technological and market developments as well as the phasing out legacy networks, in the use of the different types of electronic communications services, and analysis of their impact on the application of the end-user rights, BEREC will start with the analysis as a basis for the Opinion in particular to analyse:

1. to what extent end-users and end-users with disabilities are able to make free and informed choices, including on the basis of complete contractual information⁵⁰, and are able to switch their electronic communications services provider easily;
2. to what extent any lack of abilities referred to in the previous point has resulted in market distortions or end-user harm;
3. to what extent effective access to emergency services is appreciably threatened, in particular due to an increased use of number-independent interpersonal communications services, by a lack of interoperability or technological developments;
4. the likely cost of any potential readjustments of obligations in Title III of Part III, or impact on innovation for providers of electronic communications services.

⁴⁹ <https://www.berec.europa.eu/en/document-categories/berec/opinions/berec-opinion-on-the-market-and-technological-developments-and-on-their-impact-on-the-application-of-rights-of-end-users-in-the-eecc>

⁵⁰ Including an Opinion on the functioning of Implementing Regulation (EU) 2019/2243 establishing the contract summary template (recital 18 of the Implementing Regulation).

The workstream may also include questionnaires and surveys to collect further information relevant to this analysis. In addition, to exchange best practices on implementing and applying legislation on end-user rights implementing the EECC, BEREC is planning a workshop with representatives of the Member States, end-users (BEUC), operators and other stakeholders (ECTA, ETNO, organisations of persons with disabilities, etc.). The workshop will in particular deal with switching and terminating contracts.

Deliverable: Opinion on Article 123 EECC

Public consultation: No

Adoption of the final opinion at Plenary 4, 2024, for publication

Other deliverable: External workshop to be held in Q2 2024

Adoption of the summary report of the workshop at Plenary 3, 2024, for publication

Cooperation with EU institutions and institutional groups

4.1. Implementation of BEREC's Medium-Term Strategy for relations with other institutions and international cooperation

BEREC is always keen to find ways for closer collaboration and dialogue with other European institutions, by joining forces on certain topics in which synergies can be obtained with other European regulatory cooperation platforms and bodies in adjacent and different economic sectors, and with regulatory networks with similar activities in the field of electronic communications outside the EU.

The involvement of multiple institutions – early in the process – is increasingly valuable and necessary, especially in the context of regulatory issues with a horizontal impact. In addition, while continuing to monitor the sector, BEREC must keep a focus on the bigger picture and that involves expanding its knowledge to other areas.

In 2021, BEREC adopted a Medium-Term Strategy for relations with other institutions in which BEREC provides an overview of BEREC's priorities regarding institutional cooperation, with a focus on connectivity/5G and platform regulation (BoR (21) 137⁵¹). The strategy also seeks to set out a futureproof, qualitative and overarching approach for investigating upcoming issues and challenges.

Similarly, BEREC has developed a Medium-Term Strategy for international cooperation, taking into account both its multi-annual work programme and its international activities. This strategy encompasses BEREC's current international commitments, and sets out, in a transparent manner, the type of cooperation and engagement that could be envisaged with each of its international partners (BoR (21) 135⁵²).

The increasing convergence of issues arising in the field of electronic communications involving the EU and the rest of the world shows the global nature of these services and means that policies, legislation and regulation must be seen from a more global perspective. BEREC benefits from the cooperation with NRAs and with other international regulatory networks, policymakers and institutions involved in communications matters beyond the EU.

⁵¹ <https://www.berec.europa.eu/en/document-categories/berec/berec-strategies-and-work-programmes/berecs-medium-term-strategy-for-relations-with-other-institutions-2022-2025>

⁵² <https://www.berec.europa.eu/en/document-categories/berec/berec-strategies-and-work-programmes/berecs-medium-term-strategy-for-international-cooperation-for-the-period-2022-2025>

In 2024, BEREC will continue to implement these strategies. A team has been set up to support the Chair and incoming Chair in maintaining an active relationship with external bodies. There is also a calendar of international events to proactively plan and assign the necessary resources for the year 2024 and, by the end of the year, to have an indicative calendar of events for the following year.

Deliverable: Relations with other institutions and International cooperation

As required and agreed with BEREC counterparts: organisation of joint meetings, summits or workshops

BEREC's other tasks

5.1. BEREC Strategies beyond 2025

BEREC adopted its first medium-term Strategy in 2012. This strategic outlook has been subject to regular reviews in 2014, 2017 and in 2020. The last strategy covers the period 2021–2025. These strategies are guiding BEREC's activities along these years as the core documents to organize and prioritize BEREC's work toward clearly defined objectives.

Complementing the overarching strategies, in 2021 BEREC published a BEREC Medium-Term Strategy for relations with other institutions (2022–2025) and a BEREC Medium-Term Strategy for International Cooperation (2022–2025), mentioned already in paragraph 4.1. As mandated by Article 35(3) of the BEREC Regulation, BEREC's strategies for relations with competent Union bodies, offices, agencies and advisory groups, with competent authorities of third countries and with international organisations concerning matters for which BEREC is competent are reflected as well in BEREC's annual work programme.

In 2024, BEREC will review the three strategies to set its objectives for the period 2026–2030 in view of the latest and expected relevant market, technological and regulatory developments for the next five years. For the first time, the strategies will be merged in a single document. This approach will allow benefiting from synergies and the highest coherence in all dimensions of BEREC's work.

In addition to the medium-term strategies and in view of the fast-evolving changes taking place in the sector, BEREC recently published an Action Plan for 2030 to continue contributing to a regulatory environment in Europe 2030. It builds on five strategic orientations: i) fostering national and international connectivity to reach the objectives of Europe's Digital Decade by 2030; ii) facilitating an open and sustainable Internet ecosystem and supervising the evolution of the digital landscape; iii) providing for the security and resilience of the networks and services; iv) contributing to the achievement of environmental sustainability goals and v) strengthening BEREC's agility, independence, inclusiveness, and efficiency as a centre of expertise. Within these five strategic orientations, a total of 14 BEREC long term strategic actions have been identified. The review of BEREC's strategies will consider this Action Plan as building blocks to shape the regulatory activities in the coming years.

The latest update of BEREC's strategy covers a period of five instead of three years, (i.e., 2021–2025). This extended period enabled the alignment with the legislative cycle and the objectives set out by President von der Leyen for the period of 2019–2024. The next European elections taking place in mid-2024 will bring new priorities for the EU, including for electronic communications and digital services as well as for the international cooperation and relations with third countries. The review of the BEREC's strategies will consider the upcoming European objectives and priorities to ensure a constructive cooperation among the EU institutions.

BEREC's international activities will continue to contribute to the EU Global Gateway⁵³ that sets the European Strategy to boost smart, clean and secure links in digital, energy and transport and strengthen health, education and research systems across the world.

⁵³ <https://digital-strategy.ec.europa.eu/en/news/global-gateway-eu300-billion-european-unions-strategy-boost-sustainable-links-around-world>

The EC assessment of BEREC's performance to be issued by December 2023 as well as BEREC's own evaluation foreseen in the 2023 Work Programme will be most valuable inputs to define BEREC's path and identify possible areas for improvement and adjustments to be considered in the strategies.

By December 2025, the European Commission must review the functioning of the EECC. BEREC's strategies would set in this context the main lines of the regulator's views regarding how the EU regulatory framework may evolve and be updated for the benefit of the EU citizens.

Deliverable: BEREC Strategies 2026-2030: Mid-term strategy, International and Institutional

Adoption of draft deliverable at Plenary 1, 2025 for public consultation

Adoption of deliverable at Plenary 3, 2025, for publication

5.2. BEREC ad hoc work

5.2.1. Ad hoc input to the EU Institutions/NRAs

In line with Article 4 of the BEREC Regulation, in addition to the inputs that BEREC explicitly has to provide to the European Commission, BEREC has to assist and advise the NRAs, the European Parliament, the Council and the European Commission, and cooperate with the NRAs and the European Commission, upon request or on its own initiative, on any technical matter regarding electronic communications within its competence. BEREC has already been providing a forum for NRAs' discussion on any matter covered by the electronic communications regulatory framework and it has ensured its own input to the EU institutions with reference to key sectoral legislative initiatives.

It is likely that any BEREC input in 2024 will focus on EECC-related implementation matters, independency issues of NRAs as well as on possible further legislative initiatives.

Deliverable: Depends on request of the EU Institutions/NRAs

Public consultation: No

Adoption of deliverable for publication – Depends on request of the EU institutions/NRAs

5.2.2. Potential ad hoc work on ICTs sustainability in the frame of the European Green Deal implementation

BEREC seeks to proactively contribute with its expertise on digital markets to efforts to accelerate the twin green and digital transition, in line with the agenda of the European Commission, the Council, the European Parliament and other competent authorities on this matter. Since 2019 and the publication of the Green Deal⁵⁴, the sustainability of digital technologies has been the topic of multiple initiatives at EU level on defining key targets for future work. For example, the European Commission's digital strategy underlines the need for the ICT sector to 'undergo its own green transformation' and proposes that by 2030, data centres and telecommunications 'can and should become climate neutral'⁵⁵. In January 2022, the European Commission also published a draft European Declaration on Digital Rights and Principles for the Digital Decade proposed for signature to the European Parliament and the Council⁵⁶ that emphasises the necessity of minimising the adverse environmental and social impacts of digitalisation and developing digital solutions with positive effects for the environment.

In 2024, BEREC will be ready to provide its analysis as input for potential further projects and proposals from other EU bodies related to the twin digital and green transition. This would, in particular, include the points below:

1. Improving transparency regarding the environmental footprint of digital infrastructures, including continuing collaboration to define the indicators on sustainability of telecommunications, developing a Code of conduct for ECN/ECS and the implementing the Energy Efficiency Directive on data centres' environmental reporting and labelling.
2. Enhancing the circular economy and energy efficiency performance of ICT where appropriate.
3. Assessing the environmental impacts of emerging technologies transforming digital markets such as blockchain, Metaverse and Artificial Intelligence technologies.
4. Investigating the indirect effects, especially the enabling effects, of the ICT sector on other sectors in the context of the green transformation.

Potential ad-hoc inputs will be defined and produced in cooperation with other relevant/competent bodies when applicable and in compliance with the current regulatory framework.

Deliverable: Potential ad hoc documents (TBD)

⁵⁴ https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en#:~:text=On%2011%20December%202019%2C%20the,the%20first%20climate%20neutral...&text=Climate%20change%20and%20environmental%20degradation,to%20Europe%20and%20the%20world.

⁵⁵ https://ec.europa.eu/info/sites/default/files/communication-shaping-europes-digital-future-feb2020_en_4.pdf

⁵⁶ <https://digital-strategy.ec.europa.eu/en/library/declaration-european-digital-rights-and-principles>

5.2.3. Ad hoc work on cybersecurity-related matters

In the past, BEREC supported the NIS Cooperation Group and the European Commission in developing and implementing the recommendation of the EU Toolbox for Cybersecurity of 5G Networks. In the 'Nevers Call', BEREC has been asked together with ENISA and the NIS Cooperation Group, with the European Commission, to formulate recommendations, based on a risk assessment, for the Member States and the European Commission in order to reinforce the communications networks and infrastructures' resiliency within the EU, including the implementation of the 5G toolbox.

BEREC continues to collaborate closely with the NIS Cooperation Group as well as with ENISA and the European Commission on topics related to the resilience of communication networks as foreseen in the Nevers Call in order to draft recommendations and other guidelines, as needed. BEREC is closely following ENISA's work on developing the certification scheme.

Deliverable: Potential thematic documents (TBD)

5.2.4. Peer review process and engaging with the RSPG

BEREC and the Radio Spectrum Policy Group (RSPG) agreed on working arrangements⁵⁷ on 13 June 2019. These set out the cooperation methods for the purpose of BEREC's participation in the Peer Review Forum in accordance with the requirements of Article 35 of the EECC. The cooperation methods are as follows:

1. using the Peer Review Forum as an instrument of peer-learning;
2. promoting the benefits of the Peer Review Forum since it convenes national NRAs and other competent authorities with expertise on comparative or competitive selection procedures in the regulatory framework of electronic communications;
3. cooperating on the implementation of the Peer Review Forum;
4. appointing 'liaison officers' in both BEREC and the RSPG to strengthen the relationship between the two bodies and facilitate the implementation of this arrangement; the Wireless Network Evolution Working Group co-chairs are BEREC's 'liaison officers'.

⁵⁷ https://berec.europa.eu/eng/document_register/subject_matter/berec/others/8602-working-arrangement-between-berec-and-rspg

BEREC's participation in the Peer Review Forum contributes to the objective of promoting full connectivity through discussions with the RSPG about the market-shaping aspects of spectrum assignment. This activity is therefore aligned with the first strategic priority set out in BEREC's Strategy 2021-2025.

The Peer Review Forum is convened by the RSPG only when required.⁵⁸

In addition to activities under Peer Review Forum, BEREC members stand ready to engage with the RSPG and European institutions on topics of mutual interest including on any policy initiatives or legislative proposals of the European Commission.

5.3. Other tasks under EU legislation

BEREC has a large number of mandatory tasks under EU legislation. These tasks for instance stem from legislation such as the EECC, the Roaming Regulation, or the DMA. Some of these tasks include data collection for reporting purposes, for example termination rates data collection under Article 75 of the EECC. Other mandatory tasks are described below.

5.3.1. BEREC contribution to the implementation of the Digital Markets Act

BEREC is a member of the DMA High-Level Group (HLG). The role of the HLG is to provide the European Commission with advice and expertise on any general matter of implementation or enforcement of the DMA and the promotion of a consistent regulatory approach across different regulatory instruments. It must provide expertise also to the European Commission on the need to amend, add or remove the DMA rules to ensure that digital markets across the Union are contestable and fair⁵⁹.

Moreover, Article 7 of the DMA includes interoperability obligations for number independent interpersonal communication services (NI-ICS) and the European Commission may consult BEREC to determine whether the technical details and the general terms and conditions published in the reference offer that the gatekeeper intends to implement or has implemented are in compliance with the interoperability obligation⁶⁰.

BEREC's contribution to the implementation of the DMA may take different forms, e.g. bilateral exchanges with the European Commission, opinion on the interoperability reference offers under Article 7 of the DMA, contribution to the HLG meetings and the HLG subgroups.

⁵⁸ https://radio-spectrum-policy-group.ec.europa.eu/index_en

⁵⁹ Article 40 DMA

⁶⁰ Recital 64 DMA

Moreover, BEREC will keep monitoring and analysing developments in the digital markets and the impact and effects of the practices implemented by large online platforms. Special attention will be paid to those practices which may not be addressed/covered by the current legislations/legislative initiatives.

Deliverable: Contribution to the implementation of the Digital Markets Act (to be defined, e.g. HLG meetings, opinions, workshops, knowledge-building, etc.)

Timing: Throughout the year

5.3.2. BEREC Opinion on the national implementation and functioning of the general authorisation regime

According to Article 122(3) of the EECC, BEREC shall, by 21 December 2021 and every three years thereafter, publish an Opinion on the national implementation and functioning of the general authorisation, and on their impact on the functioning of the internal market. The European Commission, paying careful attention to this Report, may also publish a Report on the application of Chapter II of Title II of Part I and of Annex I, and may submit a legislative proposal.

In line with Article 12(4) of the EECC, BEREC was required to develop a European database for notifications of general authorisations from providers of electronic communications networks and services that are transmitted to the competent authorities in the EU Member States by undertakings subject to the general authorisation regime. The database has been operational since 21 December 2020 (for new notifications). Next, BEREC will collect information via a survey and, based on the results, it will draw conclusions on the national implementation and functioning of the general authorisation regime. The conclusions will inform the final BEREC Opinion that is expected to be adopted at Plenary 4 2024.

Deliverable: Opinion on the national implementation and functioning of the general authorisation regime

Public consultation: Yes

Adoption of the draft opinion for public consultation at Plenary 3, 2024

Adoption of the final opinion at Plenary 4, 2024

5.3.3. **BEREC Report on M2M and permanent roaming (carry-over)**

Regulation (EU) 2022/612 (the ‘Roaming Regulation’) makes particular reference to the M2M services (in recitals 14 and 21) and new monitoring requirements. For the report under this item, BEREC plans to analyse M2M services that enable roaming for ‘periodic travelling’ but also that rely on permanent roaming. BEREC will investigate potential obstacles for operators to negotiate (permanent) roaming agreements, whether they enable permanent roaming in their network for the provision of such services, and what pricing schemes are applied.

A call for input was conducted in the second half of 2023. The inputs received as well as information from the BEREC Roaming Data Report will be used to carry out the analysis.

Deliverables: Report on M2M and permanent roaming

Public consultation: Yes

Adoption of the draft report for public consultation at Plenary 2, 2024

Adoption of the final report at Plenary 4, 2024, for publication

5.3.4. **Update of BEREC retail Guidelines on the Roaming Regulation**

Depending on the outcome of the European Commission’s revision of the European Commission Implementing Regulation on the Roaming fair use Policy and the Sustainability of retail roaming charges, the BEREC retail Guidelines on the Roaming Regulation need to be revised. BEREC considers that a consultation should take place as soon as the new provisions are finalised.

Deliverable: Update of BEREC retail Guidelines on the Roaming Regulation

Public consultation: Yes

Adoption of the draft guidelines for public consultation: TBD

Adoption of the final guidelines: TBD

5.3.5. International roaming benchmark data and monitoring report

According to the Roaming Regulation, BEREC has to report on technical matters within its competence. The data to be collected by BEREC are to be notified to the European Commission once a year. On the basis of the data collected, BEREC also has to report regularly on the evolution of pricing and consumption patterns in the Member States, both for domestic and roaming services, the evolution of actual wholesale roaming rates for balanced and unbalanced traffic and the relationship between retail prices, wholesale charges and wholesale costs for roaming services. BEREC will assess how closely those elements relate to each other.

The Roaming Regulation provides for the production of one BEREC report including the information that was previously reported by the two BEREC roaming benchmark data reports and the BEREC transparency and comparability report, as well as additional indicators.

The data collection for the 30th Report was launched at the end of September 2023. The data will be submitted by NRAs to the BEREC Office by mid-November. After analysing the data, the first report including the new comprehensive data collection will be drafted and will be adopted and published in Plenary 1 2024.

The BEREC Roaming Data Report will include an Annex reporting on the evolution of roaming prices and volumes for the Western Balkan region.

Deliverable: 30th BEREC international Roaming Benchmark Data Report

Public consultation: No

Adoption of the final report at Plenary 1, 2024, for publication

5.3.6. Roaming Regulation Report

Article 21(1) of the Roaming Regulation provides for the review procedure of the Regulation. The European Commission shall, after consulting BEREC, submit, by 30 June 2025, the first assessment report on the functioning of the Roaming Regulation to the European Parliament and to the Council, followed, if appropriate, by a legislative proposal to amend this Regulation. BEREC intends to provide its opinion to the European Commission taking into account the assessment criteria required by this Article. Data that BEREC has collected until the time of the preparation of the report will be used for BEREC's analysis. BEREC will start preparing this analysis during 2024.

Deliverable: BEREC Opinion about the functioning of the Roaming Regulation

Public consultation: No

Adoption of the final opinion: TDB (but earlier than 31 May 2025)

5.3.7. 4th Ukraine Monitoring Report

Following the ongoing war against Ukraine, launched by Russia with the invasion of Ukraine on 24 February 2022, BEREC has closely followed the telecommunications sector's response to the crisis and welcomed the measures voluntarily provided by EU operators. According to the Joint Statement, signed by both EEA and UA operators⁶¹, BEREC is responsible to monitor the implementation. This will be the 4th round of the monitoring exercise.

Deliverable: 4th Ukraine Roaming Monitoring Report

Public consultation: No

Adoption of the final report at Plenary 2 2024, for publication

5.3.8. Update of BEREC Intra-EU communications Guidelines

Depending on the outcome of legislative discussion on the Intra-EU communications regulation, the BEREC Guidelines need to be revised. BEREC considers that a consultation should be held as soon as the new provisions are finalised.

Deliverable: Update of BEREC Intra-EU communications Guidelines

Public consultation: Yes

Adoption of the draft guidelines for public consultation: TBD

Adoption of the final guidelines for publication: TBD

5.3.9. Intra-EU communications Benchmark Report

According to Article 5a(6) of the TSM Regulation as amended by the BEREC Regulation, NRAs should monitor the price developments of regulated intra-EU communications services. For this purpose, BEREC provides a template to contribute to harmonised data collection in the EU/EEA. NRAs collect data from both fixed and mobile operators on a yearly basis and submit the data to BEREC.

⁶¹ Joint Statement was prolonged on 9 July 2023 for 12 months: 'Roaming' for Ukraine: operators extend agreement to provide affordable calls to and from Ukraine for another year | Shaping Europe's digital future (europa.eu)

In 2024, BEREC is planning to publish the 5th Benchmark Report (including data from 2023) on the findings of the data collection. The data collection for this report will be launched in March with a deadline for NRAs to forward the data to the BEREC office in mid-May. After analysing the data, a report will be drafted, to be adopted and published in Plenary 3 2024. Using the collected data, BEREC will also publish an annex to the report, with the updated BEREC benchmarking for the derogation assessments.

Deliverable: 5th Intra-EU communications Benchmark Report

Public consultation: No

Adoption of the final report at Plenary 3 2024, for publication

5.4. Monitoring quality, efficiency and sustainability

5.4.1. Inventory of the evolution of NRAs' competencies

Important pieces of EU legislation introducing some form of public intervention in the digital ecosystem have been passed in the recent years, and still more are under discussion. Hence, some NRAs will see their competences grow accordingly. It seems necessary to keep track of those evolutions, since this information could facilitate cooperation between NRAs. A better understanding the roles of different NRAs in the regulation of the digital ecosystem can indeed help strengthen cooperation and make intervention more efficient.

In 2024 BEREC plans to snap a picture of these new competences and keep track in the future of their attribution (especially to NRAs).

Deliverable: Inventory of the evolution of NRA competencies

Public consultation: No

Adoption of deliverable for internal use at Plenary 2, 2024

5.4.2. BEREC Report on national experiences of the implementation of the EECC (carry-over)

Regarding the review of the national implementation of the EECC that, pursuant to Article 122 of the EECC, the European Commission must carry out by 21 December 2025, and regarding the ongoing national transposition activities, BEREC must review the status of national implementation throughout the EU. It will start by assessing to what extent the new electronic communications framework is enabling the accomplishment of the EECC's objectives, and whether (a reasoned selection of) the framework's provisions are effective to that end.

The assessment starts with a workshop for NRAs in 2023, which will be followed by a public workshop with the aim of exchanging views with stakeholders about how the EECC has been working to date.

Based on the workshops and the NRAs' experiences, BEREC will compile a list of regulatory areas where the current framework functions well and will put forward topics where there could be further improvement.

All this work will also benefit from internal discussions throughout 2024, and BEREC will continue to host a forum to exchange views on the national implementation of the legal framework, to ensure a common understanding of the rules in all the areas covered by the EECC and throughout the EU.

Deliverable: Report on national experiences of the implementation of the EECC

Public consultation: No

Adoption of the final report at Plenary 4, 2024

Other deliverable: External workshop to be held in Q2 2024

Adoption of the summary report at Plenary 3, 2024, for publication

5.4.3. Articles 32/33 Phase II process

Since 2014, BEREC has undertaken an annual analysis of Articles 32/33 of the EECC (former Article 7 and 7(a) Phase II cases, with the objective of gaining a better understanding of both the procedural and substantive aspects of these cases, and to inform the prospective review of the BEREC Common Positions. In 2015, a comprehensive database of Phase II cases was developed, including the main elements of the cases, in particular the reasoning put forward by the Commission, the analyses in the BEREC Opinions, and the final outcomes of the cases. On 31 March 2021, the European Commission adopted Recommendation (EU) 2021/554 (the 'Procedural Recommendation') on the form, content, time limits and level of detail to be given in notifications under the procedures set in Article 32 of the EECC. In 2022, BEREC updated the Internal Guidelines for the elaboration of BEREC Opinions in Articles 32 and 33 Phase II cases, taking into account the EECC, the Procedural Recommendation and experience learnt from conducting Phase II cases. BEREC will continue to add new Phase II cases to this database as and when they arise. The objective is for the database to be consulted by BEREC members, in particular experts of Phase II cases, both for referencing a particular case and to analyse key themes amongst the cases over time.

BEREC will analyse and monitor the Phase II cases process, and exchange information with the BEREC Office about the effectiveness of the updated Internal Guidelines. Depending on the number and significance of Phase II cases which will take place in 2024, BEREC will decide whether there is a need to conduct an internal workshop in Q4 2024.

Deliverable: Internal workshop (tentative)

Internal workshop to be held (if needed) in Q4 2024

5.4.4. Report on Regulatory Accounting in Practice

The Regulatory Accounting (RA) in Practice Report 2024 will provide an up-to-date factual overview of the regulatory accounting frameworks used in Europe and an assessment of the level of consistency achieved by NRAs. A report is prepared annually and updates the previous versions published since 2005. In 2024, emphasis will continue to be placed on consistency in regulatory accounting with respect to key access products (e.g. fibre) and the report will be streamlined in terms of access products looked at (for instance by reviewing the relevance of indicators and parameters covered) while keeping the in-depth analysis of the methods used to identify commonalities and the reasons for differences. Given the applicability of the European Commission's WACC Notice of 2019 (see next WP item) there will be an investigation into how far the report will continue to collect data on the methodology and input parameters used to calculate the rate of return on capital employed, and look into the impact of both of these on the result.

The 2024 RA report will be based on the EECC list of remedies, but will aim for consistency over time. The report will also take into account the list of relevant markets susceptible to ex ante regulation pursuant to European Commission Recommendation (EU) 2020/2245.

The report will develop a more focused analysis that concentrates on the following key whole-sale markets: Wholesale Local Access (Market 3a/2014, now Market 1/2020), Wholesale High Quality Access (Market 4/2014, now Market 2/2020) and Wholesale Central Access (Market 3b/2014, no longer in the list of relevant markets susceptible to ex ante regulation). For those markets, it will describe the regulations applied by NRAs and it will contain a comparison of the most popular combinations of cost base and cost allocation methodologies.

BEREC will evaluate how the 2024 report will provide evidence for the WACC calculation practices among NRAs, given the applicability of the WACC Notice. Depending on the result of the evaluation, the collection and analysis of data on the current calculation of the weighted average cost of capital (WACC) will be updated. It will include data on whether and how NRAs account for the higher risk of investing in very high capacity networks (for example, through the application of a risk premium which is added to the calculated WACC).

Deliverable: Regulatory Accounting in practice Report 2024

Public consultation: No

Adoption of the final report at Plenary 4, 2024, for publication

5.4.5.

Calculation of the Weighted Average Cost of Capital (WACC) parameters according to the European Commission Notice

Following publication of the European Commission's Notice on the WACC⁶², BEREC is tasked with the calculation of various parameters of the WACC formula according to the prescribed methodology.

In 2024 (and in subsequent years), BEREC will continue to calculate the WACC parameters as started in 2020. These parameters will be calculated at the beginning of each year and published in a separate report to allow the NRAs to base their national WACC decisions on this up-to-date information. BEREC will also select the companies that are eligible for the peer group.

Deliverable: Report on WACC parameters 2024

Public consultation: No

Adoption at Plenary 2, 2024 for publication

⁶² <https://digital-strategy.ec.europa.eu/en/library/commission-publishes-notice-calculation-cost-capital-legacy-infrastructure>

Stakeholder engagement

BEREC remains committed to continuously improving its interaction with all stakeholders to ensure that its output stays relevant. BEREC aims to ensure that its work processes remain transparent and that it reaches the relevant audience. Stakeholders will be involved both at an early stage and later when the work is more advanced. The BEREC Work Programme 2024 includes all the activities for achieving these objectives.

BEREC will reinforce its dialogue with the public and citizens to ensure that legitimate concerns are reflected in regulatory developments and apprehensions are addressed appropriately. BEREC aims to maintain a high level of public trust from citizens and position itself as a trusted third party in stakeholder dialogues and in its engagement with the EU Institutions. This is of particular importance for the work related to digital platforms and sustainability.

6.1. Stakeholder Forum

The focus of the Stakeholder Forum in March/April 2024 will be the BEREC Work Programme for the following year (2025). It will also provide a platform for stakeholders and BEREC to engage in a dialogue about BEREC's future work. The feedback received at the Stakeholder Forum provides valuable input for BEREC's future activities and priorities that BEREC will consider for its further work.

6.2. BEREC Annual Reports

According to the BEREC Regulation, BEREC must provide its annual activity report to the European Parliament, the Council, the European Commission and the European Economic and Social Committee by 15 June of the year after the year reported on in the annual activity report. BEREC must report annually on technical matters within its competence, in particular on market developments in the electronic communications sector.

BEREC will continue to publish its annual report on its activities and an annual report on developments in the sector as part of a single document. The annual report on BEREC activities focuses on the outcome of the work of its Working Groups and ad hoc teams based on the relevant work programme, whereas the annual report on developments in the electronic communications sector summarises BEREC's view of the past year and provides an outlook on challenges in the sector.

6.3. BEREC Communications Plan 2024

The BEREC Communications Plan 2024 sets out the communication activities that are planned for this particular year. The objective of this is to strengthen the perception of BEREC as an impartial, independent, European, forward-looking expert body and to support the BEREC overall strategic objectives - including promoting full connectivity, supporting sustainable and open digital markets and empowering end-users.

The plan for communications in 2024 is to reinforce the BEREC brand through social media channels and external/internal events, launch the newly designed website, develop communication materials in collaboration with the co-chairs of Working Groups on specific topics, and to continue building collaboration with internal and external stakeholders.

Several communication deliverables will support and promote specific work-streams in the Work Programme 2024. They may include promotional and educational campaigns on social media, development of communication kits with production of audio-visual and digital content, information updates to the website, organisation of events, and promoting fruitful media relations. As part of the ongoing external communications, the deliverables are linked to regular BEREC events, such as public debriefings and the Stakeholder Forum.

The overall framework of BEREC communications is presented in the multiannual BEREC External Communications Strategy. Every annual communications plan sets out the exact activities that BEREC will perform to deliver on these objectives. In line with the objectives set out in the Communications Plan, BEREC will continue to communicate on the day-to-day activities of BEREC's work.

BEREC's Communications Plan 2024 will be finalised for internal use by December 2023 and will set out the communication activities that BEREC is committed to undertake in 2024.

6.4. | Developing the BEREC Work Programme 2025

BEREC is required to adopt an outline of the subsequent year's annual work programme by 31 January each year. The outline will serve as the first input for the draft Work Programme 2025, for which a call for input will be started in the first quarter of 2024. After preparing the final draft Work Programme, a public consultation will follow. All the steps towards the Work Programme 2025 will be in accordance with the BEREC document 'Process for developing BEREC Work Programmes'.

Deliverable: Work Programme 2025

Public consultation: Yes

Adoption of the draft Work Programme 2025 for public consultation at Plenary 3, 2024

Adoption of the final Work Programme 2025 at Plenary 4, 2024, for publication

Other deliverable: Outline of the draft Work Programme 2025

To be submitted to the European Commission, the European Parliament and the Council of the European Union by 31 January 2024.

IV. POTENTIAL BEREC WORK FOR 2025 AND BEYOND

Given the number of workstreams selected for the Work Programme 2024 and BEREC priorities, it was not possible to include several proposals. In order not to lose track of these potential workstreams, this section includes items which BEREC may include in the Work Programme 2025 and beyond. The list of items mentioned below is therefore for information purposes only, and should not be regarded as final. The input provided by stakeholders on these items during the public consultation in 2023 for the Work Programme 2024 will be considered when adopting a final list. Furthermore, BEREC may consider other new workstreams for 2025.

Potential work

7.1. Further work on 5G cybersecurity

In its Joint communication to the European Parliament and the Council on the EU's Cybersecurity Strategy for the Digital Decade⁶³, the European Commission has set out three key objectives for the next steps on cybersecurity of 5G networks.

The exchange of information and best practices on strategic measures related to suppliers is one of the areas of the first key objective to ensure convergent national approaches for effective risk mitigation across the EU. Continuous knowledge building and cooperation with stakeholders are amongst the areas of the second key objective. The third key objective is to promote supply chain resilience.

BEREC would continue to provide support to the European Institutions (European Commission, NIS Cooperation Group and ENISA) to help them achieve the three key objectives for the next steps on cybersecurity of 5G networks.

7.2. BEREC review of the Guidelines on Symmetric Access Obligations

These Guidelines provide guidance to the NRAs on criteria to determine key aspects for the application of the extended and amended provision on symmetric access regulation according to Article 61(3) of the EECC. BEREC published these Guidelines in 2020⁶⁴.

According to paragraph 11 of the published Guidelines, BEREC must report on the practical application of these Guidelines under Article 4(1)(j)(i) of the BEREC Regulation and provide input to an assessment of the need to revise the Guidelines within five years after adoption of the Guidelines. BEREC could therefore work on an assessment of the need to revise the Guidelines.

7.3. BEREC review of the Guidelines on Co-Investment Criteria

The Guidelines contribute to the conditions which co-investment offers must comply with when commitments on those offers are being assessed by the NRAs in the context of Article 76 of the EECC. BEREC published these Guidelines in 2020⁶⁵.

Under Article 3 of the Guidelines BEREC must report on the practical application of these Guidelines under Article 4(1)(j) of the BEREC Regulation and provide input on the need to revise the Guidelines within five years after adoption of the Guidelines. In 2024, BEREC plans to organise two workshops on the ex-ante regulatory experience of commitments, wholesale-only undertakings, and commercial agreements. BEREC's further work on the possible revision of the Guidelines could focus on the outcome of these workshops.

⁶³ <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=JOIN:2020:18:FIN>

⁶⁴ <https://www.berec.europa.eu/en/document-categories/berec/regulatory-best-practices/guidelines/berec-guidelines-on-the-criteria-for-a-consistent-application-of-article-61-3-eecc>

⁶⁵ <https://www.berec.europa.eu/en/document-categories/berec/regulatory-best-practices/guidelines/berec-guidelines-to-foster-the-consistent-application-of-the-conditions-and-criteria-for-assessing-new-very-high-capacity-network-elements-article-76-1-and-annex-iv-eecc>

7.4. Universal services review

In view of the review of the scope of the universal services, pursuant to Article 122 of the EECC, the European Commission must carry out by 21 December 2025, and every five years thereafter, this review in light of social, economic and technological developments.

The review should take into account, inter alia, the mobility and data rates of the prevailing technologies used by the majority of end-users in particular with a view to proposing to the European Parliament and to the Council that the scope be changed or redefined.

BEREC intends to assist the European Commission in the review process by providing all necessary information, collect relevant data from the Member States and provide an Opinion on relevant aspects of the report.

7.5. Report on IoT/6G

In 2016, BEREC prepared a Report on Enabling the Internet of Things (IoT) (BoR (16) 39⁶⁶). In this Report, BEREC assessed the state of play on IoT services in terms of sustainable competition, interoperability of electronic communications services and consumer benefits.

In January 2022, the European Commission published a report on the findings of its competition sector inquiry into the consumer Internet of Things (IoT)⁶⁷. The report identified potential competition concerns in the rapidly growing markets for IoT related products and services in the EU. According to the European Commission, this is a market with high barriers to entry, few vertically integrated players and concerns about access to data, interoperability or exclusivity practices, amongst others. On the basis of these findings, the European Commission may undertake enforcement and regulatory activity in the future.

In 2023, BEREC organised a workshop with the twofold purpose of reviewing the state of play of IoT services and discussing emerging regulatory/competition challenges for IoT services in view of 5G and 6G.

Given that IoT services could experiment significant developments from technologies such as 6G and MEC, a review of the IoT report could be needed in the future.

7.6. BEREC work on the review of the Delegated act relating to Article 75 of the EECC on the termination rates for mobile and fixed voice calls

Article 75(3) of the EECC requires NRAs to report annually to the European Commission and to BEREC on the implementation of the Delegated Regulation (EU) 2021/654 setting a single maximum Union-wide mobile voice termination rate and a single maximum Union-wide fixed voice termination rate.

BEREC could be involved in preliminary work on the review of the Delegated act relating to Article 75 of the EECC on the termination rates for mobile and fixed voice calls.

⁶⁶ <https://www.berec.europa.eu/en/document-categories/berec/reports/berec-report-on-enabling-the-internet-of-things>

⁶⁷ https://ec.europa.eu/commission/presscorner/detail/en/IP_22_402

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