Draft BEREC Work Programme 2023

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

07 October 2022

I. INTRODUCTION

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 2023 sets out the priorities that the Board of Regulators has identified for 2023. 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 2021-2025[1], 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 institutions[2]. Finally, the Work Programme 2023 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 in the Digital Compass and the Policy Programme 'Path to the Digital Decade'.

In 2023, BEREC is set to support the further implementation of the European Electronic Communication Code (EECC) at national level and start taking stock of the national implementation status throughout the Union. BEREC will also consider 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 to that end. The assessment will start with an NRA workshop, to be followed in 2024 by a public workshop with the aim of exchanging 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 2023. In line with the European ambition to create a Europe fit for the digital age, BEREC will contribute by facilitating the roll-out of very high capacity networks (VHCNs) and stimulating their contribution to 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 technological developments and their impact on sustainable competition on telecoms markets. In 2023, our workstreams will cover a wide range of developments, from the evolution of the IP interconnection ecosystem to the cloudification, virtualisation and softwarisation of telecommunications and the entry of large content and application providers into the markets for electronic communications networks and services.

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[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

Closing the digital divide entails more than just the roll-out of very high capacity networks. It also requires end-users to have access that fits their needs. BEREC will empower end users by further enhancing transparency and will work on defining adequate broadband Internet access service and giving guidance about Quality of Service parameters.

Open and sustainable European digital markets are a cornerstone of a Europe fit for the digital age. In line with both BEREC's strategic priority to support sustainable and open digital markets and the role that BEREC will play within the European High-Level Group of Digital Regulators for the enforcement of the Digital Markets Act, BEREC will keep monitoring and analysing developments on the digital markets and the impact and effects of the practices implemented by large online platforms. During 2023, BEREC will also be available to engage with legislators and cooperate actively with other relevant competent bodies in the legislative process relating to fair access to and use of data.

BEREC will work intensively on several essential tasks that have been entrusted to it by the co-legislators so as to provide the best advice to the European Parliament, the Council and the Commission in the field of electronic communications. This will include monitoring the new Roaming Regulation that came into force at the beginning of 2022.

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 future challenges.

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. This approach will be an integral part of all the projects in this Work Programme.

II.   BACKGROUND

The four objectives in Article 3(2) of Directive (EU) 2018/72 of the European Parliament and the Council establishing the European Electronic Communications Code (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 2023. 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 European Union (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 2023.

The BEREC Strategy 2021-2025[3] is fundamental for steering BEREC's work in 2023 and the following years. The Work Programme 2023 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 2023 contains items launched in 2022 that are to be finalised in 2023, 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 2023 was adopted and published by the Board of Regulators on 26 January 2022. On 16 March, BEREC launched an early call for input as the first stage of the consultation process for the Work Programme 2023.

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[3] See https://www.berec.europa.eu/en/document-categories/berec/berec-strategies-and-work-programmes/berec-strategy-2021-2025

III. BEREC WORK IN 2023

The objectives of the Work Programme 2023 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 2023 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 legacy infrastructures.

1.1. BEREC Report on the regulatory treatment of business services (carry-over)

Business services consisting of, or based on, electronic communication services are a key input to ensure that the EU companies and public administrations can benefit from the digital economy. They allow for better provision of new innovative services for citizens and increase productivity and competition in a globalised world.

In the recent years, business services have evolved, and are expected to evolve even more to include new high-speed services supported by the deployment of VHCNs. Furthermore, business services are increasingly being combined with IT services such as cloud computing and ECS are merging with IT services via edge computing.

NRAs are regulating wholesale business markets such as M2/2020 and other markets, including a series of wholesale products used by alternative operators to compete with incumbents in the market for large companies, SMEs and all types of public administrations. The report to be delivered under this item will focus on key issues regarding the competition dynamics at the retail level (where an external study on the evolution of business services will be used as a key input).

Moreover, BEREC will analyse the regulatory treatment of these wholesale products, providing a snapshot of the markets in which these services and products are offered, their geographical scope and the remedies applied. BEREC will also include case studies of good

practices used by NRAs to encourage effective and sustainable competition, as well as investment and innovation in the business market.

BEREC members and stakeholders will benefit from this report by getting a full view of how these services are addressed from a regulatory perspective, the challenges faced by NRAs, and good practices for ensuring competitive and innovative business markets.

Deliverable: **BEREC Report on the regulatory treatment of business services**

Public consultation: Yes

Adoption of draft report for public consultation at Plenary 4 2022

Adoption of final report at Plenary 2 2023 for publication

Other deliverable: Workshop with stakeholders' associations held in Q3 2022

1.2. BEREC study on the evolution of the competition dynamics of tower and access infrastructure companies not directly providing retail services

In recent years there has been a trend towards divestiture/spin-off of key network assets such as communication towers/sites and access fibre by telecommunication operators that had previously been vertically integrated. This trend is reconfiguring the market at the wholesale level, leading to a diversity of players that are not (directly) active at the retail level but which control key strategic assets that are needed to provide retail electronic communications services.

There is work in this field from previous years. In 2020, BEREC had organised a workshop on mobile infrastructure sharing (for a summary, see BoR (20) 240[4]). BEREC had also prepared reports on infrastructure sharing (BoR (18) 116[5]) and on access to physical infrastructure (BoR (19) 94[6]). These documents include relevant issues to be addressed in this work item.

In order to better understand this trend and its implications for the dynamics of competition in the retail market, BEREC will commission an external study to collect evidence on the evolution of the market for towers and access fibre, focusing on divestitures, spin-offs, and acquisitions of these assets, and on the business models associated with the management, commercialisation and use of these assets, with the aim of providing a comprehensive view of the existing trends in Europe and their implications.

This external study will also summarise the regulatory provisions applicable in Europe to the operation of these assets as well as to operators commercialising the use of these infrastructures. More generally, the external report will also explore regulatory initiatives related to towers and access fibre in other jurisdictions that could be of interest in Europe, e.g. cases in the USA, Japan, South Korea or Australia.

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[4] https://www.berec.europa.eu/en/document-categories/berec/reports/summary-report-on-the-outcomes-of-mobile-infrastructure-sharing-workshop

[5] https://www.berec.europa.eu/en/document-categories/berec/reports/berec-report-on-infrastructure-sharing

[6] https://www.berec.europa.eu/en/document-categories/berec/reports/berec-report-on-access-to-physical-infrastructure-in-the-context-of-market-analysis

Moreover, BEREC will also organise a workshop with the main associations/actors providing or using these types of assets to collect their views on the evolution and reconfiguration of the markets as well as their recommendations on encouraging competition and investments in the sector.

This study will provide an overview of tower and access infrastructure companies and the evolution of the sector, it will review and examine the existing regulatory framework applicable in Europe and in other jurisdictions, and it will provide the views from the different actors involved. In the future, BEREC may build on this work and explore the impact of these new business models on competition dynamics, as well as the adequacy of the existing regulatory framework to ensure competition, investment, and innovation.

BEREC will open a tender in Q1 2023 specifying the terms of reference for an external study to be prepared covering the topics previously identified. The external study will be supervised by BEREC and the final delivery is scheduled for Plenary 4 2023.

Deliverable: **BEREC study on evolution of competition dynamics of tower and access infrastructure companies not directly providing retail services**

Public consultation: No

Publication of the external study at Plenary 4 2023

Other deliverable: External workshop to be held in Q3 2023 (workshop on the evolution of competition dynamics of tower and access infrastructure companies not directly providing retail services)

1.3. Report on practices and challenges of the phasing out of 2G and 3G

Several mobile European operators have publicly announced their plans to switch-off their 2G and/or 3G networks. These plans are important because they will free up frequency bands for newer technologies, rationalise the radio and core equipment of the ISPs in order to manage fewer different generations of technologies, and make networks compatible with virtualised solutions.

The switch-off of those technologies may have numerous potential consequences with regard to:

- the continuity of service for end-users who use services based on 2G/3G technologies, not only in the field of IoT, and the challenges of migration of services to new technologies (a prominent example of which is the eCall system), but also in relation to interoperability of VoLTE services for roamers between European countries (and beyond);

- the environmental impact of the switch-off, when it comes to the obsolescence and the replacement of the equipment, whether it is network equipment or end-user's equipment (including M2M devices);

- potential issues in the field of wholesale access, given the differences in pricing relative to each technology,

- coverage issues in rural and remote areas supported by 2G.

BEREC is interested in understanding and anticipating any impact of possible future phasing out of some legacy systems (2G and 3G) on the electronic communications market including system reliability and security, sustainable network management, end-user terminal developments, etc.

In this context, BEREC will gather the relevant information about 2G and 3G phasing out practice. BEREC does not intend to overlap work being done in this area by the RSPG, but rather to exchange experiences and ensure that BEREC's assessment complements the existing work.

Deliverable: **Report on practices and challenges of the phasing out of 2G and 3G**

Public consultation: Yes

Adoption of the draft report for public consultation at Plenary 2 2023

Adoption of final report at Plenary 4 2023 for publication

1.4. BEREC internal workshop on the migration to VHCN networks and copper switch-off with a focus on the needs of the end-users

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. Therefore, the importance of the copper-based access network is declining and NRAs are increasingly facing with the situation where the SMP operator (SMPO) wants to decommission its legacy copper-based access network and close related network elements e.g. main distribution frames (MDFs).

The EECC and the European Commission's Recommendation on Next Generation Access (NGA) of 2010[7] (which is currently being reviewed by the European Commission), already lay down rules for the migration from legacy infrastructure and the decommissioning of the copper-based access networks. According to Article 81 of the EECC, SMPOs must 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.

In 2019, BEREC had already held an internal workshop on 'Migration from legacy infrastructures to fibre-based networks', where NRAs could share their experiences on the

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[7] Commission Recommendation of 20 September 2010 on regulated access to Next Generation Access Networks (2010/572/EU)

migration process (for a summary of the workshop, see BoR (19) 236[8]). In June 2022, BEREC published a report on a consistent approach to migration and copper switch-off. This report shows that in 20 of the 32 European countries examined, the SMPO has already announced that it plans to switch-off its legacy copper-based access network (e.g. close MDFs), in 13 countries the SMPO have already closed copper-based network elements (e.g. MDFs), and in 17 countries the NRA has already set rules for the migration process and copper switch-off (see BoR (22) 69[9], p. 3).

The copper switch-off due to the migration to fiber-based networks, e.g., VHCN, is an important ongoing process, in particular also for end-users. In 2023, BEREC will therefore examine this topic further and hold an internal workshop with a focus on the needs of the end-users, taking into account, in particular, the information and support available to them, as well as the quality of service in the context of migration to VHCN networks. The workshop will also provide the opportunity for the NRAs to report on updates of the rules they have set for the migration process and copper switch-off compared to situation described in the BEREC report from June 2022 mentioned above. The workshop may also consider further aspects of the migration process, if this is considered appropriate, after the European Commission has published the new Access Recommendation(s). This BEREC internal workshop will again provide important support to NRAs by enabling them to share and exchange their experiences and views on the migration process.

Deliverable: **BEREC internal Workshop on the migration to VHCN networks and copper switch-off with a focus on the needs of the end-users**

Internal workshop to be held in Q3 2023

Adoption of workshop summary report at Plenary 4 2023 for publication

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1.5. Update of criterion 4 of the BEREC Guidelines on very high capacity networks (carry-over)

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' (VHCN). 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 VHCN, in particular in terms of down- and uplink bandwidth, resilience, error-related parameters, and latency and its variation'. BEREC approved the BEREC Guidelines on VHCN at Plenary 3 2020 (BoR (20) 165[10]).

The BEREC Guidelines on VHCN (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. Criterion 4 provides that any network providing a wireless connection which is capable of delivering,

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[8] https://www.berec.europa.eu/en/document-categories/berec/reports/berec-summary-report-on-the-outcomes-of-the-internal-workshop-on-the-migration-from-legacy-infrastructures-to-fibre-based-networks

[9] https://www.berec.europa.eu/en/document-categories/berec/reports/berec-report-on-a-consistent-approach-to-migration-and-copper-switch-off

[10] https://www.berec.europa.eu/en/document-categories/berec/regulatory-best-practices/guidelines/berec-guidelines-on-very-high-capacity-networks

under usual peak-time conditions, services to end-users with a certain quality of service (performance thresholds 2) is considered to be a very high capacity network. Criterion 4 is based on data collected from mobile network operators on LTE Advanced (4G).

The BEREC Guidelines on very high capacity networks (paragraph 25) state 'since it was not yet possible to take 5G fully into account for the release of these Guidelines, as it has not yet reached mature deployment and significant penetration, BEREC intends to update criterion 4 (performance thresholds for wireless networks) as soon as possible and not later than 2023.' The objective of this project is to update criterion 4 based on data collected from mobile network operators on 5G.

> **Deliverable: Update of criterion 4 of the BEREC Guidelines on Very High Capacity Networks**
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> Public consultation: Yes
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> Adoption of draft guidelines for public consultation at Plenary 1 2023
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> Adoption of the final guidelines at Plenary 3 2023 for publication

1.6. BEREC external workshop on secure and reliable connectivity in Europe from low earth orbit satellite fleets

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) 83[11]).

The space sector is fast-moving and growing, and user needs, including business users, may create new opportunities for SatCom providers. For example, the sector today includes emerging technologies such as non-geostationary orbit satellites (NGSO) that deliver improved services to users. These range from satellite broadband to homes and business users, broadcast TV, global positioning services, IoT, international connectivity or communications in emergency situations, etc.

With operators such as OneWeb, SpaceX and Amazon deploying a large number of satellites (mega-constellations) consisting of fleets of between hundreds and thousands of satellites, satellite connectivity is expected to give rise to opportunities and challenges.

During 2023, BEREC intends to broaden its knowledge on the opportunities and challenges raised by NGSO satellite communication systems.

Given the scale and pace of mega constellations deployments, BEREC is interested in understanding and identifying regulatory challenges that may arise as regards the development of new satellite networks/services., BEREC will explore the potential impacts on

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[11] https://www.berec.europa.eu/en/document-categories/berec/public-consultations/draft-berec-report-on-satellite-connectivity-for-universal-service

the communications market including in terms of system reliability and security, sustainable satellite fleet management, user terminal developments, etc.

> **Deliverable**: **BEREC external workshop on secure and reliable connectivity in Europe from low earth orbit satellite fleets**
>
> External workshop to be held in Q1 2023
>
> Adoption of workshop summary report at Plenary 2 2023 for publication

1.7. BEREC Report on the authorisation and related framework for international connectivity infrastructures

In March 2021, most of the European Member States adopted the Ministerial European Data Gateways Declaration[12], 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 modernize telecom submarine cables. In this respect, an important factor for reducing the costs related to such investments is the streamlining of the licensing and authorization processes for submarine cables.

In line with its remit in the electronic communications sector, BEREC will adopt a report outlining the current authorisation-related fulfilments in place in this sector in the EU in relation to installing international connectivity infrastructures.

The report may also identify possible solutions to streamline procedures for implementing submarine cable connectivity, to promoting digital inclusion in the outermost regions and strengthening the EU's geostrategic position in terms of international connectivity.

Therefore, this report should:

a) identify the different authorization, licensing and registration procedures related to international submarine cable systems in each of the relevant Member States for this purpose;

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[12]   https://digital-strategy.ec.europa.eu/en/news/digital-day-2021-europe-reinforce-internet-connectivity-global-partners

b) examine the guidelines for sharing and colocation of terrestrial network connectivity to submarine landing stations;

c) examine NRAs competences regarding the international submarine cables, namely in terms of authorisations, proper functioning of the market, affordability and prices,

d) analyse the regulatory initiatives developed by the NRAs in order to increase and securing submarine connectivity and reduce the risk of cyber incidents and attacks in international connectivity infrastructures.

Deliverable: **BEREC Report on the authorisation-related framework for international connectivity infrastructures**

Public consultation: Yes

Adoption of draft report for public consultation at Plenary 2 2023

Adoption of final report at Plenary 4 2023 for publication

1.8. Support in reinforcing EU's Cybersecurity Capabilities

In the Nevers Call to Reinforce the EU's Cybersecurity Capabilities[13], the ministers in charge of telecommunications urged the EU and its Member States to ensure the cybersecurity and resilience of Europe's communications infrastructures and networks. In addition, they invited the relevant authorities, such as BEREC, the EU Agency for Cybersecurity (ENISA) and the Network & Information Security (NIS) Cooperation Group, along with the European Commission, to formulate recommendations, based on a risk assessment, to the Member States and the European Commission in order to reinforce the resilience of the communications networks and infrastructures within the EU, including the implementation of the 5G Toolbox.

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.

The European Commission and ENISA are setting up a multi-stakeholder process to follow-up on the Nevers Call. The process will be similar to the development of the 5G Toolbox. The NIS Cooperation Group work-stream for 5G will take the leading role. BEREC will be closely involved by reviewing drafts/deliverables and providing input to both the risk assessment and the recommendations according to the relevant requests. BEREC will adopt a report providing an overview of its activities in support of the process.

Deliverable: **Report on BEREC's support in reinforcing EU's Cybersecurity Capabilities**

Public consultation: No

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[13] https://presse.economie.gouv.fr/download?id=92261&pn=2123%20-
%20Joint%20appeal%20by%20EU%20ministers%20responsible%20for%20digital%20and%20electronic%20co
mmunications-

Adoption of final report at Plenary 4 2023 for publication

1.9. Report on BEREC's activities to support initiatives for secure 5G networks

In its Joint Communication to the European Parliament and the Council on the EU's Cybersecurity Strategy for the Digital Decade[14], 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 included in the first key objective to ensure convergent national approaches for effective risk mitigation across the EU.

Continuous knowledge building and cooperation amongst stakeholders are areas included in the second key objective. The third key objective is to promote supply chain resilience. BEREC will continue to provide support to the European Commission, NIS Cooperation Group and ENISA to help in nachieving the three key objectives for the next steps on cybersecurity of 5G networks.

In 2021, BEREC supported the European Court of Auditors (ECA) by providing its own internal reports to the ECA and distributing the ECA survey among the NRAs. The answers of the NRAs were also used in the BEREC Internal report about the ECA questionnaire for NRAs on security of 5G networks (BoR (21) 140). In January 2022, the ECA published a Special report entitled '5G roll-out in the EU: delays in deployment of networks with security issues remaining unresolved'[15].

The further work on the 5G Toolbox will be coordinated with other institutions involved in the process to achieve secure 5G networks. BEREC will provide its support to the European Commission and NIS Cooperation Group for the implementation of the recommendations of the ECA.

BEREC is also following-up on the initiatives taken by ENISA and providing its support where possible, for example by raising awareness among the NRAs and providing input for the work of ENISA. The relevant initiatives include the development of the 5G Cybersecurity Certification schemes and policy implementation for the electronic communications sector. BEREC will continue the close collaboration with the ENISA ECASEC EG and provide regular updates on its activities in the relevant meetings. BEREC will adopt a report providing an overview of its activities in support of the process to achieving secure 5G networks.

Deliverable: **Report on BEREC's activities to support initiatives to secure 5G networks**

Public consultation: No

Adoption of final report at Plenary 2 2023 for publication

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[14] https://eur-lex.europa.eu/legal-content/ga/TXT/?uri=CELEX:52020JC0018
[15] https://www.eca.europa.eu/en/Pages/DocItem.aspx?did=60614

1.10. BEREC Report on competition amongst multiple operators of NGA-networks in the same geographical region (carry-over)

When defining relevant markets in accordance with Article 64(3) of the EECC, NRAs should identify geographic areas where the conditions of competition are similar or sufficiently homogeneous, and which can be distinguished from neighbouring areas in which the prevailing conditions of competition are appreciably different. NRAs must pay attention to whether the potential SMP operator acts uniformly across its network area (territory) or whether it faces appreciably different conditions of competition to a degree that its activities are constrained in some areas, but not in others.

In addition, regional operators of VHCN / NGA-networks play an increasingly important role on the broadband market in many countries. The networks of different operators may, for example, partly overlap in some areas or might be very close to each other and could easily be expanded in near areas. In addtion, network operators may use different business strategies – to differentiate (or not) prices across their networks depending on the presence of other operators.

The project will investigate how competition between multiple VHCN / NGA regional operators, depending on the degree of network overlap, different business strategies and other relevant factors for competition, is handled in the context of SMP-analysis of the market for wholesale local access provided at a fixed location. This project will be a follow-up to BEREC's Report on the application of the Common Position on geographic aspects of market analysis (BoR (18) 213[16]), but will focus on the outcome of competition, namely retail prices and product diversification as a result of the presence of competing networks.

> **Deliverable**: **BEREC Report on competition amongst multiple operators of NGA-networks in the same geographical region**
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> Public consultation: Yes
>
> Adoption of draft report for public consultation at Plenary 4 2022
>
> Adoption of final report at Plenary 2 2023 for publication

1.11. BEREC Report on NRAs' annual reporting on the implementation of Article 75 of the EECC

This report will summarise the information received from NRAs under their reporting obligations contained in Article 75 of the EECC. With this publication, BEREC is increasing transparency and providing the means for stakeholders to assess the implementation of the Delegated Regulation across the EU.

Article 75(3) of the EECC requires that NRAs report annually to the European Commission and to BEREC about the application of that Article, in other words, on the implementation of

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[16]   https://www.berec.europa.eu/en/document-categories/berec/reports/berec-report-on-the-application-of-the-common-position-on-geographic-aspects-of-market-analysis

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.

In 2022, BEREC published a document where it proposed a template for NRAs to use to report on the implementation of the Delegated Regulation in their country (BoR (22) 73[17]). BEREC recommended that NRAs should provide their yearly reports under a common calendar and the reporting of information for each year should be concluded before 31 March of the following year. For 2021, the reporting is to be concluded before 30 September 2022.

Article 75 of the EECC does not mandate the publication of the information resulting from the annual NRAs' fulfilment of the reporting obligation. However, for reasons of transparency and accountability, BEREC intends to draft an external report containing a summary of the main findings and conclusions at European level. Starting from 2023, BEREC will publish an annual report summarising the key findings.

As an exception, the first report will contain information covering the second half year of 2021 and the whole of 2022; thereafter year-on-year developments will be reported.

Deliverable: **BEREC Report on NRAs' reporting on the implementation of Article 75 EECC**

Public consultation: No

Adoption of final Report at Plenary 3 2023 for publication

1.12. Report on cloud services and edge computing

One of the 2030 targets included in the Digital Compass: The European way for the Digital Decade Communication[18] is that 75 % of the European enterprises use cloud computing services, big data and Artificial Intelligence. 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 Commission has put forward the ambition of looking at new digital opportunities and trends, such as the metaverse[19]. Cloud and edge computing 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 Europe[20] 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.

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[17] https://www.berec.europa.eu/en/document-categories/berec/reports/bor-22-73-report-on-the-monitoring-of-the-termination-rates-for-mobile-and-fixed-voice-callspdf

[18] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021DC0118&from=en

[19] https://ec.europa.eu/commission/presscorner/detail/en/STATEMENT_22_5525

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

Deliverable: **BEREC Report on cloud services and edge computing**

Public consultation: Yes

Adoption of draft report for public consultation at Plenary 2 2024

Adoption of final report at Plenary 4 2024 for publication

Strategic priority 2: Thriving sustainable and open digital markets

BEREC will prioritise work relating to the functioning of digital markets, namely focusing on exploring the conditions and addressing issues regarding digital service providers and end-users in the digital market.

BEREC recognises that the digital economy brings both new opportunities and challenges, e.g. the use of big data and algorithms has great potential but it could increase the risk of some companies becoming dominant in a particular market. The implementation of the Digital Markets Act (DMA) will be a core priority of the European Commission in 2023. Based on its experience, BEREC will continue to contribute to the implementation of the DMA. Furthermore, BEREC will be following the developments regarding the Artificial Intelligence Act and the Digital Services Act (DSA). BEREC will also keep improving its knowledge on environmental sustainability to contribute with 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. With specific obligations on telecommunication operators, it guarantees an open Internet for the benefit of all market players including end-users. Nowadays, other services (mobile OS and App Stores, some very large platforms, etc.) can limit the capability for end-users to access and share the content of their choice. Thus BEREC will continue monitoring this aspect in several work items.

2.1. BEREC Report on interoperability for number-independent interpersonal communication services (NI-ICS) (carry-over)

Interoperability is the ability of two or more systems or components to exchange information and use it to work together. In order to be interoperable, undertakings implement standards at the edge of their services and products, which can consist of either *de iure* standards produced and maintained by international organisations or *de facto* standards such as APIs or commonly-used protocols.

Article 7 of the Digital Markets Act (DMA) includes an interoperability obligation for number-independent interpersonal communication services (NI-ICS), stating that a gatekeeper must make basic functionalities of its NI-ICS interoperable with the NI-ICS of another provider. In

order to do so, the gatekeeper has to publish a reference offer laying down the technical details and general terms and conditions of interoperability with its NI-ICS, including the necessary details on the level of security and end-to-end encryption. In recital 64, the DMA also sets out that the European Commission may consult BEREC in order to determine whether the reference offer that the gatekeeper intends to implement or has implemented ensures compliance with this obligation.

Interoperability measures for NI-ICS are also included in the EECC. Article 61(2)(c) EECC states that interoperability obligations can be imposed on NI-ICS providers '*which reach a significant level of coverage and user uptake*' where '*end-to-end connectivity between end-users is endangered due to a lack of interoperability between interpersonal communications services, and to the extent necessary to ensure end-to-end connectivity between end-users*'.

BEREC will be providing an overview of the economic and behavioural features of NI-ICS and the state of the market for these services. The report will also focus on how the interoperability measures for NI-ICS could be implemented. It will present different technical interoperability approaches and propose potential solutions to be considered when defining or specifying the measure.

The report will analyse the provisions, the conditions for application and the implementation under both the DMA and the EECC and provide some insights on the interplay between the two legislative frameworks on this matter.

This report is planned to be published in mid-December 2022 for public consultation, and several internal workshops will be organised with experts and relevant stakeholders. The final report is expected in June 2023.

Deliverable: BEREC report on interoperability for number-independent interpersonal communication services (NI-ICS)

Public consultation: Yes

Adoption of draft report for Public consultation at Plenary 4 2022

Adoption of final Report at Plenary 2 2023 for publication

2.2. BEREC's role in supporting sustainable and open digital markets

The draft BEREC report on the Internet Ecosystem (BoR (22) 87[21]) and BEREC's work on the regulation of digital gatekeepers (BoR (21) 131[22]; BoR (21) 130[23]; BoR (21) 89[24]; BoR (21)

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[21]   https://www.berec.europa.eu/en/document-categories/berec/public-consultations/draft-berec-report-on-the-internet-ecosystem

[22]   https://www.berec.europa.eu/en/document-categories/berec/reports/berec-report-on-the-ex-ante-regulation-of-digital-gatekeepers

[23]   https://www.berec.europa.eu/en/document-categories/berec/reports/berec-report-on-the-outcome-of-the-public-consultation-on-the-draft-berec-report-on-the-ex-ante-regulation-of-digital-gatekeepers

[24]   https://www.berec.europa.eu/en/document-categories/berec/reports/analysing-eu-consumer-perceptions-and-behaviour-on-digital-platforms-for-communication-analysis-report

85[25]; BoR (21) 93[26]; BoR (21) 94[27]; BoR (20) 138[28]; BoR (18) 35[29]) have shown how a small number of digital platforms have reached a position allowing them to shape both the competition dynamics on different markets and the conditions under which content, services and information can be accessed and shared.

In order to ensure coherence and effective complementarity in the implementation of the Digital Markets Act (DMA) and of other sectoral regulations applying to the gatekeepers, a dedicated High-Level Group is created under the DMA[30]. In this High-Level Group, BEREC and other European bodies and networks will assist the European Commission by means of advice, expertise and recommendations relating to the implementation or enforcement of the DMA.

In line with both BEREC's strategic priority to support sustainable and open digital markets and the role that BEREC will play within the High-Level Group for the enforcement of the DMA, BEREC will keep monitoring and analysing the developments of digital markets and the impact and effects of the practices implemented by large digital platforms. Such monitoring exercises may translate into different types of BEREC deliverables (opinions, workshops, etc.). The schedule for this work will be set according to the priorities identified by BEREC or the European institutions, in coordination with the European Commission.

Deliverable: **Internal and external workshops, short papers, etc. (TBD)**

2.3. BEREC Report on Indicators to measure environmental impact of electronic communication networks and services (carry-over)

Following BEREC's report entitled 'Assessing BEREC's contribution to limiting the impact of the digital sector on the environment' (BoR (22) 93[31]), BEREC intends to consider what indicators might be suitable for evaluating and better characterizing the environmental sustainability of electronic communications networks (ECN) and services (ECS). This intention should be seen in the context of the European Commission's objectives defined by the Green Deal and the digital strategy 'Shaping Europe's Digital Future' calling for highly energy-efficient

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[25] https://www.berec.europa.eu/en/document-categories/berec/reports/berec-report-on-the-interplay-between-the-eecc-and-the-ecs-proposal-for-a-digital-markets-act-concerning-number-independent-interpersonal-communication-services

[26] https://www.berec.europa.eu/en/document-categories/berec/others/berec-proposal-on-the-set-up-of-an-advisory-board-in-the-context-of-the-digital-markets-act

[27] https://www.berec.europa.eu/sites/default/files/files/document_register_store/2021/6/BoR__(21)_94_BEREC_proposal_on_remedies-tailoring_and_structured_participation_processes_for_stakeholders_in_the_context_of_the_DMA_(clean).pdf

[28] https://www.berec.europa.eu/en/document-categories/berec/others/berec-response-to-the-public-consultations-on-the-digital-services-act-package-and-the-new-competition-tool

[29] https://www.berec.europa.eu/en/document-categories/berec/reports/berec-report-on-the-impact-of-premium-content-on-ecs-markets-and-the-effect-of-devices-on-the-open-use-of-the-internet

[30] Article 40 DMA

[31] https://www.berec.europa.eu/en/document-categories/berec/reports/berec-report-on-sustainability-assessing-berecs-contribution-to-limiting-the-impact-of-the-digital-sector-on-the-environment

and sustainable data centres and transparency measures regarding the environmental footprint of telecoms operators. Previous work done by BEREC also highlighted the fact that there is a need to identify relevant indicators in this area.

BEREC aims to contribute to identifying and defining such indicators and to setting a basic framework for, if possible, a common and harmonised EU assessment methodology for the environmental sustainability of ECN/ECS. The first step will be to analyse the most relevant environmental impacts to monitor the environmental footprint of telecommunications (such as greenhouse gas (GHG) emissions, water consumption, metal and minerals depletion) in line with the Product Environmental Footprint methodologies developed by the European Commission. The second step will be to identify existing reporting mechanisms used within the sector to follow-up these impacts and potential loopholes that need to be tackled. This work could also consider broader indicators on the impact of digital infrastructures and on the lifcycle of products and services.

A related issue is the role which NRAs could play in relation to these indicators, i.e. which of these might influence their responsibilities or regulatory practice. Telecoms regulators already have extensive experience in collecting data on ECN/ECS. BEREC believes that, together with its member NRAs, it can contribute to improving the quality of environmental data available because of its technical expertise. BEREC will thus continue acting as a knowledge-sharing platform for NRAs, contributing to an increased level of expertise in applying the available methodologies and indicators of environmental sustainability.

BEREC will launch a call-for-inputs from external stakeholders (operators, service providers, manufacturers, end-user associations, environmental organisations, etc.) to help identify, which indicators they deem feasible and useful for setting up a reporting methodology and improving comparability of industry players' environmental performance. This will take the form of technical workshops and questionnaires. Results of stakeholders' inputs and BEREC analysis of these issues will be presented in a preliminary report that could then be used for future BEREC work and opinions.

Deliverable: BEREC Report on Indicators to measure environmental impact of electronic communication networks and services

Public consultation: Yes

Call-for-input including set of technical workshops to be held in in Q3/Q4 2022

Adoption of the draft report at Plenary 1 2023 for public consultation

Adoption of final report at Plenary 3 2023 for publication

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

Alongside its report on ICT Sustainability assessing BEREC's role in limiting the sector's impact on the environment published in 2022 (BoR (22) 93[32]) and its report on indicators to assess ECN/ECS sustainability, which is to be published in 2024, 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 Deal[33], the sustainability of digital technologies has been the topic of multiple initiatives at EU level 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' [34]. 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 Council[35] that emphasises the necessity of minimising adverse environmental and social impacts of digitalisation and developing digital solutions with positive effects for the environment.

In 2023, BEREC aims to 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 belosw:

- The promotion of greener networks deployment notably through the upcoming review of the Broadband Cost Reduction Directive.

- The improvement of transparency regarding the environmental footprint of digital infrastructures, including the definition of indicators on sustainability of telecommunications, the implementation of the Energy Efficiency Directive on data centres' environmental reporting and the identification of best practices for the digital sector (for instance through codes of conduct).

- The enhancement of circular economy and energy efficiency performance for ICT and telecommunications and ICTs in general when appropriate.

- The assessment of environmental impacts of emerging technologies transforming digital markets such as blockchain, Metaverse and Artificial Intelligence technologies.

- The investigation of the enabling effects of the ICT sector on other sectors in the context of the green transformation.

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[32] https://www.berec.europa.eu/en/document-categories/berec/reports/berec-report-on-sustainability-assessing-berecs-contribution-to-limiting-the-impact-of-the-digital-sector-on-the-environment

[33] 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.

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

[35] https://digital-strategy.ec.europa.eu/en/library/declaration-european-digital-rights-and-principles

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.

Deliverables: Potential ad-hoc documents (TBD)

2.4.1. BEREC Report on the entry of large content and application providers into the markets for electronic communications networks and services

Providers of electronic communications networks (ECN) and services (ECS) are primarily focused on providing Internet access service (IAS) and infrastructure elements, which support the communication between users and between the client and the server.

In the last 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).

The analysis carried out in the Draft BEREC Report on the Internet Ecosystem (BoR (22) 87[36]) highlights how the Big Tech companies have been increasingly investing in telecommunication infrastructures and providing services closely related to ECN and ECS, or directly qualifying as such. Some typical examples include virtualised network services, content delivery networks (CDNs), cloud computing with increasing ubiquity, the deployment of extensive international networks (e.g. submarine cables and satellite constellations), as well as trends towards the provision of IAS.

As a result, the Big Tech companies are now present across a very significant amount of the 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.

Building on the conclusions of the Draft BEREC Report on the Internet Ecosystem (BoR (22) 87[37]), this report will aim to provide an overview of the presence/entry of of large CAPs in(to) the markets for ECN and ECS.

In particular, the report will identify the elements in which of large CAPs have been increasingly investing and their strategies to move upwards along the value chain. It will also depict the dynamics of competition and/or of cooperation between ECN/ECS providers and these companies, and analyse both new services (e.g. redirecting traffic to their own proxy servers from the device) and new business models and strategies implemented by the latter. Building on this, the report will provide details on how the current electronic communications regulatory framework (in particular the EECC and the Open Internet Regulation) applies to such actors.

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[36]   https://www.berec.europa.eu/en/document-categories/berec/public-consultations/draft-berec-report-on-the-internet-ecosystem

[37]   https://www.berec.europa.eu/en/document-categories/berec/public-consultations/draft-berec-report-on-the-internet-ecosystem

In line with BEREC's current work (described under section 2.7 below) on the 'Assessment of the IP interconnection ecosystem and impact of the potential sending party network pays principle on Internet ecosystem and on end-users', this workstream will also focus on CDNs, among other selected services. CDNs have been identified by the Draft BEREC Report on the Internet Ecosystem (BoR (22) 87[38]) as one of the elements of the Internet ecosystem where further analysis was needed. After providing an overview of the market, the report may further investigate the relations between CDN holders/providers and Internet service providers.

In order to gather input for its analysis, BEREC will organise several internal workshops with experts and relevant stakeholders to gather their inputs and insights on the topic.

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

Public consultation: Yes

Adoption of draft report for public consultation at Plenary 2 2024

Adoption of final report at Plenary 4 2024 for publication

2.5. BEREC Report on M2M and permanent roaming

Regulation (EU) 2022/612 (the 'Roaming Regulation') includes a particular reference about the M2M services (recitals 14 and 21) and new monitoring requirements. For the report under this item, BEREC plans to analyse M2M services that allow for 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 allow permanent roaming in their network for the provision of such services, and what pricing schemes are applied.

As a first step, BEREC is launching plans for a call for input in the second half of 2023. The inputs received as well as information from the BEREC Roaming Data Report, which is planned to be published after Plenary 1 2023, will be used to carry out the analysis.

Deliverable: **Report on M2M and permanent roaming**

Public consultation: Yes

Call for input: Q3/Q4 2023

Adoption of draft BEREC Report for public consultation at Plenary 2 2024

Adoption of final BEREC Report at Plenary 4 2024 for publication

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2.6. Report on the impact of Artificial Intelligence (AI) solutions in the telecommunications sector on regulation (carry-over)

The promise that Artificial Intelligence (AI) can assist our society must be substantiated with a clear understanding of both the benefits and risks associated with use cases relying on AI. To address these challenges and make the most of the opportunities which AI offers, the Commission published a European strategy[39] in April 2018. The strategy places people at the centre of the development of AI, in other words, human-centric AI. More recently, the Commission has put forward a draft Artificial Intelligence Act[40], following this human-centered approach.

It is expected that AI, with the support of 5G and IoT, together referred to as 'intelligent connectivity', will enable new use cases in a number of vertical sectors such as energy supply, transportation, industrial automation and healthcare. In practice, there are already use cases of AI for network automation, network optimisation, preventive maintenance and also to provide virtual assistance for customer support.

This insight will help anticipate the effects of AI on the Digital Single Market and the regulation of electronic communications. BEREC seeks to determine how AI may impact ECN and ECS by first looking into different use cases in the telecommunications sector. This study is a first step towards this goal, and it will seek to identify those solutions / use cases which fall within BEREC's remit and gain a high-level understanding of the possible impact of these solutions on regulation. The information collected will then be analysed to determine the opportunities and challenges which BEREC must take into consideration in its future work to ensure that it continues to fulfil its strategic priorities, in particular supporting sustainable and open digital markets and empowering end-users. This high-level understanding will help BEREC identify the role it can play with the commercial uptake of AI solutions in the telecoms sector.

Deliverable: **Report on the impact of Artificial Intelligence (AI) solutions in the telecommunications sector on regulation**

Public consultation: Yes

Adoption of draft report for public consultation at Plenary 4 2022

Adoption of final report at Plenary 2 2023 for publication

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[39] https://digital-strategy.ec.europa.eu/en/library/proposal-regulation-laying-down-harmonised-rules-artificial-intelligence

[40] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021PC0206

2.7. Assessment of the IP interconnection ecosystem and impact of the potential sending party network pays principle on Internet ecosystem and on end-users (carry-over)

The debate about IP interconnection has been revived in 2021/2022 and gained momentum particularly with the telecom operators' claims for a financial contribution from large CAPs to the network investments incurred by telecommunications companies. In its 2017 report on IP interconnection (BoR (17) 184 [41]), BEREC found the IP interconnection market to be competitive.

BEREC had already analysed a similar proposal in 2012 in its comments on the ETNO proposal for ITU/WCIT or similar initiatives along these lines, and came to the conclusion that deviating from the current principles in order to implement a 'sending party network pays' system might be of significant harm to the Internet ecosystem (BoR (12) 120rev1[42]).

In addition, an initial discussion about CAPs investing in their own core networks (e.g., submarine cables) running in parallel to the Internet core is provided in the Draft BEREC Report on the Internet Ecosystem (BoR (22) 87[43]).

In light of the recent 'sending party network pays' discussion, BEREC will assess the grounds for such a proposal (i.e. whether they are justified or not) considering the market developments that have occurred in the recent years and the investments made by the different stakeholders. BEREC will also analyse the potential impact such proposals would have on end-users (e.g. end-user payments for both IAS and CAP subscriptions, quality of service), on competition and on the Internet ecosystem.

This analysis will also reflect the empirical findings and observations from South Korea where the legislator imposed a change in the wholesale charging mechanism 'bill & keep' and introduced a mandatory 'sending party network pays' framework.

If necessary, the work stream may also include questionnaires, surveys, workshops, etc. to collect further information relevant to this analysis, and monitor emerging trends as the market continues to develop.

By allowing some flexibility in the workstream, BEREC will adapt to the EC's agenda and will in particular allow BEREC to contribute to the EU institution's work.

Deliverable: **BEREC Report on the assessment of the IP interconnection ecosystem and the impact of the potential sending party network pays principle on Internet ecosystem and on end-users**

Public consultation: Yes

Adoption of draft Report for public consultation at Plenary 2 2023

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

[42]
　　https://www.berec.europa.eu/sites/default/files/files/document_register_store/2012/11/BoR%2812%29120rev.1_BEREC_Statement_on_ITR_2012.11.14.pdf

[43]　　　https://www.berec.europa.eu/en/document-categories/berec/public-consultations/draft-berec-report-on-the-internet-ecosystem

Adoption of final Report at Plenary 4 2023 for publication

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

Regulation (EU) 2015/2120 (the 'Open Internet (OI) Regulation') 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 published an annual report on the implementation of Regulation (EU) 2015/2120 and the Open Internet WG has provided a forum for discussion of national cases and questions in order to ensure a predictable and consistent application of the OI Regulation.

In the 2023 work stream, BEREC will monitor the implementation of the open Internet provisions among NRAs for the period 1 May 2022 to 30 April 2023. In this report, BEREC will also have a closer look at the implementation of the OI Regulation in light of the rulings issued by the European Court of Justice in September 2021 and the BEREC OI Guidelines updated in June 2022 accordingly (BoR (22) 81[44]). BEREC will collect the annual national Open Internet reports and the responses to an internal questionnaire in order to prepare the annual European-level Open Internet 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 work stream may also include questionnaires, surveys, workshops, etc. to collect information on topics of particular relevance to the open Internet 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 work stream should build on experience from previous years.

Deliverable: **BEREC Report on the implementation of the Open Internet Regulation**

Public consultation: No

Adoption of final Report at Plenary 3 2023

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[44]   https://www.berec.europa.eu/en/document-categories/berec/regulatory-best-practices/guidelines/berec-guidelines-on-the-implementation-of-the-open-internet-regulation-0

2.9. Collaboration on Internet access service measurement tools

In 2022, BEREC published an update of the BEREC Net Neutrality Regulatory Assessment Methodology (BoR (22) 72[45]), originally released in 2017. Together with the Net neutrality measurement tool specification (BoR (17) 179[46]), 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 WG has provided a forum for collaboration between NRAs to share information and exchange experiences and best practices related to the national tool deployment.

With this workstream, BEREC intends to continue the ongoing work with NRAs related to their national measurement tool deployments to:

a) provide a forum for NRAs to share information and exchange experiences and best practices related to development and deployment of national measurement tools, taking also into account the support by new technologies; this workstream will also consider best collaboration practices so as to maximise the benefits of existing NRA cooperation in this area;

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**

2.10. External study on the trends and policy/regulatory challenges of cloudification, virtualisation and softwarisation in telecommunications

Cloud computing, network virtualisation and network softwarisation are becoming more relevant, and they impact both the services which can be offered and the design of the networks. Data centres are becoming increasingly important due to the demands of cloud computing and also because of a need to service the growing demand for online content and services.

In 2016, BEREC organised a public expert workshop on regulatory implications of software-defined networking (SDN) and network functions virtualizations (NFV). In 2022, BEREC organised a workshop on Open RAN (radio access network) that addressed some parts of these topics as well. An overall study of the trends however is yet to be conducted.

In this context, BEREC will contract a study to gather current trends in the provisioning of electronic communications networks and services and identify possible regulatory and policy challenges arising from therefrom. This study, which could also highlight specific use cases,

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[45]   https://www.berec.europa.eu/en/document-categories/berec/regulatory-best-practices/methodologies/berec-net-neutrality-regulatory-assessment-methodology-0
[46]   https://www.berec.europa.eu/en/document-categories/berec/reports/net-neutrality-measurement-tool-specification

could better inform other work conducted by BEREC, such as the report on cloud services and edge computing and the report on the entry of large content and application providers into the markets for electronic communications networks and services.

Deliverable: **External study on the trends and policy/regulatory challenges of cloudification, virtualisation and softwarisation of telecommunications:**

Public consultation: No

Publication of the external study at Plenary 4 2023

2.11. BEREC workshop on the perspectives and regulatory/competition challenges of Internet of Things

In 2016, BEREC prepared a Report on Enabling the Internet of Things (IoT) (BoR (16) 39[47]). 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)[48]. The report identified potential competition concerns in the rapidly growing markets for IoT related products and services in the EU. According to 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 will organise 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.

Deliverable: **BEREC external workshop on the perspectives and regulatory/competition challenges of Internet of Things**

External workshop to be held in Q4 2023

Adoption of summary report at Plenary 1 2024 for publication

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[47] https://www.berec.europa.eu/en/document-categories/berec/reports/berec-report-on-enabling-the-internet-of-things

[48] https://ec.europa.eu/commission/presscorner/detail/en/IP_22_402

2.12. BEREC's input to the EU institutions on the Data Act

In 2022, the European Commission published a legislative proposal for a Regulation on harmonised rules about fair access to and use of data: the Data Act[49].

On 12 May 2022, BEREC published a general statement on the draft Data Act [50] acknowledging that, according to the European Commission proposal, independent national competent authorities with experience in electronic communications services are well placed to ensure the application and enforcement of specific provisions. This role could be relevant, for example, in relation to the aim of the draft Regulation to ease the switching between data processing services, such as cloud and edge services, in particular, the monitoring of switching charges, technical aspects of switching, interoperability, or complaints handling.

On 20 July 2022, BEREC published a High-Level Opinion on the European Commission's proposal for a Data Act[51]. In this document, BEREC shares some practices and suggestions gained by its experience in applying similar provisions in the telecommunications sector, which could contribute to the negotiations of the draft Data Act. Further to the proposals made in this Opinion, BEREC expressed its availability to engage with the legislators as well as cooperate with other relevant competent bodies to participate actively in the legislative process and to provide its input and opinions.

The deliverables will be adapted according to the process and timing set by the legislators. Subject to the development of the legislative process, a preliminary assessment on the implementation of switching between data processing services measures, including the possible interplay with Article 106 of the EECC, and a workshop on data processing services switching could be organised during Q2 2024.

Deliverable: **Ad hoc input to the EU institutions on the Data Act, workshop, etc. (TBD)**

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 has 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.

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[49] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2022:68:FIN
[50] https://www.berec.europa.eu/en/document-categories/berec/others/berecs-statement-on-the-draft-data-act
[51] https://www.berec.europa.eu/en/news-publications/news-and-newsletters/berec-recommends-strengthening-independence-of-enforcing-bodies-in-data-act

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 in creating effective interactions for end-users.

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

3.1. BEREC contribution to empowering end-users through environmental transparency on digital products and services

BEREC considers end-users' awareness of environmental issues as critical for end-users' empowerment and for ICT sustainability. Environmental information on digital products and services could enlighten users' choices in terms of their digital consumption. Complementary to effects on the demand side, this data-driven approach of end-users' 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 will engage 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, potentially in cooperation with relevant stakeholders (e.g., BEUC and the European Environmental Bureau). This event will provide input for a report by BEREC on the issue. This report should also provide a general overview of initiatives by NRAs and other relevant stakeholders regarding the empowerment of end-users in terms of sustainability plus an analysis of most effective ways of reaching out to end-users in this regrard (e.g., educational campaigns, data collection on end-users' approaches to sustainability, etc.).

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 life cycle of devices, and principles of equipment durability and repairability (including efforts to counter programmed obsolescence). This proposal could also provide input for discussions on the European Commission's proposal for a directive on empowering consumers for the green transition.

Deliverable: **BEREC report on empowering end-users through environmental transparency on digital products and services**

Public consultation: Yes

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: Workshop to be held in Q2 2023

3.2. BEREC Report on Member States' best practices to support the defining of adequate broadband Internet access service (carry-over)

Article 84 of the EECC provides that 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 Member States' best practices to support the defining of adequate broadband (BoR (20) 99[52]). The legal provisions further provide that BEREC report must be updated regularly to reflect technological advances and changes in consumer usage patterns.

The update of the best practice report will gather and analyse relevant information including:

- the continued suitability of the evaluation criteria consulted on in the previous report;

- relevant experiences to support Member States in defining the adequate broadband;

- the minimum set of services that the adequate broadband is capable of supporting.

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

Public consultation: Yes

Adoption of draft report for public consultation at Plenary 3 2023

Adoption of final report at Plenary 1 2024 for publication

3.3. Report on comparison tools and accreditation (carry-over)

Article 103 of the EECC requires that end-users have access free of charge to at least one independent comparison tool which enables them to compare and evaluate different Internet access services and publicly available number-based interpersonal communications services, and, where applicable, publicly available number-independent interpersonal communications services. Article 103 also provides for a specific certification process available, upon request, to providers of comparison tools that meet the requirements set out in points (a) to (h) of the same Article.

The report will offer insights on the comparison tools which enable consumers to compare and evaluate IAS and publicly available NB-ICS as set out in Article 103 of the EECC. The report may also look whether comparison tools allow for comparison of bundles of IAS or publicly

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[52]   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

available number-based interpersonal communications services with other electronic communication services. Furthermore, it will also capture details of the certification processes within each Member State that is available, upon request, to providers of comparison tools that meet the requirements set out in Article 103 of the EECC.

Deliverable: BEREC Report on Comparison Tools and Accreditation

Public consultation: Yes

Adoption of draft report for public consultation at Plenary 3 2022

Adoption of final report at Plenary 1 2023 for publication

3.4. BEREC Guidelines detailing Quality of Service (QoS) parameters

According to Article 104 of the EECC, national regulatory authorities in coordination with other competent authorities may require providers of Internet access services (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 and on measures taken to ensure equivalence in access for end-users with disabilities. National regulatory authorities in coordination with other competent authorities have to also specify, taking utmost account of BEREC guidelines, the QoS parameters to be measured, the applicable measurement methods and the content, form and manner of the information to be published, including possible quality certification mechanisms.

In 2020, BEREC published the first guidelines detailing QoS parameters (BoR (20) 53[53]). The guidelines provide that the process of undertaking a review will commence two years from the adoption and publication of the guidelines by BEREC.

In addition, the progress indicators for 5G deployment need to be improved in the context of the annual monitoring cycle of the future Digital Policy Programme 'Path to the Digital decade'. This includs identification of technical KPIs to qualify the 5G targets in terms of Quality of Service and enable the monitoring of service quality in deployed 5G networks. This initiative should aim to assess Quality of Service not only for basic 5G, but also, in the future, for advanced 5G and mission critical 5G connectivity to be used in vertical industries.

The purpose of this project is to prepare and publish the first review of the guidelines. The project will address the constituent elements of the legislative task assigned to BEREC, including:

- the relevant QoS parameters in relation to ICS and IAS;

- the parameters relevant for end-users with disabilities;

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[53] https://www.berec.europa.eu/en/document-categories/berec/regulatory-best-practices/guidelines/berec-guidelines-detailing-quality-of-service-parameters-0

- 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;

- the QoS of 5G networks including the identification of appropriate technical KPIs to qualify service levels and comparison of network deployment in Member States on the basis of available QoS 5G connectivity, including mechanisms to collect and process QoS data to ensure the monitoring of 5G network deployment; the feasibility and conditions for using 5G QoS data in geographical maps made available to users could also be considered;

- the content and format of QoS information;

- the quality certification mechanisms.

Deliverable: **BEREC Guidelines detailing QoS parameters of IAS and publicly available ICS and the publication of information**

Public consultation: Yes

Adoption of draft report for public consultation at Plenary P3 2023

Adoption of final Guidelines at Plenary P1 2024 for publication

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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 wishes to continue exploring ways of 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 operating both in adjacent and different economic sectors, as well as 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 monitoring the sector, it remains crucial to consider the big picture, which implies expanding BEREC's 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) 137[54]). The strategy also seeks to

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[54]   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

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 its multi-annual work programme and related to its international activities. This strategy evaluates BEREC's current international commitments, and spells out, in a transparent manner, the type of cooperation and engagement that could be envisaged with each of its international partners (BoR (21) 135[55]).

The increasing convergence of issues faced in the field of electronic communications between 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.

In 2023, BEREC will continue implementing 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 2023 and, by the end of the year, to have an indicative calendar of events for the following year. Among these, BEREC will organise the traditional Four-lateral Summit in 2023 with the other networks of regulators with which it has signed MoUs namely Regulatel, EMERG and EaPeReg.

Deliverable: Relations with other institutions and International cooperation

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

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BEREC's other tasks

5.1. BEREC ad hoc work

5.1.1. Ad hoc input to the EU/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 shall 'assist and advise the NRAs, the European Parliament, the Council and the 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 (e.g., the Digital Markets Act proposal).

It is likely that any BEREC input in 2023 may focus on EECC-related implementation matters, as well as on further possible legislative initiatives. In the upcoming months the Commssion

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[55] 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

is expected to publish its proposals for the new Access Recommendation and the revised Broadband Cost Reduction Directive (BCRD). BEREC will need to provide its opinion on the new Access Recommendation. Depending on the timing, this might take place during 2023. As regards the revised BCRD, taking into account the relevant time plan, BEREC may prepare an opinion on the EC proposal and submit it to the co-legislators. Additionally, BEREC will contribute to a potential public consultation and/or produce an opinion on any legislative proposal regarding the investment conditions in the digital infrastructures, should a text be proposed by the EC. Work item 2.7 could also provide input to this work.

5.1.2. Peer review process

BEREC and the Radio Spectrum Policy Group (RSPG) agreed on working arrangements[56] 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:

- using the Peer Review Forum as an instrument of peer learning;
- 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 electronic communications' regulatory framework;
- cooperating on the implementation of the Peer Review Forum;
- 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'.

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.[57]

5.2. Other tasks under EU legislation

BEREC carries out a large number of mandatory tasks under EU legislation. These tasks are for instance stemming from the EECC or the Roaming Regulation. They are described below:

5.2.1. BEREC participation in the High-Level Group envisaged by the DMA Regulation[58]

The DMA Regulation requires the Commission to set up a High-Level Group with advisory tasks vis-à-vis the Commission for the implementation of the legal provisions. Together with other European advisory bodies and networks, BEREC is to be part of this Group which should

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[56] https://berec.europa.eu/eng/document_register/subject_matter/berec/others/8602-working-arrangement-between-berec-and-rspg
[57] See the Rules of Procedures for the Radio Spectrum Policy Group (RSPG) https://rspg-spectrum.eu
[58] Article 40 of the DMA

have 30 members overall, with an equal number of representatives from all the entities involved.

Considering that the above-mentioned provision will enter into force on the same day as the DMA Regulation, it makes sense for BEREC to start preparing already in 2022, for its participation.

BEREC will define how to identify its own representative delegation within the High-Level Group by means of relevant internal procedures.

Deliverable: **Rules of Procedure**
Public consultation: No
Adoption of internal procedures for the identification of the BEREC delegation within the DMA High-Level Group: Plenary 1 2023 (or earlier if needed)

5.2.2. BEREC Opinion on Article 123 EECC

BEREC is tasked with publishing an opinion on the application of Title III of Part III of the EECC (referring to end-user rights) every three years or more frequently if at least two Member States make a reasoned request. If such requests are made, an opinion will be drafted in 2023. In addition, in 2023 BEREC plans to organise a meeting with end-users' representatives.

Deliverable: **BEREC Opinion on Article 123 EECC**
Public consultation: No
Adoption of BEREC Opinion: as requested

5.2.3. International roaming benchmark data and monitoring report

According to the Roaming Regulation, BEREC has to report on technical matters within its competence.

BEREC, and before that, the ERG, has been drafting these kinds of reports since the entry into force of the first roaming regulation. 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 is also 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 new 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 29th Report was launched at the end of September 2022. 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 subject to adoption and publication in Plenary 1 2023.

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

Deliverable: **29th BEREC international Roaming Benchmark Data Report**

Public consultation: No

Adoption of final report at Plenary 1 2023 for publication

5.2.4. BEREC input to the Commission on the Review of the Intra-EU Communications Regulation

According to recital 53 of the Roaming Regulation, the Commission, with the support of BEREC, should assess the effects of the existing measures introduced by the BEREC Regulation on intra-EU communications and determine whether and to what extent there is an ongoing need to reduce the caps in order to protect consumers. For this purpose, BEREC will draft an opinion analysing the measures imposed. The opinion will mainly be based on the data collected for the Intra-EU Communications Benchmark Data Report. The opinion will be finalised and submitted to the European Commission in March 2023.

Deliverable: **BEREC input to the Commission on the Review of the Intra-EU Communications Regulation**

Public consultation: No

Adoption of BEREC Opinion at Plenary 1 2023 for publication

5.2.5. BEREC input to the Commission on the Review of the Commission Implementing Regulation on the Fair Use Policy and Sustainability of the Roaming Regulation

In July 2022, BEREC received a request from the European Commission to provide an opinion on the Commission Implementing Regulation on the Fair Use Policy and Sustainability of the Roaming Regulation. BEREC is requested to respond to the Commission's questions and especially to take into account the requirements of the Roaming Regulation laid down in Article 7(2) and (3) and in recitals 28-30. As an input for the analysis to be included in the BEREC Opinion, BEREC will use the data collected for the BEREC Roaming Data Report in Autumn 2022.

The Opinion will be sent to the Commission by the end of Q1 2023 and will be used by the Commission for its report on the evaluation of the Commission Implementing Regulation that is due by Q2 2023.

Deliverable: **BEREC input to the Commission on the Review of the Commission Implementing Regulation on the Fair Use Policy and Sustainability of the Roaming Regulation**

Public consultation: No

Adoption of BEREC Opinion at Plenary 1 2023 or via e-vote by the end of March 2023 for publication

5.2.6. Intra-EU communications Benchmark Report

According to Article 5a(6) of the TSM Regulation as amended by the BEREC Regulation, NRAs are to 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 therefore collect data from both fixed and mobile operators on a yearly basis and submit the data to BEREC.

In 2023, BEREC is planning to publish the 4th Benchmark Report (including data from 2022) 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, subject to adoption and publication in Plenary 3 2023. Using the collected data, BEREC will also publish an annex to the report, with the updated BEREC benchmarking for the derogation assessments.

Deliverable: **4th Intra-EU communications Benchmark Report**

Public consultation: No

Adoption of final report at Plenary 3 2023 for publication

5.3. Monitoring quality, efficiency and sustainability

5.3.1. BEREC reflections on features of NRAs independence

In 2012, BEREC expressed its concerns about the impact of some national legislative initiatives on the effectiveness of electronic communications regulatory authorities' performance with regard to their regulatory functions, and, in turn, on their independence (BoR (12) 119[59]). In 2020, BEREC reiterated its position and identified concerns with regard to the violation of the independence of an NRA in one Member State (BoR (20) 141[60]).

For 2022, BEREC has commissioned a study from a consultant on the independence prerogatives of electronic communications NRAs, with a view to describing how the relevant guarantees provided by the EU legislative framework translate into national legal provisions and apply in practice. Following up on the outcomes of the descriptive analysis included in the

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[59] https://www.berec.europa.eu/en/document-categories/berec/others/berec-statement-on-nras-independence
[60] https://berec.europa.eu/en/document-categories/berec/others/new-berec-statement-on-the-independence-of-national-regulatory-authorities

study, BEREC will draw some conclusions also in terms of the impact of the detected NRAs' independence features on its own capacity, to effectively carry out the institutional tasks entrusted to it across the areas covered by the EECC and the BEREC Regulation.

Deliverable: BEREC internal workshop on features of NRAs independence

Public consultation: No

Adoption of workshop summary at Plenary 2 2023

5.3.2. BEREC Opinion on the functioning of BEREC and BEREC Office for the evaluation under Article 48 of the BEREC Regulation

Pursuant to Article 48 of the BEREC Regulation the Commission must, by 21 December 2023 and every five years thereafter, carry out an evaluation in compliance with the Commission guidelines to assess BEREC's and the BEREC Office's performance with regard to their objectives, mandate, tasks and location. The evaluation must, in particular, address the potential need to modify the structure or mandate of BEREC and the BEREC Office, and the financial implications of any such modification. Depending on the results of the evaluation, the Commission may propose that the Regulation be amended or repealed accordingly.

The Commission has to report to the European Parliament, the Council and the BEREC Management Board on the findings of its evaluation and it must publish those findings. Given the relevance of the evaluation for BEREC and BEREC Office, BEREC – also taking into account relevant exchanges with the BEREC Advisory Group (BAG) – will provide support in this exercise with its own assessment and will express its position in the form of a BEREC Opinion to the Commission.

Deliverable: BEREC Opinion on the functioning of BEREC and BEREC Office for the evaluation under Article 48 of the BEREC Regulation

Public consultation: No

Adoption of the BEREC Opinion at Plenary 2 2023 for publication

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5.3.3. BEREC report on national experiences of the implementation of the EECC

In view of the review of how the EECC is functioning that, pursuant to Article 122 of the EECC, the Commission must carry out by 21 December 2025, and considering the progress in national transposition activities, BEREC must review the national implementation status throughout the Union. It will also start considering to what extent the new electronic communications framework is enabling the achievement of the EECC's objectives and whether (a reasoned selection of) the framework's provisions are effective to that end.

The assessment will start with an NRAs workshop, 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 experiences of the NRAs, 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 2023 and 2024, as BEREC will continue providing 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.

Deliverables: BEREC Report on national experiences of the implementation of the EECC

Public consultation: No

Adoption of final report at Plenary 4 2024

Other deliverables:

Internal NRAs workshop to be held in Q3 2023

Public workshop to be held in Q2 2024

5.3.4. Article 32/33 Phase II process

Since 2014, BEREC has undertaken an annual analysis of Article 32/33 of the EECC (former Article 7/7a) Phase II cases, with the objective of gaining a better understanding of both the procedural and substantive aspects of these cases, and informing 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 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 Article 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 2023, BEREC will decide whether there is a need to conduct an internal workshop in Q4 2023.

Deliverable: Internal workshop (tentative)

Internal workshop to be held (if needed) in Q4 2023

5.3.5. Report on Regulatory Accounting in Practice

The Regulatory Accounting (RA) in Practice Report 2023 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 2023, 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 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 2023 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 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 contain a comparison of the most popular combinations of cost base and cost allocation methodologies.

BEREC will evaluate how the 2023 report will provide evidence for WACC calculation practices among NRAs, given the applicability of the WACC Notice. Depending on the evaluation result, 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 2023
Public consultation: No
Adoption of final report at Plenary 4 2023 for publication

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

Following publication of the European Commission's Notice on the WACC[61], BEREC is tasked with the calculation of various parameters of the WACC formula according to the prescribed methodology.

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[61] https://digital-strategy.ec.europa.eu/en/library/commission-publishes-notice-calculation-cost-capital-legacy-infrastructure.

In 2023 (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 NRAs to base their national WACC decisions on this up-to-date information. BEREC will also select the companies eligible for the peer group.

Deliverable: BEREC Report on WACC parameters 2023

Public consultation: No

Adoption at Plenary 2 2023 for publication

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 2023 includes all the activities for achieving these objectives.

BEREC will reinforce its dialogue with civil society to ensure that legitimate apprehensions are dealt with accordingly. 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 2023 will be the BEREC Work Programme for the following year (2024). 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 considers 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 of the European, 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 2023

The BEREC Communications Plan 2023 sets out the communications activities that are planned for the year. The objective of this is to strengthen the perception of BEREC as an impartial, independent, European, forward-looking expert body and in support of the BEREC overall strategic objectives – including promoting competition, investment and the internal market and empowering and protecting end-users.

The plan for communications in 2023 is to keep strengthening the BEREC brand through social media channels and external/internal events, launch the newly designed website, develop communications materials in collaboration with the co-chairs of Working Groups on specific topics, and continue building collaborations with internal and external stakeholders.

Several communications deliverables will also support and promote specific workstreams in the Work Programme 2023, including communications related to the Chair's message. As part of the ongoing external communications the deliverables are linked to regular BEREC events, such as public debriefings and the Stakeholder Forum. They include several specific communications activities such as the organisation of events, press releases, information for the website, production of audio-visual and digital content, running social media campaigns, and maintaining good media relations.

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 is performing to deliver on these objectives. In addition to the objectives set out in the Communications Plan, BEREC will continue to communicate around the day-to-day activities of BEREC's work, especially regarding the most relevant topics for BEREC and its members, such as BEREC's work on digital platforms, sustainability, and 5G related issues.

BEREC's Communications Plan 2023 will be finalised for internal use in December 2022 and will set out the communications activities that BEREC is committed to undertake in 2023.

6.4.   Developing the BEREC Work Programme 2024

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 2024, for which a call for input will be started in the first quarter of 2023. After preparing the final draft Work Programme, a public consultation will follow. All the steps towards the Work Programme 2024 will be in accordance with the BEREC document 'Process for developing BEREC Work Programmes'.

Deliverable: **Work Programme 2024**

Public consultation: Yes

Adoption of draft Work Programme 2024 for public consultation at Plenary 3 2023

Adoption of final Work Programme 2024 at Plenary 4 2023 for publication

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Other deliverable: Outline of the draft Work Programme 2024

To be submitted to the European Commission, the European Parliament and the Council of the European Union by 31 January 2023.

IV.   POTENTIAL BEREC WORK FOR 2024 AND BEYOND

Given the number of workstreams selected for the Work Programme 2023 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 2024 and beyond. The list of items mentioned below is therefore for information only, and should not be considered to be final. The input provided by stakeholders on these items during the public consultation in 2022 for the Work Programme 2023 will be considered when adopting a final list. Furthermore, BEREC may consider other new workstreams for 2024.

Potential work

7.1. Report on best practices for termination of contracts and switching provider

This project builds on the work done by BEREC in 2018 resulting in a report that collated information from NRAs on the approaches to switching across different communications services (BoR (19) 27[62]). The report now proposed here will analyse the different aspects that affect switching providers, considering number portability procedures, but also identifying other matters that facilitate or hinder switching. The report will focus on the national implementation of the measures provided for by Article 106 of the EECC and, among other things, will cover issues related to the details and the timing of the switching and porting processes, porting failures and switching processes for bundles, and it could also provide information for subsequent Article 123 opinions in respect to the End User Provisions.

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

Article 22(1) of the EECC establishes that NRAs and/or other competent authorities must conduct a geographical survey of the reach of electronic communications networks (GSND) by 21 December 2023. In March 2020, the BoR approved the core Guidelines on GSND, which specified the relevant data to be produced by authorities, the data definitions and their granularity (BoR (20) 42[63]).

The implementation report is meant to formally collect information on the stage of development of the national GSND, the issues faced in implementing the BEREC Guidelines and the ways in which Member States are dealing with those issues. It would also examine if/how member states have extended the information. The report should reflect on the national experiences in procuring for this information in order to anticipate future BEREC work in updating the Guidelines.

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[62] https://www.berec.europa.eu/en/document-categories/berec/reports/berec-report-on-terminating-contracts-and-switching-provider

[63]   https://www.berec.europa.eu/en/document-categories/berec/regulatory-best-practices/guidelines/berec-guidelines-to-assist-nras-on-the-consistent-application-of-geographical-surveys-of-network-deployments

7.3. Report on market definition and SMP analysis for access to physical infrastructure

Where civil engineering infrastructure exists and is reusable, effective access to such infrastructure may significantly facilitate the roll-out of very high capacity networks and encourage development of infrastructure-based competition to the benefit of end-users.

The recommendation on relevant markets published in December 2020 concluded that the definition of a separate market for physical infrastructure access (PIA) would be particularly relevant in Member States where one single operator owns a physical infrastructure network which is ubiquitous and suitable for the deployment of alternative fibre networks.

The objective of this report would be to address relevant issues to be taken into account when analysing this market, building on previous work done by BEREC in 2019 (BoR (19) 94[64]), as well as on the market analysis for PIA carried out by NRAs.

7.4. Experience sharing in relation to Articles 76, 79 and 80 EECC

This project will include an exchange of experience regarding the new tools of the EECC (e.g. co-investment, commitments, promotion of cooperative arrangements and wholesale-only operators). In the context of an internal workshop, NRAs could discuss the experiences and the consequences as regards the implementation of these tools.

7.5. Implementation of Equivalence of Inputs (EoI) by NRAs

Following suggestions from stakeholders received during the call for input regarding the Work Programme 2023, BEREC plans to look closer at the issue of EoI implementation in the relevant markets in 2024. This task is closely connected to the final shape and scope of the new Access Recommendation review, which is still ongoing.

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[64] https://www.berec.europa.eu/en/document-categories/berec/reports/berec-report-on-access-to-physical-infrastructure-in-the-context-of-market-analysis