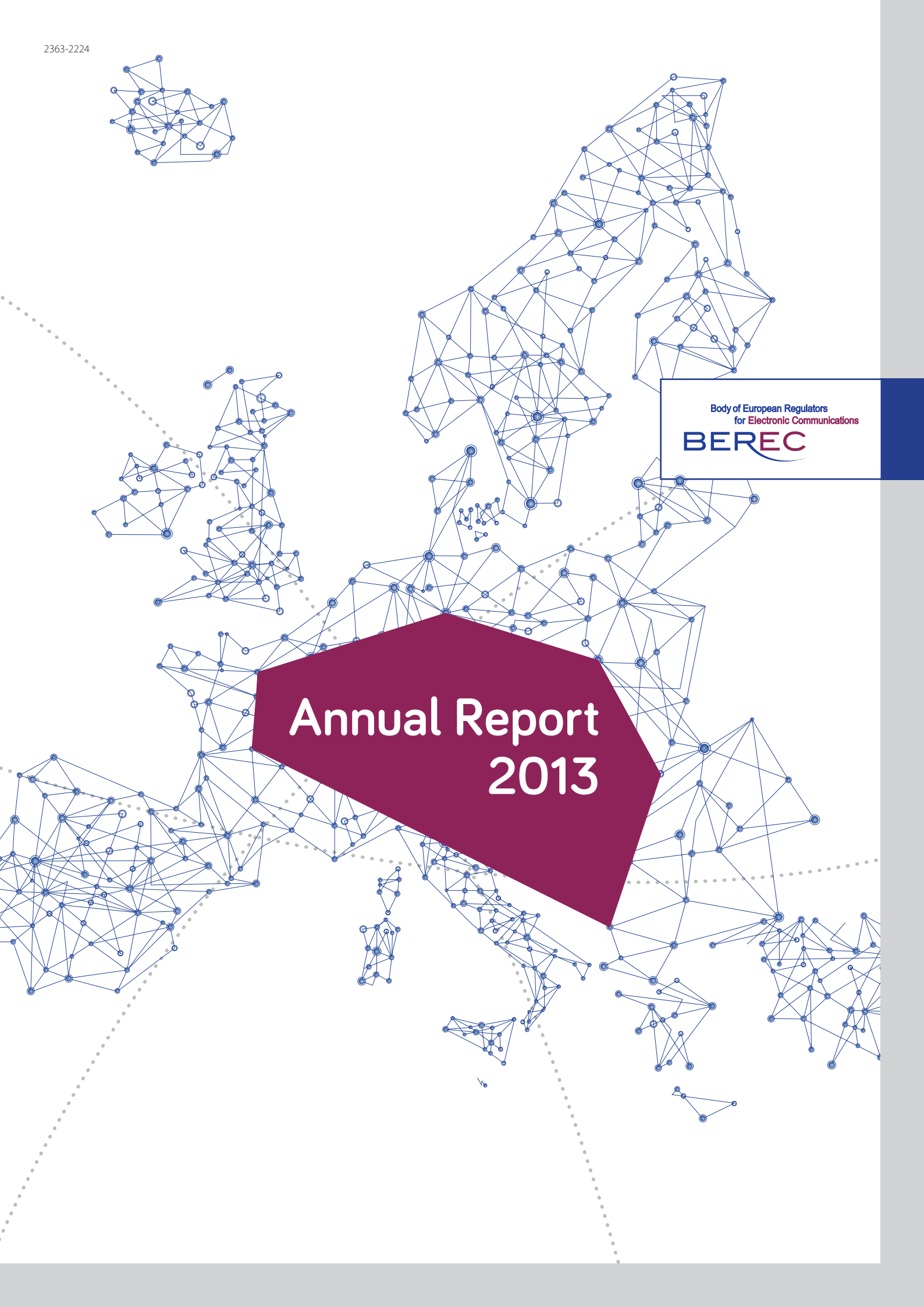



Body of European Regulators
for Electronic Communications
BEREC

Annual Report 2013





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Annual Report 2013

Body of European Regulators
for Electronic Communications

BEREC

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The background features a network diagram with grey lines connecting blue circular nodes. A large, solid maroon circle is positioned in the upper right quadrant, containing the report's title. The nodes vary in size and are distributed across the page, with some appearing as double circles.

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**Foreword by
the BEREC Chair**



Dr. Leonidas Kanellos
BEREC Chair 2013

As BEREC Chair 2013, it is my honour to present the annual report on BEREC activities for the year 2013. This report is based on the 2013 work programme, which continues the multi-annual approach started in 2011, providing a strategic outlook for the coming years. This has indeed been a challenging and highly successful year for BEREC. Through the delivery of timely and high-quality opinions, driven by our expertise and practical experience, we have contributed to the success and efficacy of important legislative initiatives by both the Commission and the Parliament. In the process, BEREC has established itself as an important, neutral and objective expert advisor for the legislative and policy-making agendas.

Before proceeding to describe the activities of 2013 in the next chapters I would like to share some highlights of the year.

Progress towards BEREC's objectives

BEREC delivered a wealth of results, advancing its objectives in the three thematic areas relating to infrastructure, consumers and services. These outputs include:

- Expert opinion on the Commission's draft Recommendation on cost orientation and non-discrimination;
- Response to the Commission's questionnaire on a proposed revision to the Recommendation on relevant markets;
- Methodology to monitor the compliance of its members with its broadband Common Positions (the monitoring itself is planned for 2014);
- Invitation to open tender for a study on 'The Value of Network Neutrality to European Consumers';
- Brief considerations on the Commission's draft Recommendation on implementing universal service for digital society;
- Update of guidelines on the Roaming Regulation (excluding Article 4 and 5 on separate sale of roaming services);
- New guidelines on the Roaming Regulation, Article 4 and 5 on separate sale of roaming services (following public consultation);
- International roaming reports including benchmarking, compliance report and tariff transparency and comparability report;
- Annual report on regulatory accounting in practice;

- Draft revised Common Position on geographic aspects of market analysis (published for public consultation);
- Response to questionnaire by MEP Mrs. Catherine Trautmann in the framework of the European Parliament's implementation report on the regulatory framework for electronic communications;
- BEREC's views on the Telecom Single Market Regulation proposal.
- Delivery of 13 Opinions on Article 7/7a Phase II cases;

Liaising with the European institutions

Our cooperation with the European institutions, the Commission, Parliament and Council, was the hallmark of BEREC's activity during the year.

I would particularly like to emphasise two actions:

- BEREC responded to a request by MEP Mrs. Catherine Trautmann, and provided its views on the functioning of the current legislative framework, including preliminary thoughts on emerging challenges and areas for improvement, in the next review. This document was prepared and adopted in a record time of 3 weeks and made an important contribution to the Parliament's implementation report on the regulatory framework for electronic communications.
- BEREC, on its own initiative and in the framework of its institutional remit, addressed the Telecoms Single Market Regulation proposal, and provided constructive comments aiming to ensure that the provisions of the proposal would serve its objectives in the most efficient manner. In my personal view, this document makes an important contribution to the legislative dialogue and supports all institutional participants in shaping their views and making effective progress towards a compromise agreement. This important intervention is set to continue in 2014 and then relay to the formal framework review.

Article 7/7a procedures

The procedures defined in Article 7/7a of the amended Framework Directive constitute one of the main innovative features of the 2009 package. Already in its first full year of operation, in 2011, BEREC responded successfully to this important role.

In 2013, the implementation of Article 7/7a Phase II procedures became part of BEREC's daily routine. During 2013 BEREC was invited to address 16 cases. BEREC responded successfully and in time for all 14 cases that required an expert opinion (two cases were discontinued following withdrawal of the relevant decision by the competent NRA). In the process, BEREC amply demonstrated its independence, supporting the Commission's serious doubts in 9 cases, while disagreeing with them in 3 cases.

Striving for openness and agility

In our quest for ever increasing openness, we have established an open and all-inclusive stakeholder dialogue initiative. Building upon our experience of 2012, we have sought to streamline and formalise the process and have organised the first stakeholder forum meeting, which took place the day before the 16th Board of Regulators (BoR) meeting (Riga, 25 September 2013). In my view, this has been an invaluable experience, worth pursuing further.

We have also introduced for the first time a midterm review of the BEREC work programme. This is a key milestone, seeking to ensure BEREC's agility in appropriately reprioritising tasks and efficiently reassigning resources to legacy and emerging tasks. It is also a cornerstone in enhancing the accountability of BEREC. The review observed the postponement of most deliverables on net neutrality as a result of important changes in the Commission plans. It also recommended postponing work on revising the BEREC Rules of Procedures, so as to free resources for more urgent work on the Telecoms Single Market initiative.

As BEREC Chair 2013, I would like to thank the participating (member and observer) NRAs for their continuing commitment, in terms of personal, active involvement in the BoR and the Management Committee of the BEREC Office, as well as for contributing invaluable expert resources to the BEREC works. The collective knowledge and expertise of all NRAs, channelled and integrated through the various working groups, is the cornerstone to BEREC's independent expert voice, for the benefit of the industry and the consumers.

On this basis, I would like to extend my thanks to all experts that participated in our various working groups and ad-hoc teams, as well as to all members of the Contact Network for contributing in the most professional manner to the effective implementation of our work programme.

I would also like to pay tribute to the staff of the BEREC Office in Riga for their administrative and professional support and for the invaluable assistance provided to the Chair and the Chair's Office throughout the year.

Closing, I would like to wish my successor, Mr. Göran Marby, every success in chairing BEREC and overseeing its further development during 2014.

Dr. Leonidas Kanellos



Annual Report 2013

PART A

Annual report on
BEREC activities in 2013



1. Introduction

This report aims to briefly present the activities of BEREC in 2013 in accordance with Article 5(5) of the BEREC Regulation.

Following the usual procedure, the annual report on BEREC activities in 2013 is based on the work streams and axes identified in the work programme for 2013. It elaborates on the work conducted by the expert working groups (EWGs) and ad-hoc teams.

In each section, following the description of the work performed during 2013, any documents produced by the relevant team are listed.

The same presentation concept is followed concerning the Article 7/7a cases.

2. Boosting the roll-out of next generation networks

2.1 Common positions on wholesale access products

In 2012, following a public consultation, BEREC adopted its revised Common Positions (CPs) listing the best practice remedies to be implemented in Markets 4 (wholesale local access), 5 (wholesale broadband access) and 6 (wholesale leased lines). Consistent with its work programme, in 2013 BEREC developed a methodology to monitor how national regulatory authorities (NRAs) have implemented the revised CPs. Through this monitoring exercise BEREC aims to gain a detailed understanding of which regulatory approaches work best for different national circumstances and also aims to inform its own harmonisation efforts. The proposed methodology – BoR (13) 108 – was approved for publication at the 16th BoR plenary meeting in Riga in September 2013.

Document:

BoR (13) 108 – Methodology for monitoring the implementation of the BEREC Common Positions on wholesale local access, wholesale broadband access and wholesale leased lines, 16.9.2013, delivered at the 16th meeting of the BoR.

2.2 Costing methodologies and non-discrimination principles for a competitive NGA environment

On 5 December 2012, the Commission published a draft Recommendation on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment and requested BEREC's Opinion in accordance with Article 19 of the Framework Directive and Article 3(1)(f) of the BEREC Regulation. Based on its responses to the questionnaires on non-discrimination and next generation access (NGA) costing methodologies, BEREC discussed a draft of its Opinion at the 14th BoR plenary meeting on 7 and 8 March 2013 in Ljubljana and issued a press release summarising the main points of the Opinion. The final BEREC Opinion – doc. BoR (13) 41 – was published on 26 March 2013. The Opinion consists of two parts, an extensive executive summary (Part 1) and a detailed technical analysis (Part 2).

BEREC shared the overarching objectives of the Commission's draft Recommendation, in particular to both promote competition and to enhance the broadband investment environment across Europe, pointing out that competition and investment reinforce each other. BEREC also agreed with the Commission's related intermediate objectives as specified in the draft Recommendation in principle:

- Providing for pricing flexibility for NGA services, if effective non-discrimination and sufficient competitive constraints are ensured;

- Ensuring predictable and stable regulated wholesale copper access prices which are also consistent with the principle of cost orientation; and
- Ensuring a level playing field between significant market power (SMP) and alternative operators through the implementation of effective and proportionate non-discrimination obligations which facilitate downstream competition.

To achieve these objectives, the draft Recommendation is built on the following central pillars:

- The NRAs need to ensure equivalence;
- The NRAs must follow key principles when implementing their costing methods;
- Competitive constraints for the non-imposition of cost orientation;
- Economic replicability.

The main points raised by BEREC in its Opinion can be summarised as follows: .

a) NRAs need to ensure equivalence

BEREC agreed with the Commission that effective non-discrimination rules are essential to create a level playing field between SMP operators' downstream businesses and third-party access seekers, thereby promoting competition. This stance is endorsed by BEREC's revised CPs adopted in December 2012 (see also section 2.1 (a) in this report). BEREC invited the Commission to clarify that the proportionality test must inform the determination of the most appropriate form of non-discrimination and that the outcome of such test should not be deemed or presumed.

b) NRAs are to follow key principles when implementing their costing methods

BEREC supported the Commission's aim of achieving stable copper prices in line with the principle of cost orientation. This can encourage efficient investment in NGA and provide a competitive safeguard to third-party access seekers, and as such is a crucial element in the proposed approach. BEREC also shared the Commission's view that copper networks will eventually be replaced by fibre (NGA) networks. However, BEREC noted that, particularly in the context of NGA roll-out, consistency over time and over the value chain within a Member State is as important for investment and market entry decisions as achieving price convergence across Member States.

BEREC and the Commission agreed that modelling approaches must be capable of adequately capturing the variety and complexity of situations across Europe. We need to avoid price instability and use of a model which is unsuitable for the network architecture in place. On this basis, BEREC considered it important not to prescribe a specific costing methodology, but to identify the key principles that any costing model should fulfil.

c) Competitive constraints for the non-imposition of cost orientation

BEREC agreed with the Commission that (wholesale) pricing flexibility has an important role to play in investment in new technology, as it enables operators to trial different pricing arrangements in the early (uncertain) period of such investments. In this context, BEREC agreed with the Commission that NRAs should consider lifting (or not imposing) cost orientation obligations when NGA wholesale access prices are sufficiently constrained (i.e. when price-related competition problems are considered to be sufficiently addressed).

BEREC also understood that the Commission is keen to reinforce the fact that the case for such pricing flexibility is particularly compelling when, in addition to the competitive constraints described above, SMP operators have also implemented equivalence of input (EOI) effectively. BEREC recognised the strength of this argument, but notes that cost orientation and non-discrimination affect the market in different ways and therefore are not necessarily substitutable. On this basis BEREC and the Commission were keen to avoid unintended consequences which might arise were the linkage between EOI and cost orientation obligations to be viewed as being automatic or specified in a way which prevents any other possible combinations of non-discrimination and cost orientation measures.

In this regard BEREC welcomed the Commission's clarification that the conditions listed in the draft Recommendation under which NRAs should consider lifting cost orientation obligations describe only one of several possible scenarios and that subject to proportionality considerations, other outcomes are also possible.

BEREC and the Commission are also aligned in their objective to prevent certain behaviours by SMP operators which - in order to secure price flexibility - commit but ultimately fail to deliver an effective and timely EOI framework. Such behaviours would undermine the objectives of ensuring a level playing field and enhancing investments in NGA networks.

In order to mitigate the risk that an EOI obligation could ex-post confer an anticompetitive first mover advantage on SMP operators, BEREC invited the Commission to make clear in the final Recommendation that, in circumstances where an NRA has already imposed an obligation of cost orientation on NGA products, it has discretion over the timing of the lifting of that obligation in order to ensure that there is no harm to competition arising from the disruption of existing access agreements. Conversely, where an NRA had not imposed a cost orientation obligation and the SMP operator fails to meet a pre-specified EOI milestone, the NRA should be entitled to consider reintroducing cost-orientation (i.e. without the need for a further market analysis) or indeed to impose penalties.

d) **Economic replicability**

Competitive constraints may not always be sufficient to prevent the use of anti-competitive strategies by SMP operators, such as engaging in a margin squeeze (setting inappropriate price differentials between their wholesale and retail (NGA) products). BEREC agreed with the Commission that it might be appropriate to address these concerns through the application of an ex-ante economic replicability test, aimed first and foremost at preventing abusive pricing behaviour by ensuring that alternative operators can replicate the most relevant NGA offers of the SMP operator.

BEREC invited the Commission to clarify in the final text of the Recommendation that the scope of the ex-ante economic replicability test to be applied in these circumstances is without prejudice to the margin squeeze tests that NRAs already implement, and that this Recommendation would therefore not limit NRAs' ability to continue to conduct such tests.

With regard to the standard to be applied, BEREC agreed with the Commission that an economic replicability test based on an equally efficient operator (EEO) standard has the considerable merit of providing investing SMP operators with predictability (which is best achieved by taking into account their own downstream costs). At the same time, there may be justifiable reasons for departing from a strict EEO standard; for example, dynamic efficiency and for the promotion of competition. BEREC would therefore welcome explicit clarification in the final Recommendation that NRAs can make adjustments to the EEO standard in certain market circumstances to ensure that economic replicability is a realistic prospect and therefore that, while EEO may be the starting point for assessment, there may also be circumstances in which a reasonably efficient operator (REO) standard is appropriate in relation to economic replicability.

Concluding its Opinion, BEREC stated that it is committed to the objectives of the regulatory framework, namely the promotion of efficient investment in NGA networks and competition, including through ensuring regulatory predictability.

Document:

BoR (13) 41 – BEREC Opinion on Commission draft Recommendation on non-discrimination and costing methodologies to promote competition and enhance the broadband investment environment, 26.3.2013, approved by electronic voting.

2.3 Effective regulation in an NGA environment

In 2013, four internal next generation network (NGN) EWG workshops were held. Two of them were geared to answer specific questions arising from the implementation of specific technologies or architectures; namely, one on vectoring and one on Layer 2 bitstream.

a) **Workshop 1: Vectoring**

Vectoring can be briefly described as a technology that cancels cross-talk between copper lines. Cross-talk otherwise impacts negatively on the available bandwidth. Cross-talk between lines can be calculated and compensated for by injecting an anti-noise signal (like anti-noise earphones). The lowering of noise results in a more usable signal creating a significant bit rate increase. On an operational level, and to make it work, a vectoring-friendly/compliant CPU is required as well as anew vectoring processing cards facility .

In 2013, only a limited number of NRAs had proceeded to regulatory decisions or consultations regarding vectoring. During the EWG workshop on 18 April 2013, country cases were presented by ACM, AGCOM, BIPT, BNetzA, COMREG and EMC.

These decisions were compared with regard to different categories such as roll-out and market situation focusing on the following:

1. LLU/SLU (Local Loop/Sub loop Unbundling) penetration,
2. SLU (Sub loop Unbundling) demand,

3. MDFshutdown,
4. ducts, and
5. the role of cable.

The vectoring (draft) decisions were clustered according to specific procedural questions, including:

- In what way is the obligation for SLU lifted?
- Under which conditions would the refusal of first-time SLU be allowed?
- Is termination of existing SLU foreseen and if so under what circumstances?
- What announcement and monitoring provisions are foreseen?
- Do the NRAs have the possibility to oblige an Alternative Network Operator (ANO) to provide Layer 2 access products in case it intends to apply vectoring?
- What pricing/standard offer procedures are foreseen for the Layer 2 access product?
- What are the conditions for reviewing the general lifting of the SLU obligation?

The open issues identified included the question of when node-level vectoring (different DSLAMs) with different vendors will become available. Relevant standardisation does not seem foreseeable in the near future.

Furthermore, there is continuous discussion on the evaluation of vectoring versus FTTH roll-out. Vectoring qualifies as an intermediate solution but allows a quicker roll-out with lower investment cost.

b) **Workshops 2 and 3: Emerging challenges in NGA roll-out at EWG and plenary level**

Two workshops were held to discuss the fundamental issues of how a regulation needs to be developed to ensure competitive markets in an NGA environment. These were an internal EWG workshop and another workshop held just prior to the 15th plenary meeting of the BoR in Athens (6 and 7 June 2013), facilitated by the previous work of the EWG.

A number of country case studies were used as working material to discuss general principles.

The role of utilities and local authorities was identified as an important factor for local competition in some Member States.

The matter of how synergies between telecommunications and other infrastructures such as energy and/or water can be exploited was also discussed. In this context, the role of infrastructure mapping initiatives was further elaborated. Another issue raised was whether symmetric regulation could be considered as an appropriate response to a more localised roll-out of NGA. Further to that, it was also noted that access obligations are also being implemented through state aid measures. Therefore consistency between access obligations following SMP regulation and the state aid guidelines may need to be addressed. The workshop came to the following considerations:

- The investment ladder can still be used in an NGA environment; however, NGA makes stepping up more difficult. In some cases a kind of Layer 2 access product might turn out to be the highest rung. This evidence is likely to differ between countries as well as within the same country;
- There seems to be evidence that the activity of municipalities positively correlates with FTTH roll-out. Fibre deployment is encouraged by upfront commitments as well as upfront payments;
- After a rather long period characterised by a large gap between penetration and take-up in most Member States, there has recently been an increased take-up rate of high-bandwidth access lines in some Member States;

The picture continues to be diverse within and between Member States. This applies both to demand-side factors (take-up rate, willingness to pay, etc.) as well as to supply-side factors such as the number of competitors (depending on whether cable and/or municipalities/utilities and technology mix (FTTB/H and/or VDSL with or without vectoring) play a role).

BEREC remains convinced that following the fundamental principles of the regulatory framework, namely promoting effective competition and regulatory predictability, provides incentives for efficient investment for the benefit of European citizens, and is the best way to facilitate the transition towards NGA. Given however that competition is the best driver for efficient investment, BEREC needs to consider how this can best be achieved in an environment with NGA economics.

c) Workshop 4: Layer 2 – Bitstream products

During recent years, a number of NRAs have imposed the introduction of (active) Layer 2 (Ethernet) wholesale access products (Layer 2 WAP) on Market 4 (wholesale local access) and Market 5 (wholesale broadband access).

During the workshop in September 2013 country cases were presented by Austria, Belgium, Germany, Italy, Spain and the United Kingdom.

Presentations were made concerning basic characteristics of the product shared by all the specifications based on Layer 2 Ethernet technology which enable the alternative operators to provide a variety of services (including voice, internet and IPTV) with the necessary level of quality.

It is clear that certain products require local handover (e.g. products known as VULA) while some foresee a requirement at higher levels of the network hierarchy, i.e. regional handover (also known as enhanced bitstream).

However, apart from the general considerations, each product specification usually varies quite a lot regarding the pricing structure, the VLAN concept, overbooking possibilities, quality of service performance targets, customer identification and security measures.

Most of the Layer 2 WAP have only been imposed or implemented recently and are in most cases not yet widely used by alternative operators.

2.4 Geographical aspects of market analyses

In October 2008, the European Regulators Group (ERG) adopted a CP on geographic aspects of market analysis ⁽¹⁹⁾. The CP explored under which circumstances a geographically differentiated approach to market analysis (definition and remedies) could be deemed appropriate and how this approach could be implemented. In general, the main ideas initially expressed in the CP seem to maintain their relevance and adequacy in relation to copper-driven competition. However, since the adoption of the CP in 2008, there have been several developments. Basically, a further increase in the coverage of networks and operations of alternative providers has taken place, mainly because of: i) increased unbundling of the copper access networks of the incumbents, ii) increased importance of technologies other than xDSL (cable, Wi-Fi, mobile broadband, etc.) and iii) development of high-speed fibre networks (NGA roll-out). Moreover, there have been some Phase II cases launched by the Commission related to the geographical scope of the markets.

Considering this context, BEREC carried out a review on its CP during 2013, taking into account these developments in the market, as well as feedback received by NRAs from the Commission on Phase II cases. This reviewed CP has been published for public consultation in December 2013 and the final CP is to be published in 2014.

This reviewed CP includes among other issues relevant guidance on geographical segmentation coming from notified cases and Commission comment letters, a review on the relevant criteria for geographical analysis giving special importance to the changes that a NGA roll-out could imply for market definition, a list of relevant aspects to be considered to adopt a geographical approach based on competitive conditions, as well as a discussion on possible ways to deal with different competitive situations, regarding remedy differentiation in particular.

Document:

BoR (13) 186 – Draft review of the BEREC Common Position on geographical aspects of market analysis (definition and remedies), 5.12.2013, launched for public consultation following the 17th meeting of the BoR.

3. Consumer empowerment and protection

3.1 Net neutrality

Over the previous years, BEREC has built up comprehensive expertise on net neutrality, which describes the principle of equal treatment of network traffic. In 2012, BEREC investigated the areas of traffic management, quality of service, differentiation practices and IP interconnection. Based on these works, BEREC identified a set of principles and regulatory objectives.

⁽¹⁹⁾ ERG (08) 20 – Common Position on geographic aspects of markets.

In 2013, BEREC recalled its commitment to the open internet and continued its work on net neutrality, closely monitoring market evolution, seeking to ensure that NRAs are able to respond effectively to related developments and contributing its experience to policy-making initiatives.

a) **Response to policy-making initiatives**

BEREC had initially expected that the Commission would publish a draft Recommendation on net neutrality, possibly addressing traffic management, transparency, quality of service, etc. BEREC noted that the Commission decided to issue a draft Regulation laying down measures concerning the European single market for electronic communications ⁽²⁰⁾, which tackled a number of topics, including net neutrality. BEREC provided an assessment ⁽²¹⁾ of the draft provisions, expressing appreciation for the Commission's efforts to come to grips with one of the most challenging new regulatory arenas, and noted that the approach introduced by the Commission was broadly in line with the principles and analysis developed by BEREC on net neutrality. BEREC also underlined the risks associated with some concepts which remained unclear in a framework which was turned into a more rigid system, and called for significant changes.

b) **Monitoring quality of service – Practices and platforms**

The previously published framework and guidelines on quality of service have pointed out that monitoring of internet access services (IAS) is needed to perform a detailed assessment of degradation of service. In this context, NRA experts were eager to share their experiences and improve their analysis of the different options for measurements. In 2013, BEREC prepared a draft report on monitoring the quality of IAS in the context of net neutrality, to be submitted to public consultation in 2014. The report establishes a basis for the creation of monitoring systems to provide transparency for end-users and ensure regulatory supervision with regard to potential degradation of service.

c) **Study on consumers' incentives and market forces driving net neutrality developments**

After conducting a theoretical assessment of the impact of differentiation practices, and after investigating the actual practices, BEREC identified the need to understand the reasons for the different traffic management responses of ISPs to similar technical, legal and market constraints, to examine how consumer expectations and market dynamics are reflected in practice in retail offers, and to measure the role and impact on net neutrality of competition, transparency and the ability of consumers to switch easily. BEREC developed an analytical approach to these questions by conducting research and circulating a questionnaire among NRAs, and prepared the launch of an external study to assess the value of net neutrality to consumers. An invitation to tender was issued by the BEREC Office ⁽²²⁾. In 2014, the first results of the study will be released.

d) **Other topics**

In 2013, BEREC continued its follow-up task on transparency, as its effective implementation is a cornerstone and a prerequisite to net neutrality. As planned in the 2013 work programme, BEREC also considered launching a new investigation into traffic management practices. Given the policy developments and the debates on the proposed draft Regulation, it was preferred to wait for the stabilisation of the policy-making process before continuing these works in a clearer context.

3.2 Universal service

In March to May 2010, BEREC participated in the consultation on universal service principles in ecommunications conducted by the Commission and also provided an input and Opinion on 25 April 2012 on the Commission's communication on universal service in e-communications of 23 November 2011.

On 14 February 2013 the Commission's Directorate-General for Communications Networks, Content and Technology (DG Connect) invited BEREC to provide technical comments on a 'draft Recommendation on implementing universal service for digital society' by 11 March 2013.

⁽²⁰⁾ COM (2013) 627 – Regulation of the European Parliament and of the Council laying down measures concerning the European single market for electronic communications and to achieve a connected continent.

⁽²¹⁾ BoR (13) 142 – BEREC views on the proposal for a Regulation 'laying down measures to complete the European single market for electronic communications and to achieve a connected continent'.

⁽²²⁾ 2013 BEREC OT 02 – Invitation to open tender The Value of Network Neutrality to European Consumers, 13.12.2013.

Also considering the mentioned background activity, BEREC welcomed the opportunity to provide further input.

On 20 February 2013 the EWG drafters concluded the final version of the 'Brief considerations on the Commission's draft Recommendation on implementing universal service for digital society'. Following the BoR approval in the 14th meeting of the BoR, the document – BoR (13) 27 – has been communicated to the Commission by the BEREC Chair.

The document is generally confined to technical comments – without discussing the ultimate purpose of the issues specifically considered in the draft Recommendation – also taking into account that, as referred by the DG Connect, the Commission document is based on Article 292 of the Treaty on the Functioning of the European Union (TFEU), which does not require a formal Opinion from BEREC.

BEREC considered that the proposed draft Recommendation could be refined in such a way so as not to limit the policy decisions of Member States in relation to universal service, namely its financing, which according to the provisions of the Universal Service Directive is clearly a matter of national competence. BEREC also considered it important that the Commission ensure respect for the subsidiarity principle enshrined in the Universal Service Directive and in the TFEU, allowing Member States to exercise their competences, taking into account specific national conditions.

Finally, while recognising the utility of some harmonisation regarding universal service designation procedures, cost assessment methodologies, definition of unfair burden and financing issues, BEREC highlighted the fact that a considerable number of Member States and NRAs have already taken important decisions in this regard and that the application of the final Recommendation to those decisions, explicitly in contravention with the options provided in the Universal Service Directive, are to be avoided to promote an environment of legal certainty.

Document:

BoR (13) 27 – Brief note on the Commission's draft Recommendation on implementing universal service for digital society, 4.3.2013, delivered at the 14th meeting of the BoR.

3.3 Supporting end-users with disabilities

In 2013, BEREC organised the **BEREC accessibility workshop** which was held in Brussels on the 15 October 2013. It aimed to discuss the accessibility challenges from the end-users' perspective and the role of regulators and service providers in promoting accessibility, and also to present initiatives by manufacturers for improving accessibility for disabled end-users.

Speakers from the European NRAs, the Commission, the manufacturing industry, operators and user groups presented information on different aspects and proposed measures for the accessibility of electronic communications services for disabled users. The key issues were statistics, praxeology, standardisation, assessable applications and training.

The following topics were presented and discussed:

- The need to make the European emergency number 112 available via other means than voice in all EU Member States;
- The opportunity to resort to structural funds to address accessibility issues;
- More attention to research and development centred around disability issues needs to be given within Horizon 2020;
- The next steps regarding the Accessibility Act;
- Results of research developed by the Commission.

The main conclusions from the workshop focused on the roles of regulators and service providers as well as initiatives by the manufacturers, and finally the accessibility challenges from an end-user's perspective. More precisely:

a) **The role of regulators in improving accessibility for disabled citizens:**

- Making their facilities, websites, complaints procedures and consultation procedures more accessible;
- Providing adequate information, for instance specific consumer guides, to users with disabilities;
- Monitoring whether equivalent access and choice are a reality for disabled consumers;
- Commissioning research and developing awareness with regard to disability issues;
- Listening actively to the disability and consumer associations and keeping track of the evolution of their needs, be it in a formal or less formal fashion.

In this context, the BEREC report on ensuring equivalence in access and choice for disabled end-users – BoR (10) 47 Rev1 – may be considered, inter alia, a guide for NRA action.

- b) **The role and the drivers of service providers in promoting accessibility for disabled end-users:**
 - Being close to the end-user is key to promoting accessibility;
 - Strategic partnerships with producers of applications are essential;
 - Innovations in the accessibility areas and launched by small-scale operators;
 - Accessibility of all their stores and physical areas, customer service, online services, calling plans and packages, products and services;
 - Promoting accessible services.
- c) **Initiatives by manufacturers to gain further accessibility:**
 - Creating user-friendly information regarding equipment characteristics to facilitate consumer choice, considering the specific special needs associated with each disability;
 - Ensuring close cooperation between equipment manufacturers and broadcasters;
 - Overcoming barriers associated with scarce consumer demand, market fragmentation and failure to connect with innovative technology.
- d) **Accessibility challenges from an end-user's perspective:**
 - Exploiting the full potential of new technologies and applications and finding new uses for old technologies;
 - Improving website accessibility, design for all, interoperability, availability and affordability of equipment, services and applications;
 - Ensuring the same levels of usability as for other users.

3.4 Measures to deal with fraud and misuse of numbers

In 2013 BEREC finalised its work related to measures to deal with fraud and misuse of numbers to give guidance to EU Member States on the application of Article 28(2) of the Universal Service Directive.

Following a public consultation launched in 2012, the final guidelines were published in March 2013. The guidance paper highlights the background to fraud or misuse and its potential impact on end-users. Moreover, it specifies the objective of Article 28(2) of the Universal Services Directive, the impacts on end-users and the specific incentives of stakeholders. Finally, the paper outlines a BEREC process for cross-border regulatory cooperation in the intervention by regulators or other relevant national authorities in cases of fraud or misuse.

Documents:

BoR (13) 36 – Article 28(2) Universal Service Directive: a harmonised BEREC cooperation process – Consultation Response Analysis, 7.3.2013, delivered at the 14th meeting of the BoR;

BoR (13) 37 – Article 28(2) Universal Service Directive: a harmonised BEREC cooperation process – BEREC guidance paper, 7.3.2013, delivered at the 14th meeting of the BoR.

4. Services: boosting the internal market

4.1 International roaming

Prices for international roaming services have substantially declined, mainly due to the price caps specified in Regulation EC 531/2012 (Roaming Regulation III), which includes glide paths for wholesale and retail prices. New provisions in Roaming III include wholesale access obligation (both direct and resale) for mobile network operators (MNOs), as well as the obligation to sell roaming services separate from domestic mobile services. These obligations focused on increasing competition and lowering prices in the medium term.

In light of this, the international roaming EWG continued to work on the significant changes introduced by the Roaming III Regulation. Therefore the year 2013 marked a close cooperation between various parties involved in the international roaming business, including the Commission and stakeholders, with the aim of creating the technical specifications that were required to fulfil the provisions of the Regulation, as well as developing guidelines on the application of

Roaming Regulation III. In addition, BEREC published several reports contributing to further developing competition in the international roaming market.

a) **Update of general guidelines on the Roaming Regulation**

Roaming Regulations I and II were accompanied by guidelines from the predecessor of BEREC, the ERG. An update of these guidelines was required as Roaming Regulation III incorporates some relevant changes. Therefore the most significant changes that relate to transforming the structure of the international roaming market (separate sale of roaming services provisions) are dealt with in separate and much more specific documents (see next sub-section). The updated guidelines replace the ERG guidelines on Roaming Regulation II.

The guidelines are of a general nature and designed to explain the provisions specified in the Regulation. As such, the guidelines are complementary to the provisions specified in the Regulation and they are not to be understood as an official legal interpretation of those provisions. The changes in the updated guidelines were mainly editorial and to clarify wording for most of the guidelines. Substantive changes were only made to take account of new provisions, such as the retail data caps and the application of the transparency measures outside the EU EEA area. The BEREC general guidelines were published at the beginning of March 2013.

Document:

BoR (13) 15 – BEREC guidelines on Roaming Regulation (EC) No 531/2012 (Third Roaming Regulation) (excluding Articles 3, 4 and 5 on wholesale access and separate sale of services), 25.2.2013, delivered at the 14th meeting of the BoR.

b) **Guidelines on implementing the decoupling obligations**

In addition to the obligation to grant access to wholesale roaming agreements for MNO, mobile virtual network operators (MVNO) and resellers (for which BEREC developed specific guidelines in 2012 ⁽²³⁾), the Regulation also requires domestic providers to enable their customers to access international retail roaming services by any alternative roaming provider (ARP) without changing their mobile phone numbers. Furthermore, domestic providers and ARPs may not prevent their customers from accessing data roaming services provided directly on a visited network. The detailed rules on the general obligations specified in the Regulation were specified in an Implementing Act published by the Commission.

The work on these guidelines was split into two related work streams:

A cooperation platform (stakeholders' forum) initiated by the Commission and chaired by BEREC was established to define the technical characteristics of interfaces to be provided to ARPs (the standards to be used, processes, etc.). Participants in the stakeholders' forum included MNOs, MVNOs, software companies, vendors of mobile equipment, standardisation bodies, etc. The coordination of the stakeholder forum was managed by the Steering Committee chaired by BEREC. The set of documentation agreed in this cooperation platform has been adopted by the European Telecommunications Standards Institute (ETSI) and it will be used as a reference by domestic and alternative roaming providers to implement these decoupling interfaces.

At the same time, BEREC prepared a set of specific guidelines on the separate sale of international roaming services which were published at the beginning of July 2013. These guidelines include feedback received from operators in the cooperation platform and clarify certain issues in the Regulation for these new provisions.

Documents:

BoR (13) 53 – Consultation on the BEREC guidelines on the separate sale of regulated retail roaming services and the implementation of separate sale of regulated retail roaming services under Article 4 and 5 of the Roaming Regulation, launched for public consultation on 14.5.2013 following electronic voting;

BoR (13) 54 – Draft BEREC guidelines on the separate sale of regulated retail roaming services and the implementation of separate sale of regulated retail roaming services under Article 4 and 5 of the Roaming Regulation – launched for public consultation on 14.5.2013 following electronic voting;

BoR (13) 81 – Summary of responses received during the public consultation and BEREC view on issues raised by stakeholders on BEREC guidelines on Roaming Regulation (EC) No 531/2012 (Roaming Regulation III) (Articles 4 and 5 on separate sale of roaming services), 5.7.2013, approved by electronic voting; BoR (13) 82 – BEREC guidelines on the application of the Roaming Regulation (EC) No 531/2012 regarding Articles 4 and 5 on the separate sale of roaming, 5.7.2013, approved by electronic voting.

⁽²³⁾ BoR (12) 107, BEREC Guidelines on the application of Article 3 of the Roaming Regulation - Wholesale Roaming Access, 27.09.2012

c) **Monitoring compliance with the Roaming Regulation**

BEREC regularly monitors compliance of the mobile operators with the legal provisions and publishes its findings. This compliance report is the third of its kind. The first two compliance reports were directed at monitoring compliance with Roaming Regulation II. BEREC designed a detailed questionnaire for market players to take account of the legal obligations specified in the Regulation, leaving out the obligations for the separate sale of roaming services, which are to be addressed only by 1 July 2014. In addition to the MNOs and MVNOs, the NRAs also supplied valuable input as they reported infringement cases or disputes between operators.

The report showed an overall high level of compliance with the legal provisions such as granting wholesale roaming access to other MNO, MVNO and resellers, availability of wholesale and retail roaming tariffs to access seekers and customers, or transparency and bill-shock requirements. NRAs were recommended to closely monitor compliance in those areas where operators did not comply with the legal provisions.

Document:

BoR (13) 126 – BEREC International Roaming Compliance Report (Regulation (EU) No 531/512 of the European Parliament and of the Council of 13 June 2012 on roaming), 30.9.2013, delivered at the 16th meeting of the BoR.

d) **Monitoring transparency and comparability of international roaming tariffs**

In accordance with to the Roaming III Regulation, BEREC is responsible for regularly monitoring the transparency and comparability of roaming tariffs, and presenting the findings in a report to be produced once a year. Basically, the objective of this report is to monitor and increase consumer awareness in the light of the variety of roaming tariffs as well as to increase transparent market conditions and the ability for customers to make well-informed decisions. To this end, the report addresses two key questions of whether information on prices and tariffs conditions was made available in a clear and convenient way and whether consumers were able to compare those tariffs. Operators and regulators were asked several questions revolving around these two key issues.

The findings show that the roaming market is transparent despite the large variety of roaming tariffs, and tools for comparing roaming tariffs are available in some cases. Therefore, the report also discovered certain areas that could be improved; for instance a much more widespread availability of comparison tools for comparing the Eurotariff and alternative roaming tariffs as well as provision of more information and tools for consumers to estimate data traffic consumption.

Document:

BoR (13) 185 – BEREC Report on Transparency and Comparability of International Roaming Tariffs, 5.12.2013, delivered at the 17th meeting of the BoR.

e) **International roaming benchmark data**

Further to the monitoring tasks, BEREC also regularly monitors the retail and wholesale roaming prices for voice, SMS and data services as well as the volumes and revenues generated by the mobile operators across the EU EEA area. These benchmark data reports are widely acknowledged by the relevant stakeholders and are used by the Commission to review the Regulation. BEREC published the 10th benchmark report in March 2013 and the 11th benchmark report in September 2013.

Documents:

BoR (13) 05 – International Roaming BEREC Benchmark Data Report January 2012 – June 2012, 28.1.2013, approved by electronic voting;

BoR (13) 125 – International Roaming BEREC Benchmark Data Report July 2012 – March 2013, 30.9.2013, delivered at the 16th meeting of the BoR.

4.2 Authorisation regime for cross-border providers

In 2013 BEREC continued its work around the implementation patterns of the general authorisation regime and relevant best practices in the EU, still focusing on national administrative requirements and their relation to the promotion of cross-border electronic communication services and, in turn, the single market.

As requested by several stakeholders as well as the Commission, BEREC worked on some practical tools to ease the administrative requirements associated with market entry and, for the sake of transparency, published in January a user-friendly table outlining the national administrative regimes in force for the provision of electronic communications networks and services (ECNS); i.e. the fulfilments envisaged nationally for the commencement of activity as an ECNS provider.

BEREC also started considering additional interventions and particularly on the possible definition of a common notification template for operators to deliver to the relevant NRA. This reflection has then been conveyed within the wider scope of BEREC's investigations into the Telecom Single Market legislative initiative, bearing specific proposals on the matter.

Document:

BoR (13) 03 – General authorisation regimes in EU Member States, 18.1.13, follow-up of BoR (11) 56 – BEREC report on the impact of administrative requirements on the provision of transnational business electronic communications services.

4.3 Quality and consistency of regulatory decisions

In 2013 BEREC continued to promote the quality and consistency of regulatory decisions. This work focused mainly in delivering timely and high-quality Opinions on Article 7/7a Phase II cases.

BEREC addressed 16 Article 7/7a cases. Among these, 9 cases concerned fixed and mobile termination (7 and 2 cases, respectively), while 5 cases concerned wholesale broadband access and/or wholesale local access. The remaining two cases concerned the wholesale market for terminating segments of leased lines (Market 6, one case) and access to the public telephone network at a fixed location (Market 1, one case).

During 2013, BEREC issued 13 Opinions on the above cases (1 Opinion was issued during 2014 while 2 cases were withdrawn by the competent NRAs).

In the majority of cases (9), BEREC considered the Commission's serious doubts to be justified or mostly justified. In 3 cases BEREC considered the Commission's serious doubts to be not justified. Finally, in one case, BEREC supported the overall approach of the NRA but recommended that a closer examination of certain elements was required before a final decision.

The specific cases addressed by BEREC during 2013 and the main conclusions of BEREC's Opinions are outlined in section 3.

4.4 Machine-to-machine services

In 2013 BEREC started its investigations into the machine-to-machine (M2M) market, looking at the perimeter and size of such phenomena and reflecting on the main regulatory challenges posed by the take-up of M2M services, in terms of possible regulatory barriers to their development (such as their current treatment with regard to authorisation-related obligations, availability of necessary scarce resources and portability) as well as any loopholes in the current framework. BEREC preliminarily concluded that there is no need, for the time being, for urgent regulatory intervention, considering that the market is still emerging, but that it should be monitored.

BEREC also shared its own preliminary reflections on the matter with stakeholders during a public workshop held on 19 November, attended by speakers from NRAs, the Commission, the manufacturing industry, operators, standardisation organisations, academics and user groups. During the workshop, M2M development trends were discussed, together with the potential obstacles to their development and any need for public intervention.

4.5 Benchmarking

a) Benchmarking on MTR, FTR and SMS

Following up the work started by the ERG, BEREC has been collecting and publicly reporting information on mobile termination rates (MTRs), while data collection about fixed termination rates (FTRs) and SMS termination rates (SMS TRs) started in 2011.

The TR benchmarking exercises have been developed in close cooperation with the Commission/Communications Committee (COCOM), and from 2013 the Commission has made use of the BEREC TR data in its annual publications on the telecom industry in Europe (DAS).

In 2013, BEREC again collected TR data from its members (MTRs and SMS TRs on a six-month basis and FTRs on annual basis) to monitor the evolution termination rates, termination volumes and information on the regulatory mechanism used in their determination.

In particular, in 2013 BEREC published the following TR benchmarks:

Documents:

BoR (13) 60 – Termination rates benchmark snapshot (as of January 2013): Integrated report on mobile termination rates and SMS termination rates and FTR, 27.5.2013, delivered at the 15th meeting of the BoR;

BoR (13) 178 rev2 – Termination rates benchmark snapshot (as of July 2013): Integrated report on mobile termination rates and SMS termination rates, 22.11.2013, delivered at the 17th meeting of the BoR.

a) Revenue indicators in relation to bundled services

BEREC produced an internal report on revenue indicators in relation to bundled services to improve the international benchmarking of national revenue statistics and their derived indicators.

It is generally recognised that revenue statistics together with subscription numbers are the cornerstone of the statistical datasets collected by different NRAs. This information is necessary for NRAs to carry out their tasks effectively but also serves to fulfil data requests from supranational agencies. In particular, the Commission collects revenue data from all NRAs yearly in the context of the digital agenda scoreboard.

The growth of bundled sales across the EU has challenged NRA statistical systems, and, in particular, has had an impact on the ways in which different NRAs categorise revenues. Traditionally, individual service categories such as fixed telephony, mobile telephony, fixed broadband and others were used. Nowadays using these definitions entails the need to allocate any bundled revenues into the different categories. If there were differences in allocation methodologies, this would raise the question of data comparability and accuracy.

Moreover, the Commission is at an inflection point. Whilst most NRAs continue to use traditional categories to organise revenue information, a few have changed their data gathering and publication methods and have resorted to more aggregate categories or considered bundled service revenue separately.

A lesson learnt from the work undertaken by BEREC's benchmarking expert group is that the incidence of bundling on national markets varies substantially, and that in addition there are important differences in the uses of revenue statistics by NRAs. Therefore, it is reasonable for each authority to solve the trade-off between maintaining the continuity of revenue time series in statistical systems and having meaningful indicators at its own pace, taking its needs into account and confronting its own market circumstances.

To produce the report, information was collected during the first quarter of 2013 from all EU NRAs. A questionnaire was circulated looking into the definitions of bundles used by NRAs, the manner in which information on revenues is sourced from operators, the ways in which bundled revenues are categorised, the methods used to allocate bundled revenues to individual services and the way in which revenue and revenue-related information is used by different NRAs. During different meetings throughout the year experts debated the questionnaire results and ways in which to improve the comparability of international revenue indicators. The BEREC report draws on the data collected with the questionnaire, establishing some conclusions and reflecting the experts' views.

Not surprisingly, given the influence of the Commission's definitions on NRA statistical systems, a focal point of the document is the Commission's guidance principles on how the allocation of bundled revenues should be applied (digital agenda scoreboard). The idea behind these tiered principles is that the allocation should reflect the value of each bundle component to the customer, and that this value is best approximated by the stand-alone price. The principles are quite general, which is a positive thing in that it enables their use across countries and operators. However, the other side of the coin is that this allows for some leverage in the allocation of revenues, which implies that there is less of a guarantee that bundle revenue allocation is carried out in a similar way across countries.

First, the document recognises the trade-off between the need for any methodology to be applicable throughout services and countries and how strict such a methodology may be. Already, in some cases, operators have stated that they were unable to apply the Commission's principles. Therefore, a full prescriptive methodology may be generally non-applicable, but the document identifies ways in which the Commission's principles could be made more stringent.

Second, the document identifies that a good number of NRAs were not providing guidance to their operators about how to perform the bundle revenue allocation, and recommends that all NRAs issue the Commission's or compatible principles as guidance in their revenue formularies. The Commission's principles are meant for the entire EU, but in many cases an NRA may find that, in light of the characteristics of its retail markets, it is possible to modify the Commission's principles to make them more relevant and useful to its national operators.

Finally, given that NRAs have only just started to react and adapt their statistical systems to recognise bundles, the document recognises that this is a timely opportunity for NRAs to coordinate themselves so that revenue data are more comparable in the future. However, formulary changes should not be suggested prematurely as this may disrupt data collection. One should also take into consideration the costs that those changes may impose on operators as main data providers as well on NRAs, which would need to adapt their information systems for data collection.

4.6 Regulatory accounting in practice report

The Regulatory accounting in practice report 2013 provided 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. The report is prepared annually and updates the previous versions published since 2005.

The first chapter of the report separately analyses the markets listed in the 2007 Commission Recommendation on relevant markets susceptible to ex-ante regulation (2007/879/EC) and those listed in the 2003 Recommendation on relevant markets susceptible to ex-ante regulation (2003/311/EC).

This year's report layout follows the restructuring done in 2010 to perform a deeper analysis that concentrates on the following four key wholesale markets: wholesale line rental, unbundled access, broadband access and leased lines terminating segments. Moreover, an analysis is given of the cost base and accounting methodologies used for fixed and mobile termination markets. For those markets it contains a comparison of the most 'popular' combinations of cost base and costing methodologies (namely CCA/LRIC).

The data collected for this year's report are updated to May 2013. They have been compared, where possible, with data collected each year from 2006. To enrich the report, the data collection started in 2012 was continued with regard to the depreciation method used for regulatory accounting purposes by NRAs.

Moreover, this year the data collection includes two additional themes:

- accounting information for some products in Market 4, such as copper access (including LLU, SA, SLU), fibre access (LLU, VULA), dark fibre access, duct access;
- the reasons that induced NRAs to choose a particular costing methodology for the markets listed in the 2007 Commission Recommendation.

As last year, structural data influencing the civil engineering costs have been collected and analysed to show differences in terms of topography, geology and geography between countries.

Finally, an Annex summarising the results on the calculation of the cost of capital has been added. More or less all NRAs use the capital asset pricing model (CAPM) to calculate the weighted average cost of capital (WACC) – more precisely, the cost of equity. The differences in the cost of capital applied by regulators in the pricing decisions reflect therefore the differences in the financial markets of the different countries as they show in the parameters.

The overall picture is relatively stable in comparison to last year, with generally a small number of changes by NRAs since last year. There are clear preferences for price control methods (cost orientation alone or in combination with price cap), cost base (current cost accounting – CCA) and allocation methodologies (mainly long run incremental costs (LR(A)IC) with fully distributed costs (FDC) preferred only in a few – mainly retail – markets). For all markets except Market 1 the combination of CCA and (FL) LR(A)IC is the most favoured approach, in particular this combination is most explicitly preferred in the termination markets (Market 3 and Market 7). Taking into account the information detailed for different products in Market 4, it results that cost orientation is the preferred price control method for all products analysed, together with CCA as cost base. As far as the allocation methodology is concerned, a clear preference in favour of FDC for duct access products is observed.

The degree of consistent application of methodologies continues to be high and accommodates the use of elements or parameters that reflect national circumstances. Overall, the 2013 data confirmed the trend towards an increasingly consistent approach to regulatory accounting obligation among NRAs. We see signs of stabilisation in the application of particular methods for

cost valuation or cost allocation by NRAs. The latter indicates that NRAs are providing predictable and stable regulatory environments in their countries.

Good progress has been made in developing effective regulatory accounting frameworks to meet the needs of NRAs. However, this is a complex and highly technical topic which requires regular maintenance and enhancement of the regulatory accounting framework as competition develops, technology improves and new regulatory challenges emerge.

Document:

BoR (13) 110 – BEREC Report on Regulatory Accounting in Practice 2013, 16.9.2013, delivered at the 16th meeting of the BoR.

4.7 Implementation of the termination rates recommendation

In parallel with the benchmarking of domestic termination rates, BEREC has fostered harmonised approaches between NRAs in the implementation of the Commission Recommendation on termination rates and monitored this implementation: by the end of 2013, it had been implemented by two-thirds of NRAs as regards MTRs and roughly one-third of NRAs as regards FTRs.

BEREC has in particular compared the different long run incremental costs (LRIC) cost modelling methodologies used by NRAs and followed the different Phase II cases opened by the Commission upon notification of market analysis for Markets 3 or 7 by NRAs.

BEREC has also investigated the interrelations between fixed termination (relevant market 3) and the existing regulation of other (wholesale and retail) services (e.g. remedies in relevant markets 1 and 2), to reach a common understanding between its members.

Moreover, in 2013 BEREC has worked on gaining a better understanding of cross-border termination rates, which are an essential input for the provision of seamless cross-country call bundles and the development of the internal markets. This work should be completed in the course of 2014 and provide additional insights into the dynamics of wholesale rates and their relation to the corresponding retail markets.

5. Engagements with EU institutions in the implementation of the European framework

5.1 Recommendation on relevant markets

In accordance with Article 15(1) of the Framework Directive, the Commission must regularly review the Recommendation on relevant markets. To this end, the Commission carried out a public consultation ⁽²⁴⁾, and commissioned a report on the future electronic communications markets to be subjected to ex-ante regulation ⁽²⁵⁾, in order to adapt its Recommendation to the existing situation of the European market.

The aim of this Recommendation is to identify the electronic communications markets whose characteristics justify the imposition of ex-ante regulation. BEREC considers the revision of the Recommendation on relevant markets as a first and important step in the process of market analysis by NRAs under the current regulatory framework. The list of markets in the Recommendation is a clear guide to NRAs on the scope of ex-ante regulation, thereby contributing to the harmonisation of ex-ante regulation between Member States.

During 2013, BEREC worked in this area along two lines. First, it prepared a response to the questionnaire on the revision of the Recommendation on relevant markets, drawing the main insights based on the experience gained by NRAs on the application of the three criteria test, on the scope of the markets to be included (or excluded) in the list of relevant markets, as well as on the existence of transnational markets. In the second work stream, BEREC interacted and shared its views with the Commission and the consultants in charge of carrying out the study on future electronic communications markets, which constituted one of the key inputs for the draft Recommendation on relevant markets published in January 2014.

⁽²⁴⁾ <https://ec.europa.eu/digital-agenda/en/news/public-consultation-revision-recommendation-relevant-markets>

⁽²⁵⁾ Future electronic communications markets subject to ex-ante regulation – Final report, 18.9.2013, available at <http://ec.europa.eu/digital-agenda/en/news/future-electronic-communications-markets-subject-ex-ante-regulation>

During 2014, based on the work already carried out in 2013, and with help of interactions with the Commission and the stakeholders on the draft Recommendation published in January, BEREC will prepare and publish its official Opinion on a final draft Recommendation to be published by the Commission in March 2014 ⁽²⁶⁾.

Document:

BoR (13) 22 – BEREC's response to the Commission's questionnaire for the public consultation on the revision of the Recommendation on relevant markets, 11.03.2013, delivered at the 14th meeting of the BoR.

5.2 Contribution to the Trautmann report

In early May 2013, MEP Catherine Trautmann requested the informal, expert views of BEREC, concerning the functioning of the current legislative framework for electronic communications. This request was made in the framework of the European Parliament's implementing report on the Telecom Package, for which Ms Trautmann was appointed rapporteur by the ITRE Committee (European Parliament Committee on Industry, Transport and Energy).

BEREC's informal advice was sought on a wide number of issues in order to start the discussion on the effectiveness of the existing regulatory framework and to identify areas for its improvement, in view of the perspective review.

Taking into consideration the timetable for the preparation of the report and the timing of the next BEREC BoR meeting for the adoption of this response (6–7 June), it was agreed that BEREC's views would be delivered on 10 June.

Given the extremely tight timeframe, an ad-hoc team of BEREC experts was set up on 16 May and drafting tasks were distributed among members, mainly in accordance with the drafters' responsibility for specific BEREC EWGs.

The mandate of the ad-hoc team was to produce and submit to the BoR a draft set of responses for approval at the 15th BoR meeting (Athens on 6–7 June 2014) and to send the responses to Ms Trautmann by the agreed deadline.

A first draft document was distributed among drafters on 24 May; then, following a round of comments, a new release was circulated to the BEREC Contact Network on 28 May for comments by 31 May. The document recorded BEREC's preliminary views on the issues raised by MEP Mrs. Trautmann and was approved during the 15th BoR meeting.

BEREC's main message has been that the 2009 framework, which represented an improvement over its predecessor, is fit for purpose and a driver for regulatory stability and consistency. It provides an effective regulatory toolkit that is well understood by the NRAs. Its practical implementation by NRAs has led to an increase in competition and innovation in many European markets, as well as to the further development of the single market.

The document reported on the novel features of the 2009 framework, particularly the central role of BEREC in constructing a European regulatory culture and a common 'regulatory case law', as well as provisions concerning symmetric regulation, NGA promotion, spectrum regulation, net neutrality, the strengthening of consumer protection, etc.

It put particular emphasis on the notion of independence as a prerequisite for NRAs to effectively fulfil their mission. In this direction it was acknowledged that the amended Framework Directive made specific reference to NRAs' independence and provided concrete relevant tools. The report invited monitoring the implementation of these principles at national level and suggested possible areas for consideration in a framework review, including clarifying NRA core business, revisiting and standardising NRA remits and ensuring NRAs' control over own resources (budget, staffing).

The document acknowledged that the scale and speed of change in the sector had posed new challenges which call for proactive thinking about their impact for the next framework review. In this direction, it suggested areas for reflection, including:

- the need to find an efficient balance between regulatory harmonisation and national specificities and the scope of Article 19 recommendations;
- the relation between ex-ante and ex-post interventions, and particularly the need to address oligopolies, particularly through a more effective provision on joint dominance;
- the shifting towards more horizontal means of intervention and the increasing importance of symmetric regulation;

⁽²⁶⁾ <http://ec.europa.eu/digital-agenda/en/news/draft-revised-recommendation-relevant-markets>

- the administrative regime for the entry into the market by operators and possible simplification means;
- the need for fine tuning the market analysis process and tools;
- the notion and the scope of universal service;
- the consideration of over-the-top (OTT) providers and the role of devices, equipment and operating systems, having an increasing impact on services.
- the need to clarify the role of NRAs with respect to national state aid initiatives;
- the need for streamlining cooperation between the EU and EFTA NRAs.

BEREC was invited and presented its preliminary views at a hearing of the ITRE committee on 19 June.

Documents:

BoR (13) 74 – BEREC preliminary informal views on MEP Catherine Trautmann's set of questions, 10.06.2013, delivered at the 15th meeting of the BoR.

5.3 Contribution to the legislative dialogue on the Telecom Single Market Regulation proposal

On 11 September, the Commission adopted a proposal for a Regulation laying down measures concerning the European single market for electronic communications and to achieve a connected continent, and amending Directives 2002/20/EC, 2002/21/EC and 2002/22/EC and Regulations (EC) No 1211/2009 and (EU) No 531/2012.

In accordance with the explanatory memorandum, the general objective of the proposal had been to move towards a single market for electronic communications in which:

- citizens and businesses can access electronic communications services wherever they are provided in the Union, without cross-border restrictions or unjustified additional costs;
- companies providing electronic communications networks and services can operate and provide them wherever they are established or wherever their customers are situated in the EU.

On 13 September, BEREC responded to this initiative by issuing a statement. In this statement BEREC expressed support for the Commission's objectives to promote the single market and to ensure optimal conditions for greater investment in the sector, in the interest of European consumers and the wider European economy. However, BEREC expressed certain concerns and noted its commitment, in fulfilment of its statutory role, to providing technical and sector expertise to all institutional actors to assist them in their considerations of the text and of its implications during the legislative process.

During the 16th BoR meeting (26–27 September), an extensive discussion took place on the connected continent package. Commission representatives presented the Regulation proposal and its main objectives, analysed its aspects and provisions, and responded to questions and concerns raised by members of the BoR. The BoR decided to establish an ad-hoc team to prepare a BEREC Opinion on the draft, which could facilitate the legislative process.

The ad-hoc team brought forward a draft analysis, which was discussed and approved by the BoR on 16 October. The adopted document – BoR (13) 142 – was submitted to the Commission and the European Parliament, notably to the public consultation organised by the ITRE Committee and to the rapporteurs and shadow rapporteurs involved in the process. At a later stage it was also submitted to the Office of the President of the European Council.

In this document, BEREC noted its support of targeted harmonisation and its continuous and active pursuit of consistent regulatory approaches across the EU, and reiterated its support of the Commission's objectives of promoting the single market to the benefit of European consumers and the wider European economy, including in terms of growth and employment. At the same time it expressed a concern that, taken as a whole, the proposed provisions might risk creating unnecessary complexity and greater legal uncertainty, and could have a negative impact on both investment and competition. It also expressed the belief that the complexity and sensitivity of the issues covered in the Regulation proposal warranted comprehensive consultation and careful analysis.

On the specific provisions of the proposal:

- BEREC criticised the proposed single EU notification and authorisation process, characterising it as costly and burdensome for both operators and NRAs. Instead, it recommended a harmonised template notification form, which would provide a simple, predictable and harmonised notification process across the EU.

- on spectrum, BEREC acknowledged that it is not one of its core competences and noted its understanding on the concerns about the speed at which 4G frequencies have been made available in Europe. It expressed, however, its belief that the proposed harmonisation objectives could be more effectively achieved by less intrusive, more focused and proportionate means within the current institutional set-up.
- BEREC also criticised the harmonised European access products and Assured Quality of Service (ASQ) and underlined the relevant risks, which emanate from the choice of using a Regulation to express preference for a specific wholesale access remedy and to prescribe its technical characteristics. Instead, BEREC suggested establishing regulatory best practices for the harmonization of wholesale access products at European scale.
- On net neutrality, BEREC welcomed the Commission's attempt to come to grips with one of the most challenging new regulatory areas but expressed concerns on the effectiveness of the proposed provisions, as they introduce a rigid regulatory system, which risks hindering the needed flexibility to cope with the highly dynamic and innovative world of the Internet. BEREC expressed the view that a more appropriate approach would be ensured by a principle-based regulation at European level providing NRAs with the necessary powers to ensure that those principles are respected. Should a rule-based approach be chosen, BEREC believes that any new provisions (e.g. definitions of Internet Access services and specialised service and their relationship; criteria to assess forbidden practices; NRAs' role and powers) need to be legally sound, future-proof and effectively enforceable.
- BEREC expressed its support to the Commission's ambition to increase the level of consumer protection across Europe but suggested that a fully harmonised mandatory framework might risk depriving Member States and NRAs the ability to respond to the changing needs of their national markets in the future. In this direction, BEREC proposed reconsidering the choice of the legal instrument used.
- on international roaming, BEREC expressed its support to initiatives aimed at reducing roaming charges and recognised the central importance of roaming to the single market. It noted however that the proposed unpicking of a carefully negotiated regulation (Roaming III) within one year of its adoption and a few months before the entry into force of a key provision (decoupling) might substantially undermine regulatory certainty. BEREC expressed preference to see reduction of roaming charges as far as possible within the existing legal framework of the Roaming III Regulation. In case legislators wished to move faster than currently contemplated, BEREC recommended considering a possible elimination of roaming charges to take effect once current price caps expire.
- finally BEREC criticised the proposals on the BEREC governance and suggested that any relevant proposals should be tabled after the adoption of the BEREC evaluation report by the European Parliament.

BEREC was invited and presented its views on the Telecom Single Market proposal at an ITRE hearing that took place on 27 November.

BEREC's work is being continued in 2014, as the legislative dialogue culminates. As a first step in this direction a series of high-level meetings between the BEREC BoR and high-level representatives of the Commission were organised to enable an exchange of views in light of the upcoming legislative process. The first such meeting took place on 11 December 2013. Furthermore, the BEREC Opinion on the EP Proposal concerning TSM was voted on 16 May 2014 and published on the 17 May on the BEREC website ⁽²⁷⁾.

Documents:

BoR (13) 104 – BEREC statement on the publication of a Commission proposal for a Regulation on the European single market, 13.9.2013, approved by electronic voting;

BoR (13) 142 – BEREC views on the proposal for a Regulation 'laying down measures to complete the European single market for electronic communications and to achieve a connected continent', 16.10.2013, approved by electronic voting.

⁽²⁷⁾ BOR (14) 50 – BEREC views on the European Parliament first reading legislative resolution on the European Commission's proposal for a Connected Continent Regulation, 16.05.2014, approved by electronic voting

6. Other internal and external activities

6.1 Framework implementation – institutional aspects

During 2013 BEREC conducted an internal dialogue focusing on the institutional aspects in the implementation of the European Framework. In this direction an analysis was developed, aiming at snapping a comprehensive picture of NRAs' global institutional settings, based on a data and information collection exercise which comprised a number of elements to be taken into account in order to outline the NRAs' regulatory capacity and the concrete instruments that Member States have put in place to implement the requirements stated in the Framework Directive (. The analysis covered: transposition of a selected range of the new provisions introduced in 2009; range of NRAs' competences and powers; governance and members' regime; structure and HR matters; budget; decisions' standing and accountability tools)..

6.2 Regulatory assistance provided to NRAs (under Article 2b of the BEREC Regulation)

In June 2012, BEREC was requested by OPTA to give its advice on a number of provisions under EU law, notably Article 25.2 of the Universal Service Directive 2002/22/EC.

OPTA's request concerned the ratio of Article 25 of the Universal Service Directive (read in conjunction with Article 5 of the Competition Directive) and in particular the obligation for undertakings that assign telephone numbers to meet cross-border requests to make relevant information available for the provision of directory enquiry services. In addition, OPTA asked BEREC whether – under the provisions of Article 12 of the Privacy Directive – the consent given by a national subscriber to the undertaking which assigned his telephone number is also to be considered given for passing on personal data to a third EU supplier of publicly available directory enquiry services, which is not active in the same Member State.

On 27 September 2012 the BoR set up a task force, within the Framework Implementation EWG, to draw up a response to OPTA. The final advice was adopted by BEREC in March 2013.

Document:

BoR (13) 34 – BEREC advice on OPTA's request for assistance concerning Article 25 of the Universal Service Directive, 7.3.2013, delivered at the 14th meeting of the BoR.

6.3 Evaluation of BEREC and the BEREC Office

In 2012, the Commission initiated an evaluation on the performance of BEREC and the Office, as required under Article 25 of the BEREC Regulation. A study by external consultants (Price Waterhouse Coopers Luxembourg) was published by the Commission in early 2013. The European Parliament appointed a rapporteur to prepare its own report on the BEREC evaluation. This resulted in a resolution by the European Parliament which was adopted on 10 December 2013. BEREC has supported the evaluation process from the start, and will address the final Recommendations.

6.4 BEREC Rules of Procedures

BEREC started activities for the review of its Rules of Procedures, BoR (11) 23. The purposes of this task were:

- to take advantage of the accumulated experience on the working practices of BEREC, so as to further refine and consolidate them, particularly focusing on the internal procedures for the elaboration of the BEREC Opinions in Article 7/7a Phase II cases. It is noted that the periodic review of such procedures is envisioned by the procedures themselves;
- to take on board any recommendations stemming from the results of the BEREC evaluation exercise as well as from any other internal reflection on the overall BEREC governance system;

The task is ongoing and it is due to be finalized during 2014.

6.5 Stakeholder engagement

The first BEREC stakeholder forum was organised on the 25 September 2013 in Riga, Latvia, just before the 16th plenary meeting of the BoR on the 26 and 27 September.

The purpose of the broader stakeholder dialogue has been identified as:

- to inform the relevant stakeholders on BEREC activities and positions;
- to receive feedback and information from stakeholders regarding the issues BEREC is currently working on;
- to provide a common and transparent platform to hold a strategic dialogue, which all BEREC members and key stakeholder organisations can attend.

This broader dialogue is expected to supplement the feedback received from current regular written public consultations applied in the process of preparing BEREC documents. Additionally, it is expected to bring added value to the current smaller dialogues that have been used by BEREC (e.g. to collect industry views) and that could be improved.

The BoR had particularly drawn attention to the following issues:

- how to ensure that the intended target audience participates in the stakeholder meeting;
- instead of committing BEREC to an ongoing series of annual stakeholder meetings it would be advisable to launch a pilot event and decide on the future events on the basis of the experiences collected from the pilot stakeholder meeting;
- the weighing and ordering of proposed draft agenda topics as well as the intended contents of the themes.

The relevant outside stakeholders were defined as European organisations of operators (network, cable, satellite), consumers, service providers and other related parties.

Taking into account all of the above considerations, this first event's agenda eventually included two broad work streams:

- The vision and challenges for the medium and long term and the quality of service and transparency in the electronic communications markets in Europe;
- The consumer perspective on broadband use, including quality of service and transparency.

During the discussion, all speakers agreed that strengthening competition, encouraging the necessary investments in order to meet market demands, while at the same time protecting consumers effectively should be the main medium and long-term objectives of the telecom regulation and it would form an important part of the objective of forming the single market.

However, the representatives of different stakeholders had different views on how these objectives are to be achieved. Some of them called for a more harmonised approach to regulation, including abolishment of all geographically-determined charges, while others were convinced that these objectives could be achieved via more market-driven regulation and stimulating the demand side. Nevertheless, all stakeholders agreed that the regulatory approaches to be applied to similar markets should be harmonised throughout the EU.

Finally, all stakeholders present were of the opinion that the BEREC Stakeholder forum provides a useful platform for exchange of views in an open and transparent manner and BEREC was requested to continue this new initiative in future.

6.6 International cooperation

The electronic communication sector is a very dynamic global market in which the international dimension is of critical importance. BEREC has – in addition to its internal tasks – the responsibility of seeking exchange of information beyond its 'geographic' borders.

BEREC cooperated further during 2013 with other regulatory organisations, interest groups and bodies also outside Europe: these include Regulatel, Eastern Partnership (EaP), the Euro-Mediterranean Regulators Group (EMERG) and the Federal Communications Commission (FCC).

a) BEREC – Regulatel

The already established cooperation with the group of central and Latin American regulators has taken been further developed to strengthen the existing links. In July 2013 the BEREC/Regulatel summit was held in Warsaw with the idea of creating a common agenda for fostering regulatory cooperation in Europe and Latin America. The commitment of these two bodies by signing an MoU was the main result of the debate, an idea also supported by the Commission.

b) BEREC – EaP

The cooperation between BEREC and the Eastern Partnership group of regulators, representing Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine, was also continued during 2013.

A high number of BEREC representatives took part in the EaP plenary meeting held in October 2013 in Yerevan, Armenia.

c) **BEREC – EMERG**

BEREC continued and enhanced its cooperation with the Euro-Mediterranean countries in the neighbourhood of the EU during 2013. This was achieved by increasing the number of workshops between BEREC and EMERG experts, as well as keeping them on detailed agendas, so as to exchange and share knowledge on topics of interest to both sides.

In particular, a joint EMERG/BEREC workshop on 'Enforcement and judicial review of the NRAs' decisions' was organised in Brussels in December 2013, within the activity of the BEREC Framework Implementation EWG. The meeting aimed at discussing and sharing information on the frameworks that have been put in place in the EU and EMERG countries with relation to the enforcement powers of the NRAs, and to explore to what extent the judicial powers can intervene and overturn the NRAs' decisions.

d) **BEREC – FCC**

Already during 2012 the global exchange of views with the USA was redefined by an MoU between BEREC and the FCC to exchange views and to compare regulatory approaches in both regions.

In 2013, the FCC proposed a revised Annex of the FCC-BEREC MoU, which lists the potential topics for cooperation between the two bodies. The revised Annex, which was adopted by BEREC and signed by the two parties, makes the areas of cooperation more concrete and specific.

In the framework of this cooperation, a first exchange of views between BEREC and FCC experts took place in June 2013 by means of a video conference. The exchange covered a variety of areas, specifically bill shock practices, initiatives to prevent theft of wireless devices, international roaming and measuring broadband speeds.

e) **Mission to Silicon Valley**

As in former years, BEREC organised a Board Study trip in 2013, this time to gain insight into the developments in the sector in Silicon Valley. The telecommunication and media sector is constantly undergoing development and many of the technical achievements made originate in Silicon Valley. Several interesting companies have been identified in the San Francisco area. The focus of the topics was on cyber security and cloud computing. The companies and organisations, selected accordingly, were Cisco, Symantec, Ericsson, Oracle, Apple, NVP and Stanford University.

The participants of the study visit were BEREC board members including Leonidas Kanellos as BEREC Chair 2013, Göran Marby as incoming Chair, Franc Dolenc and Tostein Olsen as additional Vice Chairs, Vesa Teräva from the Commission as well as Beatrice Covassi from the Washington Office of the Commission and Sven Gschweidl as a representative of the outgoing Chair and organiser of the trip.

The main findings from this trip were:

- There is constant change in operators' business models:
 - i) operators have lost their grip on customers and have been transformed to infrastructure owners
 - ii) service providers can provide the same service over multiple infrastructures worldwide
 - iii) the change is customer-driven
- The future of operators: they can sell access, quality of service, billing services, CDN capabilities, security, etc. both to end-users and service operators
- Further important topics are cloud services and big data analysis, where, particularly with regard to data protection the US has its own approach. However, these areas will also grow rapidly in Europe. In particular, the visit to Stanford University was interesting with regard to research projects in big data analysis.

7. Article 7/7a Framework Directive procedures

During 2013, 16 Article 7/7a cases were opened. They are tabled below:

1. Case PL/2012/1394 – Poland

Market	Wholesale broadband access (Market 5) in 11 communes in Poland
Description	Phase II was opened under Article 7 on 10 December 2012. The BEREC Opinion was adopted on 14 January 2013 and published on 17 January. BEREC was of the opinion that the Commission's serious doubts were justified.
Outcome	The case was closed by a veto decision sent by the Commission on 8 February 2013, requiring UKE to withdraw the draft measure. UKE did so on 4 March.
Document	BoR (13) 01 – BEREC Opinion on Phase II investigation pursuant to Article 7 of Directive 2002/21/EC as amended by Directive 2009/140/EC: Case PL/2012/1394 – Wholesale Broadband Access Market in 11 Communes in Poland, adopted on 14 January 2013.

2. Case CZ/2012/1392 – Czech Republic

Market	Call termination provided at a fixed location (Market 3)
Description	Phase II was opened under Article 7 on 10 December 2012. The BEREC Opinion was adopted on 21 January 2013 and published on 24 January. BEREC was of the opinion that the Commission's serious doubts were not justified. BEREC was of the opinion that the resulting price levels, as notified by ČTÚ, cannot be in itself a reason to have serious doubts. According to BEREC, the model used by ČTÚ is fully NGN-based. Nevertheless, BEREC recommended that these three elements of the methodology need to be examined more closely by ČTÚ and the Commission before reaching a final decision.
Outcome	BEREC's Recommendations were discussed at a tripartite meeting on 13 February 2013. ČTÚ withdrew its measure on 18 April.
Document	BoR (13) 04 – BEREC Opinion on Phase II investigation pursuant to Article 7a of Directive 2002/21/EC as amended by Directive 2009/140/EC: Case CZ/2012/1392 – Call termination on individual public telephone networks provided at a fixed location (Market 3) in the Czech Republic, adopted on 21 January 2013.

3. Case IT/2013/1415 – Italy

Market	Call termination provided at a fixed location (Market 3)
Description	Phase II was opened under Article 7a on 7 February 2013. The BEREC Opinion was adopted on 20 March 2013 and published on 25 April. BEREC considered that the Commission's serious doubts were justified. BEREC suggested that AGCOM maintains its proposed glide path but sets the transition FTRs (for 2013 and 2014) on the basis of a pure LRIC for both TDM and IP.
Outcome	AGCOM decided to withdraw its measure immediately on 16 April, immediately after a tripartite meeting on 15 April.
Document	BoR (13) 40 – BEREC Opinion on Phase II investigation pursuant to Article 7a of Directive 2002/21/EC as amended by Directive 2009/140/EC: Case IT/2013/1415 – Call termination on individual public telephone networks provided at a fixed location (Market 3) in Italy, adopted on 20 March 2013.

4. Case DE 2013/1424 – Germany

Market	Wholesale voice call termination on individual mobile networks (Market 7)
Description	Phase II was opened under Article 7a on 28 February 2013. The BEREC Opinion was adopted on 10 April 2013 and published on 12 April. BEREC was of the opinion that the Commission's serious doubts were justified. BEREC recommended BNetzA to set the tariffs of the MTRs on the basis of a pure LRIC costing methodology, without any glide path.
Outcome	A tripartite meeting between BNetzA, the Commission and BEREC took place on 2 May 2013, but did not lead to immediate measures. The Commission published its Recommendations on 27 June 2013, asking BNetzA to modify the draft measure. BNetzA chose not to follow the Recommendation and notified a Reasoned Justification on 19 July.

Document	BoR (13) 47 - BEREC Opinion on Phase II investigation pursuant to Article 7a of Directive 2002/21/EC as amended by Directive 2009/140/EC: Case DE/2013/1424 - Wholesale voice call termination on individual mobile networks (Market 7) in Germany, adopted on 10 April 2013.
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5. Case DE/2013/1430 - Germany

Market	Call termination on individual public telephone networks provided at a fixed location in Germany (Market 3)
Description	Phase II was opened under Article 7a on 8 April 2013. The BEREC Opinion was approved by the BoR on 17 May. BEREC considered that the Commission's serious doubts were justified and recommended BNetzA to set the fixed termination tariffs at the level of pure BU-LRIC costs, without any glide path.
Outcome	The Commission published its Recommendations on 8 August 2013, asking BNetzA to modify the draft measure. BNetzA chose not to follow the Recommendation and notified a Reasoned Justification on 30 August.
Document	BoR (13) 55 - BEREC Opinion on Phase II investigation pursuant to Article 7a of Directive 2002/21/EC as amended by Directive 2009/140/EC: Case DE/2013/1430 - Call termination on individual public telephone networks provided at a fixed location (Market 3) in Germany, adopted on 17 May 2013.

6. Case AT/2013/1442 - Austria

Market	Wholesale market for terminating segments of leased lines (Market 6)
Description	Phase II was opened under Article 7 of the Framework Directive on 3 May 2013. The BEREC Opinion was approved by the BoR on 17 May. BEREC considered that the Commission's serious doubts were justified and recommended BNetzA to set the fixed termination tariffs at the level of pure BU-LRIC costs, without any glide path.
Outcome	The draft Opinion was approved on 31 May 2013. BEREC considered that the Commission's serious doubts were justified. BEREC suggested that RTR should reconsider and redraft its decision, providing a reliable evidential basis for reaching its conclusions on market definition and SMP assessment, and to amend its decision if the further consideration of the evidence suggests that a change is appropriate. The Commission gave a veto decision on 8 July.
Document	BoR (13) 73 - BEREC Opinion on Phase II investigation pursuant to Article 7(3) of Directive 2002/21/EC as amended by Directive 2009/140/EC: Case AT/2013/1442 - Wholesale terminating segments of leased lines (Market 6) in Austria adopted on 3 June 2013.

7. Cases EE/2013/1453-1454 - Estonia

Markets	Wholesale physical network infrastructure access at a fixed location (Market 4) Wholesale broadband access (Market 5)
Description	Phase II was opened under Article 7a of the Framework Directive on 13 June 2013. The BEREC Opinion was approved on 25 July 2013. BEREC considered that the Commission's serious doubts on the lack of sufficient evidence supporting the choice of the costing methodology were justified.
Outcome	A tripartite meeting took place on 27 August 2013. The Commission published its Recommendation on 14 October 2013, asking ECA to withdraw the draft measures. ECA notified its final decision in November 2013.
Document	BoR (13) 93 - BEREC Opinion on Phase II investigation pursuant to Article 7a of Directive 2002/21/EC as amended by Directive 2009/140/EC: Cases EE/2013/1453-1454 - Wholesale physical network infrastructure access at a fixed location (Market 4) and wholesale broadband access (Market 5) in Estonia, adopted on 25 July 2013.

8. Case DE/2013/1460 – Germany

Market	Call termination on individual public telephone networks provided at a fixed location in Germany (Market 3)
Description	Phase II was opened under Article 7a of the Framework Directive on 20 June 2013. The BEREC Opinion was approved on 1 August 2013. BEREC considered that the Commission's serious doubts were justified in that BNetzA's proposed FTRs set using a national benchmark to the rates of DT are not based on a pure LRIC costing methodology and no valid justification has been provided for this deviation.
Outcome	A tripartite conference call took place on 4 September. The Commission issued its Recommendation on 21 October (published on 24 October), asking BNetzA to amend or withdraw the draft measure. BNetzA chose not to follow the Recommendation and notified a Reasoned Justification on 22 November.
Document	BoR (13) 94 – BEREC Opinion on Phase II investigation pursuant to Article 7a of Directive 2002/21/EC as amended by Directive 2009/140/EC: Case DE/2013/1460 – Call termination on individual public telephone networks provided at a fixed location (Market 3) in Germany, adopted on 1 August 2013.

9. Case ES/2013/1466 – Spain

Market	Review of prices in the market for wholesale broadband access (Market 5)
Description	Phase II was opened under Article 7a of the Framework Directive on 27 June 2013. The BEREC Opinion was approved on 5 August 2013. BEREC considered that the Commission's serious doubts on the lack of sufficient evidence supporting the choice of the price regulation applied in the wholesale broadband access market (Market 5) were mostly justified. BEREC agreed with the Commission that CMT had not provided a transparent and sufficient justification that the price levels it set in the notified decision will reach the objectives of the regulatory framework and the objectives of CMT's own market analysis decision. However, BEREC did not agree with the Commission that stakeholders could not predict that CMT would deviate from the results of the BU-LRIC+ cost model. BEREC recommended CMT to add to its tariff decision a justification on the price regulation applied for Market 5 services to safeguard the transparency of the decision-making process with regard to setting the price levels.
Outcome	A tripartite meeting took place on 12 September. The Commission issued its Recommendation on 28 October (published on 30 October), asking CNMC (formerly CMT) to modify or withdraw the draft measure. Taking utmost account of the Recommendation of the Commission, on 30 January 2014 CNMC adopted the final decision concerning the prices for wholesale broadband access.
Document	BoR (13) 95 – BEREC Opinion on Phase II investigation pursuant to Article 7a of Directive 2002/21/EC as amended by Directive 2009/140/EC: Case ES/2013/1466 – Review of wholesale broadband access prices (Market 5) in Spain, adopted on 5 August 2013.

10. Cases AT/2013/1475–1476 – Austria

Market	Wholesale (physical) network infrastructure access and wholesale broadband access (Markets 4 and 5)
Description	<p>Phase II was opened under Article 7a of the Framework Directive on 25 July 2013.</p> <p>The BEREC Opinion was approved on 5 September 2013. BEREC considered that the Commission's serious doubts were not justified. BEREC was of the opinion that TKK had presented sufficient evidence during the notification process to justify its choice of price regulation method on Markets 4 and 5. Furthermore, BEREC did not agree with the Commission's conclusion of having identified an inconsistency in the price regulation between Markets 4 and 5. BEREC also was of the opinion that the Commission's concerns with regard to the TKK's LRAIC model were of little significance to the case.</p>
Outcome	<p>A tripartite meeting between RTR, the Commission and BEREC took place on 7 October and it was followed up by a conference call on 17 October. On 26 November the Commission published a Recommendation asking RTR to amend or withdraw the draft measures.</p> <p>TKK chose not to follow the Recommendation and notified the measures with a Reasoned Justification on 12 December.</p>
Document	BoR (13) 97 – BEREC Opinion on Phase II investigation pursuant to Article 7a of Directive 2002/21/EC as amended by Directive 2009/140/EC: Cases AT/2013/1475–1476 – Wholesale (physical) network infrastructure access and wholesale broadband access (Markets 4 and 5) in Austria, adopted on 5 September 2013.

11. Cases IT/2013/1489–1490 – Italy

Market	Price control in the markets for wholesale (physical) network infrastructure access and wholesale broadband access (Markets 4 and 5) in Italy
Description	<p>Phase II was opened under Article 7a of the Framework Directive on 12 August 2013.</p> <p>The BEREC Opinion was approved on 20 September 2013. BEREC considered that the Commission's serious doubts regarding the draft decision on the lack of sufficient evidence to update the price control obligations on Markets 4 and 5 outside of the current market review were not justified. BEREC was of the opinion that AGCOM has presented sufficient evidence during the notification process to justify its choice of time and methodology for an update of prices in Markets 4 and 5. AGCOM should however add some of the information provided in response to the Commission's RFI to relevant parts of the final price decisions.</p>
Outcome	<p>On 11 December the Commission published a Recommendation asking AGCOM to amend or withdraw the draft measure.</p> <p>Following the Commission's Recommendation, AGCOM has reassessed the WACC, which was the main issue raised in the Recommendation, taking into consideration the Commission's indications. The reassessment carried out confirmed the value of the WACC as in the draft decision notified.</p> <p>For this reason, AGCOM has confirmed the originally notified measure, although supplementing the introductory section of the final decision concerning the WACC issue.</p> <p>Furthermore, AGCOM has clarified, in the introductory section of the final decision, certain issues relating to the sub-loop unbundling fee and the infrastructure premium, on which the Commission had also raised some doubts.</p>
Document	BoR (13) 123 – BEREC Opinion on Phase II investigation pursuant to Article 7a of Directive 2002/21/EC as amended by Directive 2009/140/EC: Cases IT/2013/1489–1490 – Review of wholesale prices on Markets 4 and 5 in Italy, adopted on 20 September 2013.

12. Case PT/2013/1491 – Portugal

Market	Call termination on individual public telephone networks provided at a fixed location (Market 3) in Portugal
Description	Phase II was opened under Article 7a of the Framework Directive on 12 August 2013.
Outcome	ANACOM withdrew its notification on 14 August; there was therefore no need to establish a BEREC EWG.
Document	A BEREC Opinion was not issued.

13. Case CZ/2013/1497 – Czech Republic

Market	Wholesale markets for call termination on individual public telephone networks provided at a fixed location (Market 3) in the Czech Republic
Description	Phase II case was opened under Article 7a of the Framework Directive on 30 September 2013.
Outcome	CTU withdrew its measure on 2 October; there was therefore no need to establish a BEREC EWG.
Document	A BEREC Opinion was not issued.

14. Case FI/2013/1498 – Finland

Market	Wholesale markets for call termination on individual public telephone networks provided at a fixed location (Market 3) in Finland
Description	Phase II was opened under Article 7 of the Framework Directive on 2 October 2013. The BEREC Opinion was approved on 29 October 2013. BEREC considered that the Commission's serious doubts were justified.
Outcome	The Commission imposed a veto on 2 December. On 16 January FICORA withdrew its draft decision.
Document	BoR (13) 171 – BEREC Opinion on Phase II investigation pursuant to Article 7 of Directive 2002/21/EC as amended by Directive 2009/140/EC: Case FI/2013/1498 – Wholesale markets for call termination on individual public telephone networks provided at a fixed location (Market 3) in Finland, adopted on 29 October 2013.

15. Case DE/2013/1500 – Germany

Market	Withdrawal of existing remedies for access to the public telephone network at a fixed location for residential and non-residential customers in Germany (Market 1)
Description	Phase II was opened under Article 7 of the Framework Directive on 2 October 2013. The BEREC Opinion was approved on 15 November 2013. In its opinion BEREC considered that the Commission's serious doubts were not justified. BEREC did not share the Commission's view according to which the notified measure is not compatible with EU law, in particular with Article 16(2) of the Framework Directive, due to the absence of market analysis concerning the segment in relation to which BNetzA proposes to withdraw the previously established remedies.
Outcome	The Commission lifted its reservation on 5 February 2014.
Document	BoR (13) 175 – BEREC Opinion on Phase II investigation pursuant to Article 7 of Directive 2002/21/EC as amended by Directive 2009/140/EC: Case DE/2013/1500 – Access to the public telephone network at a fixed location for residential and non-residential customers in Germany (withdrawal of obligations), adopted on 15 November 2013.

16. Case DE/2013/1527 – Germany

Market	Voice call termination on individual mobile networks (Market 7)
Description	Phase II was opened under Article 7a of the Framework Directive on 5 December 2013. The BEREC Opinion was approved on 15 January 2014. In its opinion BEREC considered that the Commission's serious doubts were justified.
Outcome	TBD
Document	BoR (14) 07 BEREC Opinion on Phase II investigation pursuant to Article 7a of Directive 2002/21/EC as amended by Directive 2009/140/EC: Case DE/2013/1527 – Wholesale voice call termination on individual mobile networks (Market 7) in Germany, adopted on 15 January 2014.

8. Representation and cooperation

8.1 Events, speeches and presentations

The BEREC Chair 2013 had a number of presentations and meetings during 2013, tabled in Annex 1 of the report.

8.2 Workshops

During 2013, a total of eight workshops were organised by BEREC. Four of them took place on the day preceding the plenary meetings.

On the 6 March 2013, preceding the 14th BoR plenary meeting in Ljubljana, two half-day workshops were organised.

The Broadband Metrics and Quality of Service Workshop focused on three areas: quality of service regulatory practices, broadband measurement methodologies and platforms used in fixed and mobile technologies, and post-processing and analysis of the data gathered from broadband measurement tools. It was considered to be a very successful workshop since there were more than fifteen presentations of broadband quality measurement tools and techniques. The workshop concept was to have a tour de table/discussion after the conclusion of each category's presentations, using some initial questions/milestones. The discussion was lively.

A workshop entitled 'Media in the Digital World: European Perspectives' provided an opportunity to discuss the common issues of the players in electronic media and those in electronic communications. The focus of the workshop was on the opportunities and challenges of the European content services providers in the connected digital world; especially on their strategies, goals and outlook in relation to the new content distribution networks emerging within the digital dividend. The main questions were on how the European media industry is going to take advantage of the new technological possibilities of content delivery, and how the industry is addressing the media consumption patterns and needs.

On 5 June 2013, preceding the 15th BoR plenary meeting in Athens, a workshop on vectoring was organised by the NGA EWG as explicitly described in section 2.1.3.2 (workshop 3 and 4).

On 25 September 2013, preceding the 16th BoR plenary meeting in Riga, Latvia, the first BEREC stakeholder forum was organised as explicitly described in section 2.4.4.

In the autumn of 2013 three more workshops were organised:

- Introductory workshop on M2M (section 4.4)
- Framework implementation workshop together with EMERG (section 6.6.c)
- Disabled users workshop organised by the end-users EWG (section 3.3)

Finally, on the 4 December, preceding the 17th BoR plenary meeting in Budapest, a conference workshop on European telecoms and investment organised by NMHH took place in Budapest. The event was a valuable presentation of investment and implementation challenges in the European electronic communications area, and it was considered very successful.

9. Organisational and strategy issues

9.1 Organisational issues

a) **BEREC board 2013**

The BEREC board for 2013 (Chair and Vice Chairs) as elected during the last meeting of 2012 (13th BoR and Management Committee meetings) consisted of:

- Dr. Leonidas Kanellos, EETT (Greece), Chair 2013
- Mr. Luc Hindryckx, BIPT (Belgium), Vice Chair 2013 and incoming Chair for 2014 – effectively until January 2013, following a decision by the Belgian Council of State to annul his nomination as Head of BIPT
- Mr. Göran Marby, PTS (Sweden), Vice-Chair 2013 and incoming Chair for 2014, from June 2013, following an election for a new Chair 2014, which took place at the 15th BoR and Management Committee meeting on 7 June
- Dr. Georg Serentschy, RTR (Austria), Vice Chair 2013 and outgoing Chair 2012
- Mr. Franc Dolenc, APEK, (Slovenia), Vice Chair 2013
- Mr. Gabor Matrai, NMHH (Hungary), Vice Chair 2013 – until xxx, due to resignation from his post on 10 September.

b) **New BEREC member**

In the course of 2013, BEREC welcomed HAKOM, the NRA from Croatia, as a new member (beginning 1 July).

c) **Election of new Chair 2014**

On 17 January 2013, the decision to appoint Luc Hindryckx as Chairman of BIPT was annulled following the judgment of the Belgian Council of State (n 222.114). As a result of the judgment, Luc Hindryckx was no longer representing BIPT in the Management Committee of the BEREC Office.

In its decision MC(13)2, the Management Committee, responding to the above development, announced an election for a new Chair 2014, which was held in the 15th Management Committee meeting (7 June). This decision was based on the grounds that the Vice Chair and the Chair posts are *ad personam*, and that the preconditions for the election were no longer met; as a result the posts of Vice Chair and Chair of the BoR and the Management Committee of the BEREC Office, held by Luc Hindryckx, were effectively vacant.

The election took place in accordance with the above-mentioned exceptional circumstances, in derogation of the relevant provisions of the BEREC Rules of Procedures. During the election process, Göran Marby was elected as new Chair 2014 and participated in the BEREC board as Vice Chair from 7 June.

d) **Election of BEREC Chair 2015 and Vice Chairs 2014**

In the Budapest plenary meeting (17th BoR meeting) the incoming Chair 2015 and the Vice Chair 2014 were elected:

- Dr. Fátima Barros, ANACOM (Portugal), elected as incoming Chair 2015 and to serve as Vice Chair during 2014
- Mr. Jack Hamande, BIPT (Belgium), as Vice Chair 2014
- Mr. Domagoj Jurjevic, HAKOM (Croatia), as Vice Chair 2014
- Ms. Asta Sihvonen-Punkka, FICORA (Finland), as Vice Chair 2014.

e) **Work structure**

The structure used to support BEREC's works during 2013 is presented in Annex 2 of the report.

f) **BEREC plenary meetings**

BEREC met in plenary sessions on four occasions during 2013 as presented in Annex 3, which includes hyperlinks to the agendas and meeting minutes for each of them.

9.2 Midterm review of BEREC work programme 2013

The BEREC work programme 2013 held a review midway through the year to ensure that work progresses smoothly and without delays, that projects remain appropriately prioritised and re-sourced, and that any new issues are properly addressed.

This review was carried out after the first half of the year and was presented and adopted in the 16th BoR meeting on 26–27 September. The review took into consideration the work conducted during 2013 and the main developments, in order to provide a number of recommendations on the way forward. The focus was on the expected role of EWGs and the potential prioritisation needs. The scope was to ensure BEREC's ability to respond to the emerging challenges.

Departures from the original schedule were in general not observed, but with a few exceptions. The most important concerned the planned work on net neutrality and were driven by two important changes in Commission plans: the draft Recommendation on net neutrality had been frozen; instead, priority had been given to a draft Regulation on the single market, which included substantial provisions on net neutrality. Specifically:

- The BEREC Opinion on the anticipated draft Commission Recommendation on net neutrality was postponed for 2014 and could even be abandoned, depending on Commission plans.
- The methodology and questionnaire for the second round of the Traffic Management Investigation was also postponed from December 2013 to June 2014, also as a result of the above-mentioned developments. Firstly, it was deemed necessary to clarify the regulatory framework on net neutrality before embarking on such an exercise (this was also foreseen in the annual work programme 2013). Secondly, such a delay would enable the involvement of the Commission, which was unlikely during the legislative dialogue on the single market initiative.
- The plan for a public consultation on the platforms for measuring quality of service was postponed from December 2013 to March 2014, in view of anticipated provisions in the draft Regulation, calling for increased NRA and BEREC involvement.

Addressing potential needs for organisation and reprioritisation of work, three main recommendations were made:

- Any BEREC work on the single market initiative could be undertaken by an ad-hoc team, with the mandate to study the draft Regulation and prepare BEREC's expert views, utilising to this end the relevant expertise and experience of BEREC.
- The delivery of the revised Rules of Procedures, originally foreseen for the fourth plenary meeting of 2013 should be postponed for the second plenary meeting of 2014, to free resources for the work on the single market initiative.
- BEREC should already consider and prepare for the framework review dialogue (even though follow-up action is unlikely in 2014). This task was deemed to require the involvement of several EWGs and could be driven by an ad-hoc team, which would act as an umbrella structure, coordinating all EWGs that contribute to this task.

9.3 Membership of Board of Regulators and Management Committee

The Member States are tabled below:

(M) Members and (O) Observers NRA		BoR	MC
Austria	RTR	M	M
Belgium	BIPT	M	M
Bulgaria	CRC	M	M
Croatia	HAKOM (*)	M	M
Cyprus	OCECPR	M	M
Czech Republic	CTU	M	M
Denmark	DBA	M	M
EFTA Surveillance Authority	ESA	O	O
Estonia	ECA	M	M
European Commission	-	O	M
Finland	FICORA	M	M
Former Yugoslav Republic of Macedonia	AEC	O	O
France	ARCEP	M	M
Germany	BNetzA	M	M
Greece	EETT	M	M
Hungary	NMHH	M	M
Iceland	PTA	O	O
Ireland	ComReg	M	M
Italy	AGCOM	M	M
Latvia	SPRK	M	M
Liechtenstein	Office for Communications	O	O
Lithuania	RRT	M	M
Luxembourg	ILR	M	M
Malta	MCA	M	M
Montenegro	EKIP	O	O
Netherlands	OPTA/ACM (**)	M	M
Norway	NPT	O	O
Poland	UKE	M	M
Portugal	ANACOM	M	M
Romania	ANCOM	M	M
Serbia	RATEL	O	O
Slovakia	TU SR	M	M
Slovenia	APEK	M	M
Spain	CMT/CNMC (***)	M	M
Sweden	PTS	M	M
Switzerland	BAKOM	O	O
Turkey	BTK	O	O
United Kingdom	Ofcom	M	M

(*) Member since 1.7.2013

(**) Renamed ACM during 2013

(***) Renamed CNMC during 2013

Part A

Annexes

Annex 1 – BEREC Chair main external activities in 2013

- 24.1.2013: Meeting with Mr. Pat Rabbitte, TD, Minister for Communications, Energy and Natural Resources, Ireland, organised by ComReg in the framework of the Irish 7th Presidency of the EU.
- 21 and 22.3.2013: Participation in senior level discussions at 'Rethinking the Internet: The Way Forward', organised by the Financial Times and Telecom Italia.
- 3–5.4.2013: Speaker in Fourth Ministerial Conference on the Information Society in Latin America and the Caribbean – 'New technologies for innovation and digital development', organised by the Economic Commission for Latin America and the Caribbean (ECLAC) and the Agency of Electronic Government and Information Society (AGESIC) of Uruguay.
- 23.4.2013: IIR Telecoms & Technology – 7th Annual Telecoms Regulation Forum – Speaker to Session 1: 'Reviewing BEREC'S first three years of operation'.
- 2–3.5.2013: 8th Conference: 'Electronic Communications Sector: Today and Beyond', organised by ICTA – Chairman of the session 'Regulators' Session I: Electronic Communications Sector: Today and Beyond'.
- 22.5.2013: Meeting with the National Broadcasting and Telecommunications Commission of Thailand.
- 30–31.5.2013: Florence School of Regulation (FSR) Communications and Media Annual Conference – Keynote speaker: 'State of the industry: towards a European single market in telecommunications and media?'.
- 25.6.2013: ECTA – Single Market Conference – Keynote speaker: 'Towards a European single market'.
- 2–5.7.2013: ITU Global Symposium for Regulators, 2013 – 4th Generation Regulation: Driving Communications Ahead – co-Chair in BEREC – REGULATEL Summit (2.7); Chair ITU Regulatory Associations Meeting (2.7); Moderator of Session IX: 'National broadband interconnection charging' (5.7).
- 2.10.2013: European Parliament – S&D Public Hearing on Internet for All. Organiser: Ms. Edit Herczog, Member of the European Parliament – Speaker 'Internet for All – Reducing the Cost of Deploying Broadband'.
- 3.10.2013: Meeting with Mr. Didier Seeuws, Head of Cabinet of the President European Council.
- 18–19.11.2013: EMERG ICT Ministerial meeting – (panel Chair).
- 28.11.2013: ITRE Committee – European Parliament. Public hearing on the Commission's proposal on the 'Connected Continent' Regulation.

- **Contact Network Chair:** Dr. Minas Karatzoglou, EETT (Greece)
- **Expert Working Groups:**

EWG	Chair	Work stream
Framework Implementation	Antonio De Tommaso – AGCOM	BEREC proposals to reduce barriers to the authorisation of cross-border providers of electronic communications networks or services Review of BEREC Rules of Procedure of the Board of Regulators Fact-finding report on NRAs' regulatory capacity Machine-to-machine communications
Convergence and economic analysis	Ivan Santos – CMT/CNMC and Pascal Dagrás – ARCEP (until June 2013) and Jennifer Siroteau – ARCEP (from June 2013)	BEREC workshops on wholesale origination for special rate services BEREC Opinion on the review of Commission Recommendation on relevant markets Review of the Common Position on geographic aspects of market analysis
International roaming	Jorge Infante – CMT/CNMC and Armasari Soetarto – BnetzA (Vice Chair)	Guidelines on the implementation of the roaming decoupling obligation Report on transparency and comparability of different tariffs, following the Roaming Regulation Update of the ERG guidelines on Roaming Regulation BEREC International Roaming Compliance Report Benchmark reports (two), in view of the Roaming Regulation
NGN	Cara Schwarz-Schilling – BnetzA	NGN and IP interconnection Emerging challenges in NGN networks: Effective regulation in an NGA environment
Net neutrality	Frode Sørensen – NPT and Nadia Trainar – ARCEP	Opinion on the Commission Recommendation on net neutrality Monitoring quality of service – Practices and platforms Ecosystem dynamics and demand side forces in net neutrality developments Transparency guidelines implementation Preparation and launch of a second round of the Traffic Management Investigation (TMI)
End-user	Bogdan Dospinescu – ANCOM and Carlos Costa – ANACOM	Opinion on the anticipated draft Commission Recommendation on certain elements of the Universal Service Directive Workshop on measures towards disabled end-users' accessibility to electronic communication services
Remedies	Lara Stoimenova – Ofcom	Methodology for monitoring the application of the BEREC Common Positions BEREC Opinion on draft Commission Recommendation on non-discrimination/costing methodologies
Benchmarking	Iñigo Herguera – CMT/CNMC	Revenue indicators in relation to bundled services Benchmarking of termination rates in Europe (FTR/MTR/SMS)
Termination rates	Guillaume Mellier – ARCEP and Luciano Landi – AGCOM	Implementation of Termination Rate Recommendation
Regulatory accounting	Alberta Corona – AGCOM and Annegret Groebel – BnetzA	Regulatory accounting report in practice
Evaluation of BEREC and BEREC Office	Marianne Kracht – OPTA/ACM and Camilla Bustani – Ofcom (April–June 2013)	
Ad-hoc team on Trautmann report	Antonio De Tommaso – AGCOM	
Ad-hoc team on Telecom Single Market initiative	Antonio De Tommaso – AGCOM	

a) Plenary meetings

Date	Location	Board of Regulators		Management Committee	
		Agenda	Conclusions	Agenda	Conclusions
7-8 March 2013	Ljubljana, Slovenia	BoR (13) 24	BoR (13) 51	MC (13) 13	MC (13) 27
6-7 June 2013	Athens, Greece	BoR (13) 71	BoR (13) 206	MC (13) 45	MC (13) 86
26-27 September 2013	Riga, Latvia	BoR (13) 116	BoR (13) 140	MC (13) 60	MC (13) 66
5-6 December 2013	Budapest, Hungary	BoR (13) 189	BoR (13) 198	MC (13) 75	MC (13) 77

b) **Electronic voting sessions**

N	Voting period	Description	Type (N/U) (*)	Outcome
1.	15-22.1	Management Committee Decision on complaint dated 25 September 2012 lodged on the basis of Article 90(2) of the Staff Regulations	N	Approved
2.	11-14.1	BEREC Opinion on Article 7 case PL/2012/1394	U	Approved
3.	28.1-4.2	10th International Roaming Benchmark Data Report	N	Approved
4.	23-30.1	BEREC Office Multi-Annual Staff Policy Plan 2014-2016	N	Approved
5.	18-21.1	BEREC Opinion on Article 7a case CZ/2012/1392	U	Approved
6.	13.2	Management Committee Decision to temporarily assign staff powers conferred by Article 10(3) of BEREC Regulation	U	Approved
7.	19-20.3	BEREC Opinion on Article 7a case IT/2013/1415	U	Approved
8.	25-26.3	BEREC Opinion on the draft Commission Recommendation on non-discrimination and costing methodologies	U	Approved
9.	9-10.4	BEREC Opinion on Article 7a case DE/2013/1424	U	Approved
10.	7-14.5	- Proposition on the pilot for BEREC stakeholder dialogue - Agenda of BEREC Stakeholder Forum meeting	N	Approved
11.	7-13.5	- BEREC guidelines on the separate sale of regulated retail roaming services and the implementation of separate sale of regulated retail roaming services under Article 4 and 5 of the Roaming Regulation – A Consultation - BEREC guidelines on Roaming Regulation (EC) No 531/2012 (Third Roaming Regulation) (Article 4 and 5 on separate sale of roaming services)	N	Approved
12.	16-17.5	BEREC Opinion on Article 7a case DE/2013/1430	U	Approved
13.	31.5-3.6	BEREC Opinion on Article 7 case AT/2013/1442	U	Approved
14.	28.6-4.7	- Summary of responses received during the public consultation and BEREC view on issues raised by stakeholders - BEREC guidelines on Roaming Regulation (EC) No 531/2012 (Third Roaming Regulation) (Article 4 and 5 on separate sale of roaming services)	N	Approved
15.	24-25.7	BEREC Opinion on Article 7a case EE/2013/1452 and 1454	U	Approved
16.	2-5.8	BEREC Opinion on Article 7a case ES/2013/1466	U	Approved
17.	31.7-1.8	BEREC Opinion on Article 7a case DE/2013/1460	U	Approved
18.	12-13.9	First amending budget for the financial year 2013	U	Approved
19.	4-5.9	BEREC Opinion on Article 7a case AT/2013/1475-1476	U	Approved
20.	19-20.9	BEREC Opinion on Article 7a case IT/2013/1489-1490	U	Approved
21.	13.9	Adoption for publication of a draft BEREC statement on the publication of a Commission proposal for a Regulation on the European single market	U	Adopted
22.	14-15.10	Management Committee decision on the appointment of the selection committee with regard to the recruitment procedure of the Administration Manager of the BEREC Office	U	Approved
23.	16.10	BEREC views on the Proposal for a Regulation 'laying down measures to complete the European single market for electronic communications and to achieve a connected continent'	U	Approved
24.	28-29.10	BEREC Opinion on Article 7 case FI/2013/1498	U	Approved
25.	18-25.11	Document on 'Ecosystem Dynamics and Demand Side Forces: Progress report' and decision on next steps	N	Approved
26.	14-15.11	BEREC Opinion on Article 7a case DE/2013/1500	U	Approved
27.	16.12	Management Committee Opinion on the observations of the European Court of Auditors on the BEREC Office annual accounts for 2012	U	Approved

(*) Types of electronic voting procedures: normal (N) and urgent (U), as defined by Article 10 of the Rules of Procedure of the Board of Regulators – BoR (11) 23.

Annex 4 – BoR publicly available documents approved in 2013

Number	Description	Date
BoR (13) 01	BEREC Opinion on Phase II investigation pursuant to Article 7 of Directive 2002/21/EC as amended by Directive 2009/140/EC: Case PL/2012/1394 – Wholesale Broadband Access Market in 11 Communes in Poland	14.01.2013
BoR (13) 03	General authorisation regimes in EU Member States, follow-up of BoR (11)	18.01.2013
BoR (13) 04	BEREC Opinion on Phase II investigation pursuant to Article 7a of Directive 2002/21/EC as amended by Directive 2009/140/EC: Case CZ/2012/1392 – Call termination on individual public telephone networks provided at a fixed location (Market 3) in the Czech Republic	21.01.2013
BoR (13) 05	International Roaming BEREC Benchmark Data Report January 2012 – June 2012	28.01.2013
BoR (13) 15	BEREC guidelines on Roaming Regulation (EC) No 531/2012 (Third Roaming Regulation) (excluding Articles 3, 4 and 5 on wholesale access and separate sale of services)	25.02.2013
BoR (13) 22	BEREC's response to the Commission's questionnaire for the public consultation on the revision of the Recommendation on relevant markets	11.03.2013
BoR (13) 27	Brief note on the Commission's draft Recommendation on implementing universal service for digital society	04.03.2013
BoR (13) 34	BEREC advice on OPTA's request for assistance concerning Article 25 of the Universal Service Directive	07.03.2013
BoR (13) 36	Article 28(2) Universal Service Directive: a harmonised BEREC cooperation process – Consultation Response Analysis	07.03.2013
BoR (13) 37	Article 28(2) Universal Service Directive: a harmonised BEREC cooperation process – BEREC guidance paper	07.03.2013
BoR (13) 40	BEREC Opinion on Phase II investigation pursuant to Article 7a of Directive 2002/21/EC as amended by Directive 2009/140/EC: Case IT/2013/1415 – Call termination on individual public telephone networks provided at a fixed location (Market 3) in Italy	20.03.2013
BoR (13) 41	BEREC Opinion on Commission draft Recommendation on non-discrimination and costing methodologies to promote competition and enhance the broadband investment environment	26.03.2013
BoR (13) 47	BEREC Opinion on Phase II investigation pursuant to Article 7a of Directive 2002/21/EC as amended by Directive 2009/140/EC: Case DE/2013/1424 – Wholesale voice call termination on individual mobile networks (Market 7) in Germany	10.04.2013
BoR (13) 53	Consultation on the BEREC guidelines on the separate sale of regulated retail roaming services and the implementation of separate sale of regulated retail roaming services under Article 4 and 5 of the Roaming Regulation - Public consultation document	14.05.2013
BoR (13) 54	Draft BEREC guidelines on the separate sale of regulated retail roaming services and the implementation of separate sale of regulated retail roaming services under Article 4 and 5 of the Roaming Regulation – Public consultation document	14.05.2013
BoR (13) 55	BEREC Opinion on Phase II investigation pursuant to Article 7a of Directive 2002/21/EC as amended by Directive 2009/140/EC: Case DE/2013/1430 – Call termination on individual public telephone networks provided at a fixed location (Market 3) in Germany	17.05.2013
BoR (13) 60	Termination rates benchmark snapshot (as of January 2013): Integrated report on mobile, fixed and SMS termination rates	27.05.2013
BoR (13) 73	BEREC Opinion on Phase II investigation pursuant to Article 7(3) of Directive 2002/21/EC as amended by Directive 2009/140/EC: Case AT/2013/1442 – Wholesale terminating segments of leased lines (Market 6) in Austria	03.06. 2013
BoR (13) 74	BEREC preliminary informal views on MEP Catherine Trautmann's set of questions	10.06.2013
BoR (13) 81	Summary of responses received during the public consultation and BEREC view on issues raised by stakeholders on BEREC guidelines on Roaming Regulation (EC) No 531/2012 (Roaming Regulation III) (Articles 4 and 5 on separate sale of roaming services)	05.07.2013
BoR (13) 82	BEREC guidelines on the application of the Roaming Regulation (EC) No 531/2012 regarding Articles 4 and 5 on the separate sale of roaming	05.07.2013
BoR (13) 93	BEREC Opinion on Phase II investigation pursuant to Article 7a of Directive 2002/21/EC as amended by Directive 2009/140/EC: Cases EE/2013/1453–1454 – Wholesale physical network infrastructure access at a fixed location (Market 4) and wholesale broadband access (Market 5) in Estonia	25.07.2013

BoR (13) 94	BEREC Opinion on Phase II investigation pursuant to Article 7a of Directive 2002/21/EC as amended by Directive 2009/140/EC: Case DE/2013/1460 – Call termination on individual public telephone networks provided at a fixed location (Market 3) in Germany	01.08.2013
BoR (13) 95	BEREC Opinion on Phase II investigation pursuant to Article 7a of Directive 2002/21/EC as amended by Directive 2009/140/EC: Case ES/2013/1466 – Review of wholesale broadband access prices (Market 5) in Spain	05.08.2013.
BoR (13) 97	BEREC Opinion on Phase II investigation pursuant to Article 7a of Directive 2002/21/EC as amended by Directive 2009/140/EC: Cases AT/2013/1475-1476 – Wholesale (physical) network infrastructure access and wholesale broadband access (Markets 4 and 5) in Austria	05.09.2013
BoR (13) 104	BEREC statement on the publication of a Commission proposal for a Regulation on the European single market	13.09.2013
BoR (13) 108	Methodology for monitoring the implementation of the BEREC Common Positions on wholesale local access, wholesale broadband access and wholesale leased lines	16.09.2013
BoR (13) 110	BEREC Report on Regulatory Accounting in Practice 2013	16.9.2013
BoR (13) 123	BEREC Opinion on Phase II investigation pursuant to Article 7a of Directive 2002/21/EC as amended by Directive 2009/140/EC: Cases IT/2013/1489-1490 – Review of wholesale prices on Markets 4 and 5 in Italy	20.09.2013
BoR (13) 125	International Roaming BEREC Benchmark Data Report July 2012 – March 2013	30.09.2013
BoR (13) 126	BEREC International Roaming Compliance Report (Regulation (EU) No 531/512 of the European Parliament and of the Council of 13 June 2012 on roaming)	30.09.2013
BoR (13) 142	BEREC views on the proposal for a Regulation 'laying down measures to complete the European single market for electronic communications and to achieve a connected continent'	16.10.2013
BoR (13) 171	BEREC Opinion on Phase II investigation pursuant to Article 7 of Directive 2002/21/EC as amended by Directive 2009/140/EC: Case FI/2013/1498 – Wholesale markets for call termination on individual public telephone networks provided at a fixed location (Market 3) in Finland	29.10.2013
BoR (13) 175	BEREC Opinion on Phase II investigation pursuant to Article 7 of Directive 2002/21/EC as amended by Directive 2009/140/EC: Case DE/2013/1500 – Access to the public telephone network at a fixed location for residential and non-residential customers in Germany (withdrawal of obligations)	15.11.2013.
BoR (13) 178 rev2	Termination rates benchmark snapshot (as of July 2013): Integrated report on mobile and SMS termination rates	22.11.2013
BoR (13) 185	BEREC Report on Transparency and Comparability of International Roaming Tariffs	05.12.2013
BoR (13) 186	Draft review of the BEREC Common Position on geographical aspects of market analysis (definition and remedies) -Public consultation document	05.12.2013



Annual Report 2013

PART B

BEREC annual report
on developments in the
electronic communications
sector in 2013



Report adopted by the Board of Regulators
pursuant to Article 3(1)(n) of Regulation
(EC) No 1211/2009 of the European
Parliament and of the Council (BEREC
Regulation)



Executive Summary

The BEREC report on sector developments presents the key trends in the electronic communications sector, covering both market dynamics and the development of EU public policies and regulatory practices. The report is based on the main findings of the BEREC Expert Working Groups in 2013, but also adopts a forward-looking approach.

In 2013, a number of European countries experienced sluggish economic conditions and negative growth rates for GDP and private consumption. These factors and their influence on consumers' capacity to subscribe to electronic communication services, plus other specific market elements, put downward pressure on the revenues of the electronic communications industry as a whole.

Nonetheless, the electronic communications sector retained its competitive edge and innovative dynamics. A number of European countries still have higher broadband penetration than the US (fixed broadband penetration in the EU (28) reached 29 connections per 100 inhabitants). European markets also appear strongly competitive in terms of fixed broadband prices (in most EU Member States these are lower than in the USA). Mobile broadband and NGA-related services continue to grow both in terms of subscribers and revenues. There were more than 10 million users of LTE/4G wireless networks in the EU (28) during 2013, although the deployment of such networks varies greatly from country to country. NGA networks – offering speeds of 30 Mbps or higher – became available to more than half of EU (28) households during 2013, and take-up showed a 42% increase between July 2012 and July 2013. NGA deployment, however, continued to be quite heterogeneous between and within Member States in terms of demand (e.g. take-up rate, willingness to pay, digital literacy) and supply (e.g. overall coverage of the territory, coverage of rural areas, number of competitors, technology mix).

NGA deployment and the enhanced network transmission capacity were accompanied on the demand side by an increasing demand for services requiring higher bandwidth and for bundled products (including 4- and 5-play offers). The growth of Machine to Machine (M2M) communication services continued in 2013 with a 20% increase and this affected a number of sectors, including, inter alia, health, automotive, smart cities and education. Equipment manufacturers have already started creating dedicated M2M departments and network operators are developing partnerships so as to offer end-to-end M2M capabilities.

Finally, there were a large number of mergers and acquisitions in the EU electronic communications sector during 2013, involving entry into a complementary segment (i.e. mobile operators entering the fixed segment) or a reorganisation of market players.

Despite the increasing bandwidth requirements in the EU internet Ecosystem, a number of EU ISPs continued routing traffic purely on a best efforts basis, without implementing prioritisation practices and without differentiating between applications in terms of quality and price. Nevertheless, some emerging differentiation practices were reported in the broadband mobile markets.

With regard to public policies and regulatory practices, a number of challenges emerged from NGA deployment, particularly how to maintain the current level of competition achieved while promoting efficient investment. NRAs also started to assess on a product-by-product basis the proportionality of different non-discrimination regulatory obligations, and the economic and technical replicability, and make use of specific key principles of regulatory accounting.

There were various developments in Europe in 2013 with regard to net neutrality policies, namely additional legislation (to the EU framework), guidelines or voluntary codes of conduct in line with BEREC's approach, and market-driven mechanisms (i.e. the increase of market transparency). Many NRAs implemented quality monitoring systems enabling end-users to measure access speed (upload and download) and, in a few cases, to detect unwarranted practices such as throttling, blocking and prioritising of traffic.

The development of M2M services potentially poses challenges to the existing policy and regulatory approaches. Perceived regulatory risks are overconsumption of scarce public resources, adoption of different technical standards, competitive bottlenecks at certain levels of the M2M value chain, lack of transparency, and security and data privacy issues. A formal regulatory definition of M2M services is still pending; the current regulatory approach in most European countries is therefore essentially based on standard regulatory tools (i.e. allocation of numbering resources; number portability and roaming regulation).

Structural changes took place in 2013 in the international roaming market in response to the new obligation to sell wholesale services to all market players. In general, this did not cause changes at the retail level, as most mobile operators were already using roaming wholesale inputs from other operators. As far as the development of roaming tariffs were concerned, the average retail prices for voice and SMS tariffs remained fairly close to the caps set out in the current roaming regulation (and alternative tariffs were even higher than price caps). Retail and wholesale prices for data declined significantly. Contrary to voice and SMS traffic, for data, consumers used alternative data tariffs more often than the Euro data tariff. This may have been due to the fact that in the third quarter of 2013, for the first time, BEREC noted lower prices for alternative data tariffs than for the Euro data tariff.

There has been access and price regulation in voice call termination markets for several years because of the special monopolistic nature of these markets. Following NRAs' interventions and the increasing implementation of the European Commission's Recommendation, wholesale termination rates for both mobile (MTRs) and fixed interconnection (FTRs) fell substantially: e.g. by -25% for MTRs and -18% for FTRs, during 2013.

An important aspect of European and national policy in 2013 with regard to social regulation was guaranteeing equivalent access and choice for disabled users. This was frequently monitored by NRAs and related policy debates were held both at national and EU level (e.g. the BEREC accessibility workshop).

1. Introduction

The electronic communications sector is critical to boosting productivity and bringing growth back to the EU. Completing the creation of a single market in electronic communications is a crucial part of the EU's overriding objective of stimulating economic recovery in Europe. BEREC is committed to this goal and recognises its central role in ensuring regulatory consistency across Europe. BEREC therefore closely monitors and reports on the developments in the electronic communications sector and publishes its annual report on sector developments under Article 3(1)(n) of the BEREC Regulation – (EC/1211/2009).

The following analysis looks at the developments in the sector in 2013, paying particular attention to economic and regulatory remedy trends, NGN regulatory challenges, the neutrality of the Internet, international roaming and termination prices, M2M communications, and access to electronic communications services for disabled end-users.

This report presents BEREC's view, which is based on its members' own expertise and knowledge, and at the same time aims at describing BEREC's own contribution to the development of the sector. The analysis includes qualitative reasoning, based on key thinking from BEREC EWG activity, together with quantitative data, based on the two main periodic BEREC data collection exercises ⁽¹⁹⁾ and on other public reporting documents.

2. Economic trends in the European electronic communications markets

2.1 Economic context

The macroeconomic context observed during 2013 was mixed: while the US and Japan recorded positive GDP growth rates and developing countries in Asia and South America grew mostly at rates higher than 3%, European countries showed much lower growth rates and high dispersion. The 17 Eurozone countries recorded a negative -0.5% growth, while the EU(28) countries as a whole showed a modest positive 0.1% yearly rate. Southern European countries were most affected by the crisis, with most of them obtaining negative GDP rates of change, high debt levels and declining private consumption in 2013.

Projections for 2014 are more optimistic. World trade volume and GDP are expected to grow at higher rates than those seen during 2013 and, importantly, the EU(28) countries expected to register negative growth will be an exception. Inflation rates will be low, as will the expected interest rates prevailing in the Euro area.

The electronic communications industry, while affected by the economic conditions especially with regards revenues and investment, showed particular idiosyncratic trends of its own. Innovation, as regards new standards and technologies for fixed and wireless communications, was a very relevant driving force. The spread of smartphones and wireless networks across the world drew demand for data to new highs, increasing not only the number of mobile internet users but also their intensity of usage. The deployment of fixed NGA networks and of LTE/4G will also push the demand for data and content in the same direction in the near future.

2013 has been a year of important changes in the electronic communications landscape. The penetration levels of the majority of services followed an upward trend, especially in NGA and mobile broadband services, which registered notable growth rates. The proportion of individuals with mobile subscriptions grew over the year, reaching 92% of the EU(28) population in the first quarter of 2014 ⁽²⁰⁾. Sixty percent of EU(28) households have a broadband connection, and growth was also recorded with regards the penetration levels of ultra-high-speed wireline connections (or NGA). The demand for mobile broadband, especially from smartphones, grew considerably. By January 2014 half of the citizens in the EU(28) that had a mobile phone also had an active data subscription that allowed them to access the internet. Almost one-third of EU households (31%) declared that they have only mobile access contracted; i.e., they no longer have a fixed connection at home.

Moreover, during the last two years the networks improved: whilst cable companies across the EU(28) updated most of their connections to Docsis 3.0, allowing ultra-high-speed connections, incumbent and alternative firms accelerated the deployment of FTTx. All of this happened in a

⁽¹⁹⁾ International roaming and termination rates benchmark reports.

⁽²⁰⁾ For this and the following paragraph (2.1 and 2.2) evidence was obtained from the 'E-communications and telecom single market household survey, Eurobarometer', European Commission, March 2014.

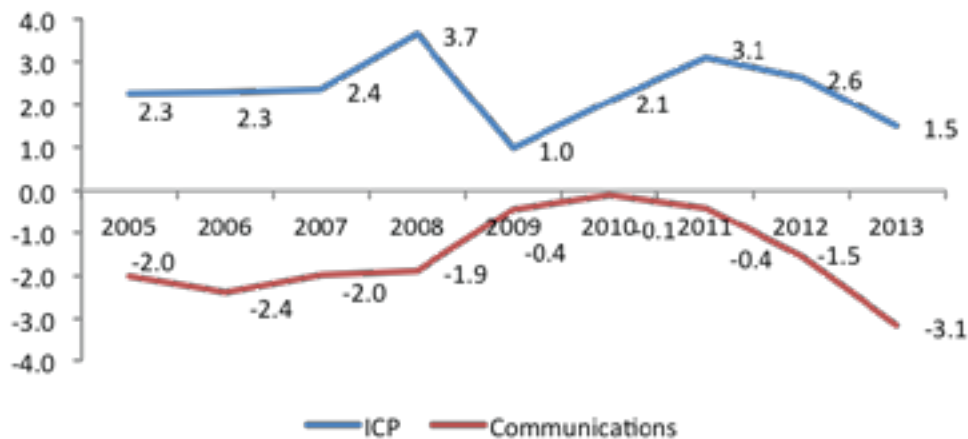
context where operators reduced their debt levels and obtained financing in better terms than in previous years. Mergers and acquisitions, sell-offs and generally consolidation of operators happened in many EU countries as market players competed in a more convergent marketplace.

Growth in EU(28) GDP was modest at 0.1% (and -0.5% for the Euro area) in real terms, though the figure varied from country to country, and ten countries registered negative growth. Southern European countries such as Italy, Greece, Spain, Portugal, Cyprus and Croatia suffered GDP declines of over 1% in real terms in all cases. The sluggish macroeconomic behaviour contributed – jointly with the intrinsic trend of the industry – to the negative rate of change of demand for communications and information services gross value over the year.

Overall, the trend in retail revenues has been in decline, with the exception of NGA and mobile broadband services whose revenues grew during 2013. A higher proportion of users searched for cheaper offers, especially through bundled services. As a consequence, higher levels of bundling were recorded, and the proportion of households that contract several services from a single supplier at an overall price reached the 46% figure. Internet access was the most likely service to be contracted as part of a package. Moreover, consumers switched service providers more frequently, and the switch usually occurred to obtain new services. Of the households that had an active subscription, 9% switched internet service provider in the last 12 months, 10% for mobile subscriptions and, more importantly, 11% for bundled contracts – the most common way of contracting. Fixed telephony or TV services showed lower switching rates.

Finally, in contrast to the general evolution of prices, as measured by the harmonised retail price index - which grew at an annual rate of 1.5% for the whole EU(28), electronic communications services experienced reductions in prices ⁽²¹⁾. During the year, the price level of the services included in the Communications basket fell by 3.1%, and has been steadily declining for the last decade. In the Czech Republic, France, Estonia, Finland, Italy and Malta the reduction of this index exceeded 5%.

Annual average rate of change of the harmonised retail price index and the communications sub-index in the EU(28)



In conclusion, some of the trends spotted in recent years have intensified. There is more bundling of services and, in particular, 4-play and 5-play bundles which combine fixed and mobile services into one single commercial offer have spread to several countries. There is also some lowering of prices of mobile communications combined with a rapid growth of mobile broadband uptake. The deployment of NGA networks has continued and FTTx has been the main driver of new connections deployed during 2013. Cable companies which had previously invested in the upgrading of their networks have obtained high shares of active NGA subscriptions; i.e., broadband connections with at least 30 Mbps of download speed. In 2013, one new development was the high level of mergers and acquisitions activity observed in a good number of EU countries.

Additionally, the services offered by OTT providers grew in relevance. These players provide communication services over broadband and compete face to face with traditional players as they offer the possibility to send messages and use audio and video conferencing. More than one-third of EU citizens (36%) use the internet to make cheap phone calls (VoIP) using a PC or a Wi-Fi connected device and 21% of individuals declared having used OTT services to make calls from a handheld device ⁽²²⁾.

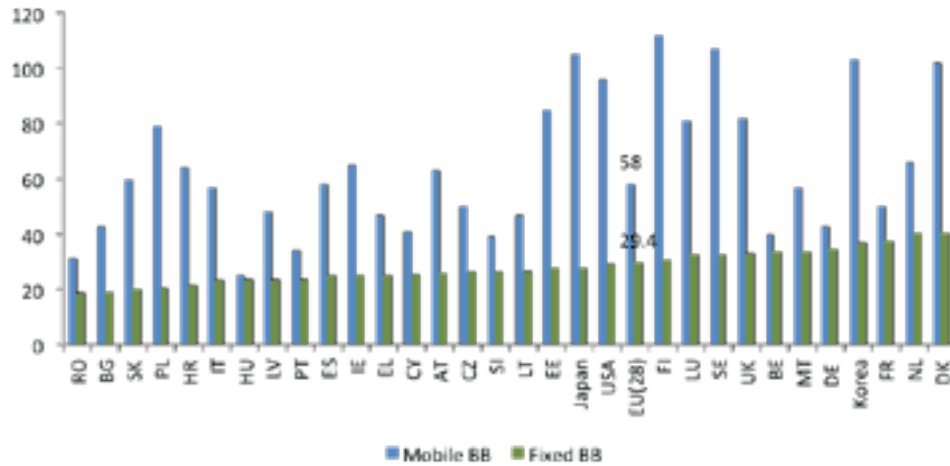
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⁽²¹⁾ Eurostat.

⁽²²⁾ Eurobarometer, March 2014.

2.2 Broadband and NGN deployment

Demand for fixed broadband lines continued to grow in Europe. The latest available data is from the OECD and the Commission from June 2013 ⁽²³⁾. This data reveals that Finland, Belgium, Luxemburg, UK, Germany, France, Sweden, Denmark and the Netherlands had higher penetration rates than the OECD average or the US. The average fixed broadband penetration rate was higher in the EU(28) – 29.4 lines per 100 inhabitants – than the OECD overall (26.7 lines), and on top of this the annual growth registered was also more intense for European countries.

Fixed and mobile broadband lines per 100 inhabitants in the EU(28), Japan, Korea and USA, July 2013 (Source: European Commission and the OECD)

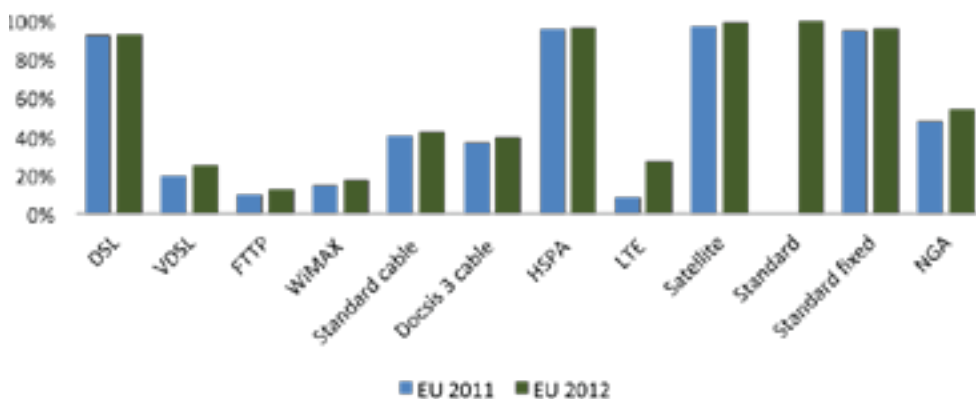


Ultra-fast networks advanced significantly in the majority of the EU(28) countries. The European digital agenda established ambitious goals to be achieved by 2020: 100% of households should have a very high speed network available – able to provide a speed of at least 30 Mbps, and 50% of households should enjoy broadband speeds of at least 100 Mbps.

Cable operators, on the one side, accomplished an almost complete upgrade of their networks with the standard Docsis 3.0, while the incumbent and alternative operators, on the other side, continued the deployment of fibre connections. The advance in very high speed networks also coincided with a significant increase in the deployment of mobile LTE/4G networks in most of the EU(28) countries. According to the latest data (January 2014), a variety of fixed and wireless networks guaranteed that more than 9 out of 10 households could access the internet provided mainly with DSL or mobile 3G/UMTS technology.

NGA technologies, which provide speeds of at least 30 Mbps, already covered 53.7% of EU households by December 2012. Among these technologies the standard Docsis 3.0 provided by cable operators was the technology with greatest coverage – almost 40% of households – followed by VDSL (24.9%) and FTTH (22.3%). During 2013, FTTH, which almost doubled its presence, experienced the highest increase in coverage.

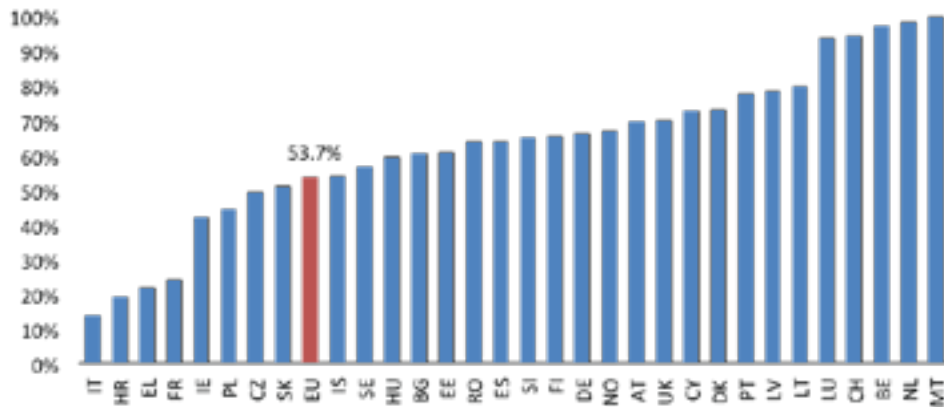
Total coverage by technology at EU level (as % of HH) (Source: Point Topic, 2013)



⁽²³⁾ OECD broadband portal and 'Broadband access in the EU: situation at 1 July 2013', European Commission, 2014.

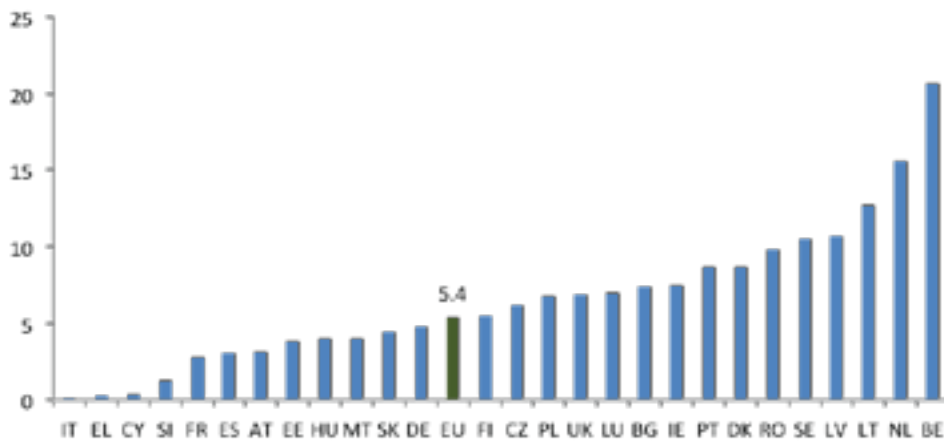
There are important country differences in terms of coverage of NGA networks. By the end of 2012 a total of 12 countries had coverage greater than 70% of households and in 22 countries at least half of the total households could dispose of service with any of the considered technologies: VDSL, FTTH/P and cable (Docsis 3.0).

NGA – coverage (% households) (Source: Point Topic, 2013)



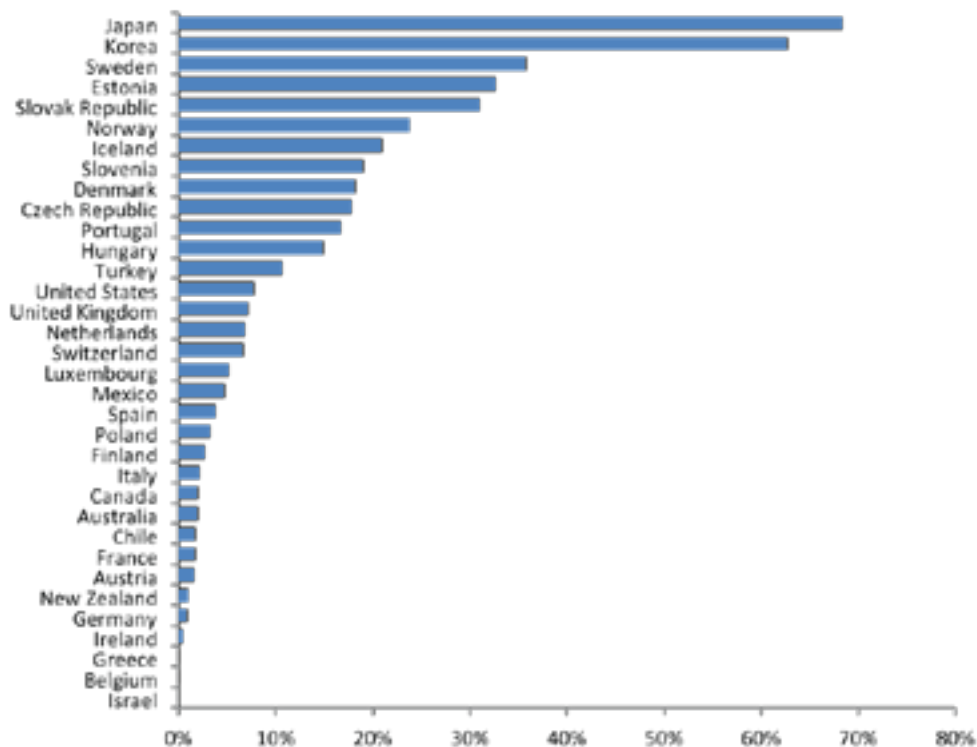
Take-up of NGA subscriptions, or real effective demand, also grew during the year, albeit at a slower rate. In the EU as a whole, by midyear 5.4 very high speed subscriptions (offering at least 30 Mbps download speed) per 100 inhabitants were recorded as active, and the Nordic and Eastern European countries showed the highest take-up rates. Penetration of ultra-high-speed connections offering at least 100 Mbps in the EU was low, at 1.2 subscriptions per 100 inhabitants for the whole region, though in Portugal, Latvia, Belgium, Romania, Finland and especially Sweden, take-up rates of close to 4 subscriptions per 100 inhabitants were already recorded.

Fast broadband (at least 30 Mbps) take-up: subscriptions per 100 inhabitants, July 2013
(Source: European Commission)



If the focus is exclusively on FTTH active connections or fibre take-up, by June 2013 Sweden, Estonia and the Slovak Republic had at least 30% of their total fixed broadband connections being supported with FTTH. However, some other countries showed take-up rates lower than 1% ⁽²⁴⁾.

Percentage of FTTx over total broadband subscriptions in the OECD, June 2013



2.3 Mobile broadband and growth

Mobile broadband has emerged in recent years as the highest growth retail service in the industry. Mobile broadband subscriptions are mostly in demand for smartphone or handheld terminals since the bundling of voice, messaging and data services into one commercial subscription has become widespread. With regard to mobile broadband, datacards/USB or data-only subscriptions must be also taken into account. Mobile broadband subscriptions overall grew very significantly in the EU, reaching 58 subscriptions per 100 inhabitants by June 2013 ⁽²⁵⁾, and the Nordic countries reached penetration levels above 100. This average, in any case, is slightly lower than the OECD average. The US, Japan and Korea clearly showed higher penetration levels of mobile broadband (96, 105 and 103 respectively) as well as higher traffic demanded per connection.

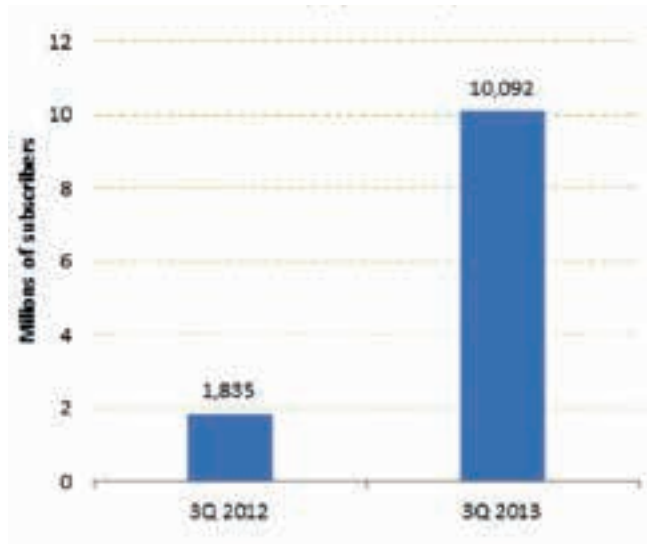
Deployment of LTE/4G in the US and some Asian countries has been more rapid than in the EU, as shown by the total subscriptions being supported by LTE networks. GSMA estimated ⁽²⁶⁾ that by the end of 2013 19% of all mobile subscriptions in the US would be on LTE, which contrasts with a mere 2% projected for the EU. The quicker deployment of LTE/4G in the US also translates in the average data traffic managed by each connection, which in the US is estimated to double the volume demanded on average in the EU, and as well as in the average speeds enjoyed by mobile users.

In Europe as a whole, a total of 10 million lines were connected to the internet via LTE by September 2013 and a total of 91 operators had started operations. This result implies a significant jump in the penetration rate during the last year, which was recorded at 1.8 million lines with LTE. Eight countries in the EU had reached coverage of at least 50% of the population with LTE/4G in 2013.

⁽²⁴⁾ Source: OECD Broadband Portal, 2013.

⁽²⁵⁾ OECD Broadband portal and European Commission (2014).

⁽²⁶⁾ Mobile wireless performance in the EU and the US, GSMA, May 2013.



Traffic in mobile networks is expected to increase yearly by 66% in the period 2012–2017 ⁽²⁷⁾. The demand for data grows as a consequence of new services being introduced, higher definition screens, new terminals being capable of higher speeds and also as a result of greater variety and improvements in the mobile data plan emerging.

2.4 Mergers and acquisitions and reorganisation of market players

One salient feature of 2013 is the much more intense mergers and acquisitions activity as well as a reorganisation of market players in a number of EU countries. This concerned both fixed network and mobile communications players. An indicator of the sector convergence is the pattern of mergers and acquisitions activity, as important players until recently only active in either the mobile, fixed or content service, have acquired important assets in complementary segments.

Important mergers and acquisitions took place in Ireland, Germany and Austria, implying in some cases a reduction of the total number of active mobile operators. Some of these transactions are at the time of writing still under the scrutiny of the Commission and their effective competitive impact on their markets is in most cases still to be ascertained.

Hutchinson Whampoa, a China-based operator, reached an agreement with Telefonica to buy its Irish branch (O2). Hutchinson had entered Austria in 2012 after acquiring Orange Austria, the second largest country mobile service provider at the time. This transaction implied a reduction in the number of mobile operators. The Directorate General for Competition at the European Commission imposed several conditions on the new entrant; e.g., to grant access to its mobile network to third parties and to sell some of the spectrum capacity obtained. America Mobil, a Mexican telecom player, acquired a stake in Telekom Austria, as well as in KPN in the Netherlands.

New entrants in the fixed or wireline segment were also registered during 2013. Liberty Global, a US-based operator with business in some EU countries, acquired the second largest cable operator in Germany (Kabel BW) as well as the second largest operator in the UK, Virgin Media. Vodafone, one of the biggest mobile operators in the world, bought Kabel Deutschland – the leading German cable operator – with the aim of competing in a convergent marketplace. This came after Vodafone settled the buyout of Cable & Wireless in the UK in 2012.

In Germany, Telefonica – an active player in the German mobile segment with the brand O2 – made a public offer to acquire E-Plus (a mobile operator subsidiary of KPN). This transaction, which is currently under investigation by the EU and national competition authorities, would combine the third and fourth operators in the marketplace into a single one.

In Portugal, Zon, a fixed network and a content provider, merged with Optimus, a mobile operator; as well as Onitecom, also a fixed network operator, was acquired by the enterprise that owns Cabovisão, a cable operator.

Relevant transactions also took place in the Czech Republic, Hungary and Greece.

⁽²⁷⁾ Cisco Visual Networking Index Mobile Forecast, 2013.

3. Evolution of regulatory remedies in the European markets

3.1 Non-discrimination

Effective non-discrimination rules are essential to creating a level playing field between the SMP operators' downstream businesses and third-party access seekers, thereby promoting competition – indeed, this stance is endorsed by BEREC's revised CPs adopted in December 2012 and the Commission's Recommendation on non-discrimination and costing methodologies. BEREC recognises the potential effectiveness of EOI as a non-discrimination remedy, as well as the need for NRAs to assess the proportionality of different non-discrimination obligations (i.e. EOI or EOO) on a product-by-product basis when determining the most appropriate approach. Finally, BEREC also notes the important role that economic and technical replicability plays in achieving a level playing field (supported where possible by well-defined service-level agreements (SLAs), service-level guarantees (SLGs) and key performance indicators).

To continue the work in 2014, consistent with its work programme, BEREC will conduct its first monitoring exercise to determine how NRAs have implemented the revised CPs, including the application of the non-discrimination remedies. Through this monitoring exercise BEREC aims to gain a detailed understanding of which regulatory approaches work best for different national circumstances and also aims to inform its own harmonisation efforts.

3.2 Costing methodologies

As stated in its Opinion ⁽²⁸⁾ of March 2013, BEREC supports the Commission's aim of achieving stable copper prices in line with the principle of cost orientation. This will help in encouraging efficient investment in NGA and provide a competitive safeguard to third-party access seekers and as such is a crucial element of the proposed approach. BEREC also shares the Commission's view that copper networks will eventually be replaced by fibre (NGA) networks. However, BEREC notes that, particularly in the context of NGA roll-out, consistency over time and over the value chain within a Member State is as important for investment and market entry decisions as achieving price convergence across Member States. Therefore, rather than prescribing a specific costing methodology, any costing model should fulfil key-principles.

While it is too early to look at the impact of the 2013 Recommendation on non-discrimination and costing methodologies, we can provide an insight of costing methodologies currently used by NRAs by looking at the 2013 Regulatory accounting report in practice (BoR (13) 110).

The analysis over time of the key wholesale markets – physical access (Market 4), broadband access (Market 5) and leased lines terminating segment (Market 6) – has shown a clear preference for cost orientation, a trend towards CCA and a fairly even distribution of LRIC and FDC accounting methods.

More specifically, in Market 4, CCA is by far the most commonly used cost-based methodology and the number of countries using this method has been stable since 2008, with a slight decrease in recent years. In addition, the number of countries using HCA has been stable since 2008. In this regard, according to some observers, the use of CCA is likely to remain relevant in a time of roll-out of fibre access networks and could send better investment signals to promote infrastructure-based competition as well as investment in infrastructure. As for Market 4, CCA is the preferred cost base combined with LRIC as the allocation methodology and cost orientation as the price control method. We can note that NRAs are already converging.

In accordance with the BEREC work programme 2014 (BoR (13) 196), the Regulatory accounting report in practice will also include questions regarding the implementation of the costing methodologies part of the Recommendation. This will allow a deeper analysis of the impact of the implementation of the Recommendation and to see in which way it contributes to achieving the overarching objectives of competition and investment.

Overall, it is important to ensure that the pro-competitive regulatory approach continues to be applied, as 'competition has been a key driver of higher levels of uptake and investment in communications networks and services in many countries' (ITU, The State of Broadband 2013: Universalizing Broadband, Report by the ITU Broadband Commission, September 2013). The positive correlation between competition and investment seems to be confirmed by the latest COCOM report on 'Broadband access in the EU: situation of 1 July 2013 (COCOM 14-3 of

⁽²⁸⁾ BoR (13) 41 – BEREC Opinion on Commission draft Recommendation on non-discrimination and costing methodologies to promote competition and enhance the broadband investment environment.

3 March 2014)' which states 'The market share of incumbent operators continued to decline slightly and stood at 41.8% in July 2013. New entrants recorded 80.1% of all net additions (subscription growth) in the first half of 2013. On the other hand, new entrants provided 77% of NGA subscriptions despite the fact that the incumbents have 93% market share in VDSL.' The latter data with regard to NGA is particularly remarkable.

4. Emerging challenges in next generation networks

4.1 NGA networks' deployment determinants

In the light of the digital agenda and national NGA roll-out plan, the effective regulation of NGA networks remains one of the key challenges of regulators.

The determinants of roll-out on the supply side are roll-out cost (geographic factors, labour cost); population density/demographic factors; the roll-out strategy of operators, in particular incumbent; and the presence of alternative infrastructures (cable) and the availability of passive wholesale products. On the demand side, the main determinants of roll-out are willingness to pay, killer applications necessitating NGA and soft factors such as culture.

Other important factors and determinants to consider are whether upfront commitments/payments are used at the retail level, as is the case in Denmark, Finland, the Netherlands, Norway and Sweden, and whether there is some form of commitment at wholesale level as in the UK or Germany. BEREC considers that fibre deployment is encouraged through upfront commitments/payments.

In some EU Member States local authorities (municipalities/regions, etc.) play an important role in the roll-out of alternative infrastructure, often in conjunction with state aid. This is the case for France (passive infrastructure only), Germany, Italy, Norway, Portugal, Slovenia, Sweden and the United Kingdom, where the activity of municipalities correlates positively with FTTH roll-out. In this context it may also be possible to achieve some synergy with other networks such as water, electricity and gas networks.

Another important factor is whether there is a competing infrastructure such as cable that drives investment.

The picture continues to be diverse within and between Member States. This applies both with regard to demand-side factors such as take-up rate, willingness to pay, etc., as well as supply-side factors such as the number of competitors (depending on whether cable and/or municipalities/utilities play a role), technology mix (FTTB/H and/or VDSL with or without vectoring).

When looking at the regulatory framework to stimulate investment and maintain competition and consumer satisfaction, the role of the state has been to provide a framework for a competitive market, provide a national broadband plan and provide state aid and public funding. The NRAs' role is to promote both sustainable competition as well as efficient investment and to safeguard consumer benefits. Our main tools of regulation are SMP regulation (Article 12/13 Acces Directive ⁽²⁹⁾) foreseeing wholesale products such as duct access, unbundled local loop, sub-loop unbundling and VULA/bitstream. Furthermore, regulation foresees symmetric regulation (Article 12 Framework Directive ⁽³⁰⁾), particularly regarding access to 'vertical infrastructure' (Inhouse) and network sharing/co-investment. Where roll-out is based on state aid (State Aid guidelines) NRAs are increasingly involved to ensure consistent wholesale access. Of course, the interplay between these three instruments and the need for consistency remain a challenge.

The biggest challenge, however, in view of migration to NGA networks characterised by a high level of economies of scale, is to maintain level of competition currently achieved.

Here are some of the options on the table:

- publicly financed network/single national network? (e.g. Australia);
- ownership unbundling as in the energy sector;
- functional separation;
- two vertically integrated networks without access obligation, i.e. 'two is enough for competition';

⁽²⁹⁾ Directive 2002/19/EC on access to, and interconnection of, electronic communications networks and associated facilities.

⁽³⁰⁾ Directive 2002/21/EC on a common regulatory framework for electronic communications networks and services.

- two independent networks plus intra-platform competition following SMP regulation, un-bundled xDSL and FTTH.

The underlying principles of the regulatory framework are that infrastructure competition works, that 'Two is NOT enough for competition', that competition drives investment and that state aid is only used where markets fail.

A workshop held at BEREC EWG level with country case presentations facilitated a workshop at the level of the BEREC BoR on fundamental issues. After discussions at the workshop the following hypotheses were retained:

- the 'ladder of investment' can still be used in a NGA environment; however, NGA makes stepping up more difficult. In some cases a kind of VULA/bitstream product might turn out to be the highest rung. This evidence is likely to differ between and within countries;
- there seems to be evidence that activity of municipalities positively correlates with FTTH roll-out;
- upfront commitments/payments seem to encourage fibre deployment;
- after a rather long period characterised by a large gap between penetration and take-up in most Member States, recently some Member States have experienced an increased take-up rate of high-bandwidth access lines.

4.2 Recent market development

Looking at recent figures we see a dynamic development of NGA roll-out in Member States:

- the dynamics of NGN is increasing as they are being rolled out by operators at an increasing pace. Figures on the progress of NGA deployment within Europe confirm this view. Within just one year, from April 2012 to May 2013, a number of European incumbents increased their NGA coverage considerably. For example, in the UK coverage increased from around 25% of households to almost 55%, in Denmark from under 40% to almost 60%, and in the Netherlands from just over 40% to almost 70% ⁽³¹⁾;
- the latest COCOM committee working document on broadband access in the EU indicated that take-up of NGA increased sharply by 42% between July 2012 and July 2013; one in four subscriptions were NGA in July 2013. In a number of Member States NGA already represents the majority of subscriptions (Romania, Bulgaria, the Netherlands, Sweden, Lithuania, Liechtenstein and Poland);
- new entrants provided 77% of NGA subscriptions despite the fact that the incumbents have a 93% market share of VDSL.

Is it true that Europe is lagging behind the Asian-pacific region and the US in terms of broadband development? A detailed analysis is required to answer this question. Any comparison with Asia needs to take into consideration that roll-out occurred with public money to a very significant extent. Whether this approach can serve as a model for Europe seems to be questionable. Furthermore, it needs to be considered that the population is more concentrated in metropolitan regions where roll-out costs per household are relatively low. These factors need to be taken into account when evaluating and interpreting global statistical indicators.

The US on the other hand is characterised by a relatively high level of private investment. However, is the performance of fixed line networks in the US living up to this investment level? ⁽³²⁾ Furthermore, a number of Member States in Europe have a higher broadband penetration than the US according to the figures of the OECD. While the penetration rate is below 30% in the US, countries like France, UK and Germany achieve penetration rates of around 35%.

Sometimes the high revenues of US telecommunications markets are stressed. These follow from the relatively high price level with which US consumers are confronted and which are likely to be related to a relatively low intensity of competition. In terms of prices, European markets appear strongly competitive: fixed broadband tariffs in 16 countries in Europe (from the 23 reported by the OECD) are lower than those in the US ⁽³³⁾.

In spite of this, some consider the US market as a model for Europe and European telecommunications policy, particularly with regard to the consolidated US market structure. However, it is highly questionable whether the promotion of market consolidation is helpful for the goals of the European digital agenda. In this context some argue that there is a necessity for global com-

⁽³¹⁾ NGA coverage, April 2012, Western European Countries (Source: Cullen International Research).

⁽³²⁾ 'Quality of Broadband Services in the EU' (A study prepared for the Commission DG Communications Networks, Content & Technology), SamKnows, March 2012.

⁽³³⁾ OECD Broadband Portal [<http://www.oecd.org/sti/broadband/oecdbroadbandportal.htm>]

petitiveness of European telecommunications operators. But does sheer size really shield from potential takeovers from across the ocean? Isn't competitive pressure what made our operators stronger and more efficient?

BEREC remains convinced that following the fundamental principles of the regulatory framework, namely promoting effective competition and regulatory predictability to incentivise efficient investment for the benefit of the European citizens, is the best way to facilitate the transition towards NGA. Given however that competition is the best driver for efficient investment, BEREC needs to reflect how this can best be achieved in an environment with NGA economics.

In view of the perceived coverage vs. competition trade-off there remains vital discussion on how to maintain the level of competition in view of the migration to NGA networks. Platform competition between cable and incumbent infrastructure is seen as the outcome of consolidation processes in some Member States, whereas experience and a number of investigations on market structure and competition have taught regulators that the hypotheses that 'Two is not enough for competition' continues to hold. This implies that in many cases fixed infrastructure will continue to require regulation.

5. Developments related to European net neutrality Regulations

5.1 BEREC's approach to net neutrality

Under the regulatory framework it is the task of the NRAs to promote end-users' freedom to access and distribute content and run applications of their choice online, to promote competition (including in the delivery of content) and to promote innovation. These objectives are best served by the unhindered operation of the internet, governed by the principle of 'net neutrality'.

To BEREC, net neutrality describes the principle of equal treatment of network traffic. A violation of the net neutrality principle is considered unlikely if all traffic is treated equally on a best effort basis. The benefits of net neutrality notably include the support of innovation and of end-user choice. In terms of innovation, the model offers low entry barriers on the open platform of the internet, which provides particularly fertile ground for new content and applications to develop. In terms of end-user choice, the open internet fosters users' ability to access and distribute any content and/or application.

To promote net neutrality in their markets NRAs should develop an efficient and proportionate policy, namely by: (1) stimulating market forces in order to discipline the provision of IAS offers; (2) monitoring the services provided and evaluating whether deviations from net neutrality occur; (3) ensuring the resolution of net neutrality issues, notably in the case of degradation of service. BEREC has further identified the following assessment criteria to assist NRAs when deciding on the 'reasonableness' of traffic management practices and contract restrictions: non-discrimination between players, end-user control, efficiency and proportionality, and application agnosticism⁽³⁴⁾.

5.2 Net neutrality provisions in the proposed Regulation

On 11 September 2013, the Commission presented a draft Regulation laying down measures concerning the European single market for electronic communications. BEREC noted that the proposal represented a shift in policy orientation on several topics⁽³⁵⁾. In the area of net neutrality, the Commission's proposition was broadly in line with the principles and analysis developed by BEREC. However, the proposal left certain policy directions and concepts (which are key to ensuring NRAs' ability to act) unfocused, and therefore BEREC suggested further discussion and fine tuning.

Given the complex and continually evolving world of internet communications, in order to protect consumers and innovation in this field, NRAs require a wide remit and the possibility to refer to wide-reaching rules and well-defined common concepts. In particular, BEREC took note of the proposed conversion of an existing NRA duty to 'promote end-users' rights to access

⁽³⁴⁾ BoR (12) 146 – Summary of BEREC positions on net neutrality.

⁽³⁵⁾ BoR (13) 104 – BEREC statement on the publication of a Commission proposal for a Regulation on the European single market.

BoR (13) 142 – BEREC views on the proposal for a Regulation 'laying down measures to complete the European single market for electronic communications and to achieve a connected continent'.

content' into a new user's right to access. BEREC asked for clarification on the extent of this end-user freedom, by complementing the definition of specialised services and explaining their relationship to IAS, and by clarifying the list of criteria to assess forbidden practices. Furthermore, BEREC recalled the central role of NRAs in developing approaches to compare IAS performance and measurement systems to identify degradation.

BEREC expressed its engagement to provide technical and sector expertise, and recalled its commitment to helping to deliver tangible benefits to the European communications sector and to the European economy.

5.3 Public debates and policy developments

In 2013, BEREC collected information regarding the development of the open internet and net neutrality in the BEREC countries by circulating a questionnaire to NRAs. All Member States have transposed the telecom package, which includes relevant provisions regarding net neutrality⁽³⁶⁾. Two Member States (the Netherlands and Slovenia) have adopted net neutrality legislation going beyond what is foreseen by the 2009 framework. In the Netherlands an amendment to the telecom law is effective since 1 January 2013, according to which content may not be blocked or degraded, and within the public ISPs may not differentiate tariffs between different types of contents. For 'separate services' (which are provided over the internet, and must not be confused with 'specialised services') tariff differentiation is allowed. In Slovenia, operators and ISPs are forbidden to hinder, withhold or slow down internet traffic at the level of individual services or applications, or take measures to degrade these services or applications. Slovenian law provides for a number of exemptions, whereas urgent technical measures are necessary to preserve other legal objectives and rights, such as avoidance of network congestion, integrity and security of network, restriction of unsolicited communications, and implementation of court decisions.

Over the years, parliamentary debates have developed and bills have been proposed in other EU countries, such as Belgium, France, Germany and Portugal. Some countries have relied on co-regulation or self-regulation. However, the 'wait and see' approach appears prevalent in Europe, especially at the current stage when the Commission and Parliament have taken steps towards a more harmonised normative framework regarding the open internet and net neutrality.

In 2013, government initiatives were taken in Belgium, the Czech Republic, Finland, France, Germany and the UK. In most cases, these initiatives consisted of strategy papers, industry reports and official statements which primarily aimed at illustrating the government's views on net neutrality among other relevant topics in the national digital agendas. In Finland, the government's actions included preparation of a comprehensive reform bill touching on net neutrality topics to be adopted in 2014.

Parliamentary and government initiatives fed into rather lively public debates on the open internet and net neutrality at the national level. In some countries, like Germany, net neutrality was a debated topic during the last electoral campaigns, although in most BEREC countries discussions appear to be restricted to experts and internet chain actors.

Most NRAs have played an important role in promoting a better understanding of net neutrality topics within national debates, either by publishing reports and studies or adopting official positions and launching public consultations. Several NRAs have also provided guidelines or promoted voluntary codes of conduct in line with BEREC's approach to traffic management. This is the case for RTR in Austria, NMHH in Hungary, AGCOM in Italy, NPT in Norway, and Ofcom in the United Kingdom. Some approaches allow only reasonable traffic management, whereas others primarily encourage transparency regarding traffic management. The majority of NRAs have used a soft regulation approach, involving other stakeholders including consumer organisations in addition to the industry. Some NRAs showed a preference for a market-driven approach to net neutrality.

The most common net neutrality-specific measures in Europe are recommendations and resolutions to increase transparency in the market. For instance, in May 2013 the Spanish regulator CMT referred to BEREC's definition and approach to net neutrality in a resolution on the legality of Spanish MNO's practice to allow the use of VoIP services only for those customers that subscribe to the highest tariff plans. In Germany, BNetzA launched a public consultation on meas-

⁽³⁶⁾ Transposition was completed in the last Member State in January 2013 European Parliament, Committee on Industry, Research and Energy, Implementation report on the regulatory framework for electronic communications (October 2013). (2013/2080(INI))
<http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//NONSGML+REPORT+A7-2013-0313+0+DOC+PDF+VO//EN>

ures to increase transparency for IAS in the spring of 2013. Other measures have been adopted in the last few years by several NRAs, e.g. RTR (Austria), RRT (Lithuania), ANACOM (Portugal), ANCOM (Romania) and PTS (Sweden).

As for the competitive impact of differentiation practices, the prevailing approach among responding NRAs is that possible deviations from net neutrality are dealt with on a case-by-case basis. An example of this approach is the statement published by BNetzA in June 2013 in reaction to the announcement of Deutsche Telekom that it will introduce traffic management. More generally, there is wide agreement among national regulators that the existing regulatory tools enable NRAs to address competition concerns related to net neutrality for the time being.

5.4 Regulatory monitoring activities

In 2013, the BEREC net neutrality EWG prepared a draft report on monitoring the quality of IAS in the context of net neutrality ⁽³⁷⁾. The main goal of this report is to establish a basis for the creation of IAS quality monitoring systems covering two main use cases: providing transparency on the quality of the IAS for end-users and regulatory supervision through the monitoring of quality of the IAS with regard to potential degradation of service.

The majority of NRAs have a quality monitoring system in place, although very few include specific measures aimed at detecting differentiated treatments of internet content and applications by ISPs (e.g. throttling, blocking and prioritising). Some NRAs, like PTS (Sweden), are currently exploring the feasibility of monitoring tools tailored to detect net neutrality deviations, or have conducted specific tests because their system is still under implementation, like BNetzA (Germany) and NMHH (Hungary). Ofcom (UK) includes a section on traffic management practices in its annual report into the UK communications infrastructure, considering their compatibility with net neutrality principles. Similarly, ARCEP (France) carried out an investigation activity in 2011 by sending questionnaires on traffic management to ISPs, both for mobile and fixed networks. ARCEP (France) and AGCOM (Italy) include a set of parameters in their quality monitoring systems to detect selective degradation of single applications or services, like VoIP or video streaming.

Most quality monitoring systems implemented allow end users to measure their individual internet access with respect to the throughput rate (upload and download) achieved; but also additional parameters like latency and application-specific performance are assessed. These systems are often web-based and present aggregated information of actual quality of internet access products available on the market, by means of crowd sourcing. The monitoring systems are mostly operated by the NRAs themselves or by independent organisations, but may also be performed by the ISPs.

To set up the quality monitoring systems, the NRAs involved ISPs and consumer organisations, and in some cases end-users. Some differences with respect to the parameters and scope of the measurement can be observed. As regards the technical parameters of internet access throughput, delay and packet loss seem to be the most important ones, but also the performance of various specific applications is measured. The monitoring systems have been implemented mostly for transparency reasons to enable informed end-user choices. Regulatory supervision is also a concern to NRAs: some monitoring systems gather long-term information on the overall development of quality, and identify situations when NRA intervention may be required.

Several NRAs also expressed the need for extending the geographical scope of measurement from the national to the European or global level. This would require a common view on best practices on how to build and operate the quality of monitoring systems and parameters to focus on.

The BEREC quality monitoring work stream reflects these observations. One focus is the exchange of expertise and building of know-how on technical, regulatory and cost aspects related to monitoring quality of IAS in the context of net neutrality. The draft report provides an overview on quality monitoring solutions available and recommends how to implement solutions.

Quality assurance of measurement results and regulatory assessment of the results require deep understanding of the underlying complexities of internet communications and monitoring methodologies. It is expected that this understanding will develop over time, and the exchange of experience among NRAs will foster convergence of practices. Participation in and contribution to standardisation activities are good strategies for harmonisation in this area.

When it comes to gaining experience with the assessment of degradation of service, BEREC recommends that NRAs collaborate to develop a common regulatory practice. Harmonisation

⁽³⁷⁾ BoR (14) 24 – BEREC report on monitoring the quality of internet access services in the context of net neutrality.

of evaluation of potential degradation of IAS as a whole, as well as assessment of degradation of individual applications, should be emphasised.

BEREC will continue investigating quality monitoring, aiming at an evolutionary approach towards the convergence of existing measurement systems. BEREC also suggests conducting a feasibility study for a potential future multi-NRA opt-in monitoring system.

5.5 Ecosystem dynamics and market developments

The empirical evidence gathered internally by BEREC in 2013 to inform of its work on ecosystem dynamics and demand-side forces confirms the findings of 201226. Despite increasing bandwidth requirements, a number of ISPs continue routing traffic on a pure best efforts basis, without implementing prioritisation practices and without differentiating between applications in terms of quality and price. Specific practices, such as blocking or throttling of peer-to-peer traffic or VoIP, mostly occur in the mobile market. Most NRAs still refer to congestion management as the main reason for traffic management by mobile operators. Most mobile operators in Europe reserve the right to carry out temporary traffic management in case of congestion, generally stated in consumer contracts or mobile operators' websites.

Market structures and local consumer behaviour vary greatly across Europe and are evolving rapidly in most BEREC countries. A common new trend noted by NRAs in 2013 is the launch of bundle offers with content providers by both fixed and mobile operators.

In the fixed broadband market, bundle products including voice, IPTV and VoD type of content are marketed. In some but not all national markets, MNOs combine their offers with content platforms which provide video (e.g. TV channels) and/or music streaming provided by some major OTT players.

The mobile sector is still the main area of concern among NRAs, and a number of emerging differentiation practices have been reported as worth monitoring. One is the introduction of data caps or other billing policies that distinguish between applications accessed using the IAS. Some mobile operators are launching offers where traffic from social media services (e.g. Facebook and Twitter) is not counted against data volume caps. In addition, some cases have been observed of new virtual mobile operators not including into their data caps certain selected data transmission parts, e.g. when communicating with certain web pages or with particular information sources.

In this context, only a few regulators reported lack of transparency from mobile operators using such price differentiation in their data caps tariffs. Similarly, some national mobile markets have experienced the launch of premium offers allowing the use of VoIP (premium packages) while basic offers do not include access to VoIP applications. These policies are usually publicly communicated by mobile operators.

In fixed internet access markets, some ISPs throttle peer-to-peer traffic during peak hours. Prioritisation of traffic is mostly implemented for specialised services (e.g. IPTV) on fixed networks, where TV traffic has a dedicated capacity at the expense of IAS (when both are simultaneously used by the same end-user).

Finally, very few NRAs have reported specific relevant net neutrality incidents. In France, the case of fixed ISP free blocking advertising in January 2013 led to an intensive public debate on net neutrality. Moreover, in April 2013, Deutsche Telekom's announcement to change its price structure for fixed-network IAS from 2016 raised concerns among internet activists and (some) public media that it might constitute a net neutrality violation.

Consumer awareness is relatively low at the national level, according to the NRAs. More specifically, individuals are in many cases not aware of the technical concepts and terms used in net neutrality debates, as most definitions are not part of common language. Nevertheless, current practice of handling complaints shows that they are interested in and aware of the providers' traffic management practices, such as VoIP blocking, P2P blocking or throttling and traffic optimisation techniques. In two national markets, NRAs consider consumer awareness to be high because, among other things, net neutrality is a relatively hot topic in national public debates.

In 2013, BEREC initiated a project aimed at providing NRAs with a more evidence-based understanding of market dynamics, particularly from the end-user perspective, in order to inform of their approach to net neutrality issues. This project explores the reasons for the different traffic management responses of ISPs to similar technical, legal and market constraints; assesses how consumer expectations and market dynamics are reflected in practice in retail offers; and evaluates the role and impact on net neutrality of competition, transparency and the ability of consumers to switch easily. This work will continue in 2014.

6. Market impact of the International Roaming Regulation developments

6.1 Structural changes to the international roaming market

In addition to the obligation to provide wholesale roaming access (both direct and resale), which allows all operators such as MNOs, mobile virtual network operators (MVNOs) or resellers to contract wholesale roaming services, the provisions in the Roaming Regulation III also allow retail customers to contract international roaming services separate from their domestic services. To this end, Roaming Regulation III introduces the implementation of structural solutions to foster competition in the international roaming market. Pursuant to Articles 4 and 5 of Roaming Regulation III, retail customers will have the possibility to pick a roaming provider for international roaming services from a provider other than the one supplying domestic mobile services, while keeping their phone number. Additionally, with regard to data roaming services, customers must also have the chance to sign up for the use of data services when travelling with an operator located in the country they visit (local break-out, LBO).

These decoupling measures will have to be made available to customers by 1 July 2014. All stakeholders involved in the mobile industry were organised in the industry platform initiated by the Commission in December 2012. BEREC designed guidelines in close cooperation with the industry platform and published them at the beginning of July 2013.

Apart from future competition once the separate sale of roaming services provisions will enter into force, the following structural changes in the market were observed in 2013:

- introduction of the obligation to sell wholesale services to all market players. In general it has not implied relevant changes at the retail level, as most mobile operators were already using roaming wholesale inputs from other operators;
- increase of the number of alternative tariffs offered by operators, as well as their use by customers. Most operators now offer daily tariffs, bundling together a certain number of voice minutes, SMS and data traffic. This is the case particularly for data roaming and could be an outcome of increased pressure stemming from the provisions in the Roaming Regulation with regard to data roaming. BEREC had already observed this in some Member States before Roaming Regulation III came into force;
- some operators also offer special offers in the footprint of their group, lowering prices or even offering domestic prices for roaming under specific conditions.

6.2 International roaming prices and volumes

BEREC regularly monitors the international roaming market with regard to the development of roaming prices and volumes. To this end, BEREC collects market data (wholesale and retail prices, volumes and revenues) and publishes its findings twice a year in its benchmark data reports.

The two benchmark reports that cover the first three-quarters of 2013 show a good level of compliance in all EU Member States with the provisions specified in the Roaming Regulation III. Retail customers have access to a Euro-voice, Euro-data and a Euro-SMS tariff. At the wholesale level, charges for wholesale voice, SMS and data services are in line with the declining price caps.

The average retail prices for the Euro-voice tariffs remain fairly close to the caps defined in the current Roaming Regulation. As the price caps include a glide path, during 2013 Euro-voice tariffs did not follow this glide path. Providers may not find it attractive to compete on providing lower Euro-tariffs, despite the significant margin between wholesale and retail caps. Prices for unregulated voice calls made and calls received (alternative tariffs) were lower in 2013 than in the same period for 2012. However, the average prices per unit for alternative tariffs were in total higher than the Euro-tariff, and the price level of those alternative tariffs were much more stable compared to the declining Euro-tariffs. Although the majority of voice traffic was generated by the Euro-tariffs, alternative voice tariffs account for 33% of calls made and 28% of calls received.

Retail voice prices for calls to outside the EU EEA area (rest of world, RoW) were significantly higher than the prices for calls within the EU countries. BEREC could not identify any sign that price increases for unregulated RoW calls would be a result of compensating losses due to lower prices for regulated roaming services.

Retail and wholesale prices for roaming SMS have declined along the built-in glide path for the corresponding price caps. Similar to voice traffic, the Euro-SMS tariffs account for the majority

of SMS traffic. But in contrast to voice, unregulated SMS tariffs only make up 14% of the total volume.

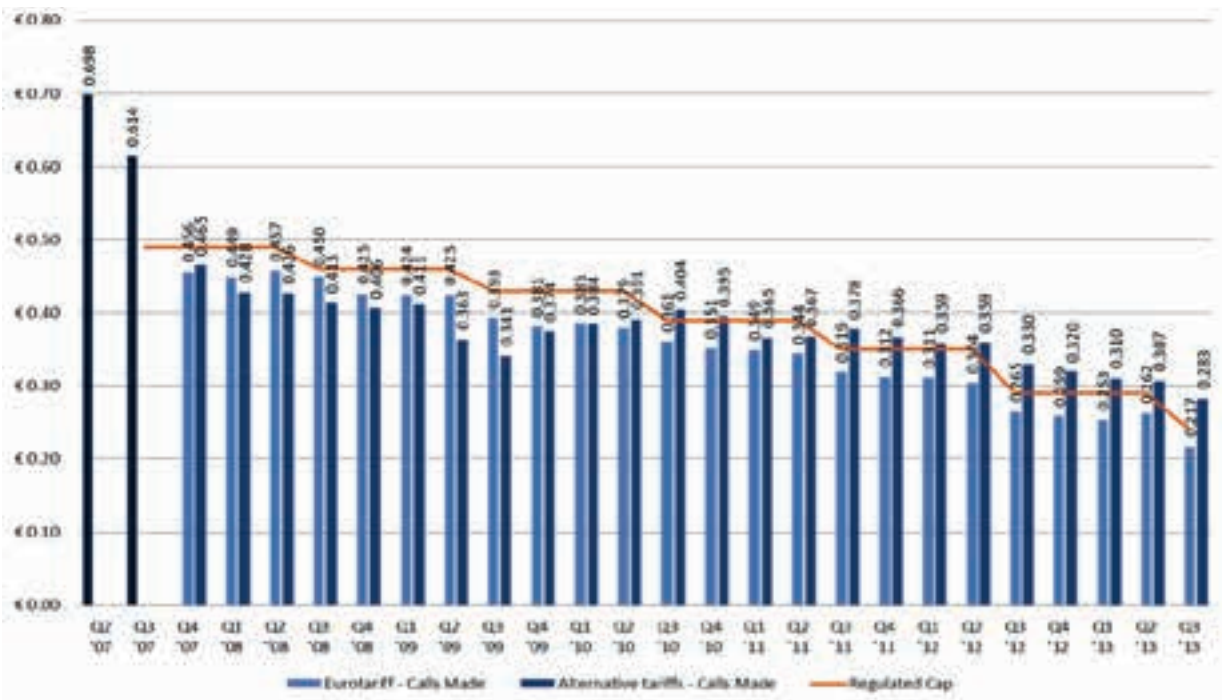
Roaming Regulation III introduced a price cap for retail data roaming services, which led to a drop in retail prices. In any case, throughout 2013 prices for Eurotariffs were much lower than the maximum prices considered in the Regulation (EUR 0.45/MB). This means that, contrary to the case of voice and SMS, operators are going further than what is required by the Regulation in reducing prices for data services to increase the use of these services. Retail prices fell from approximately EUR 0.50 in the third quarter of 2012 to approximately EUR 0.20 in the third quarter of 2013. BEREC also notes a significant difference between the prices for non-group retail data roaming in 2011 and the Euro-data tariff in 2012 and 2013. Wholesale data roaming prices also decreased following the caps. In the third quarter of 2013 alternative tariffs for data roaming were cheaper than the Euro-data tariff for the first time. Summing this up and taking into account the wide variety of alternative data roaming offers that were identified in the BEREC compliance report published in September 2013, it makes sense that only 47% of the customers use the Euro-data tariff when roaming (data for the third quarter in 2013).

Regarding the evolution of volumes for voice, SMS and data roaming, BEREC notes the significant difference between these services. While volumes for voice and SMS remain at almost the same level, data roaming volume peaks each year. This trend is consistent with the evolution of domestic services, where mobile data services are also growing considerably, as a result of the evolution of terminals (smartphones and tablets), networks and the need for customers to use data services. The very relevant reduction in prices for data services also plays a role in this context of growing volumes for data services.

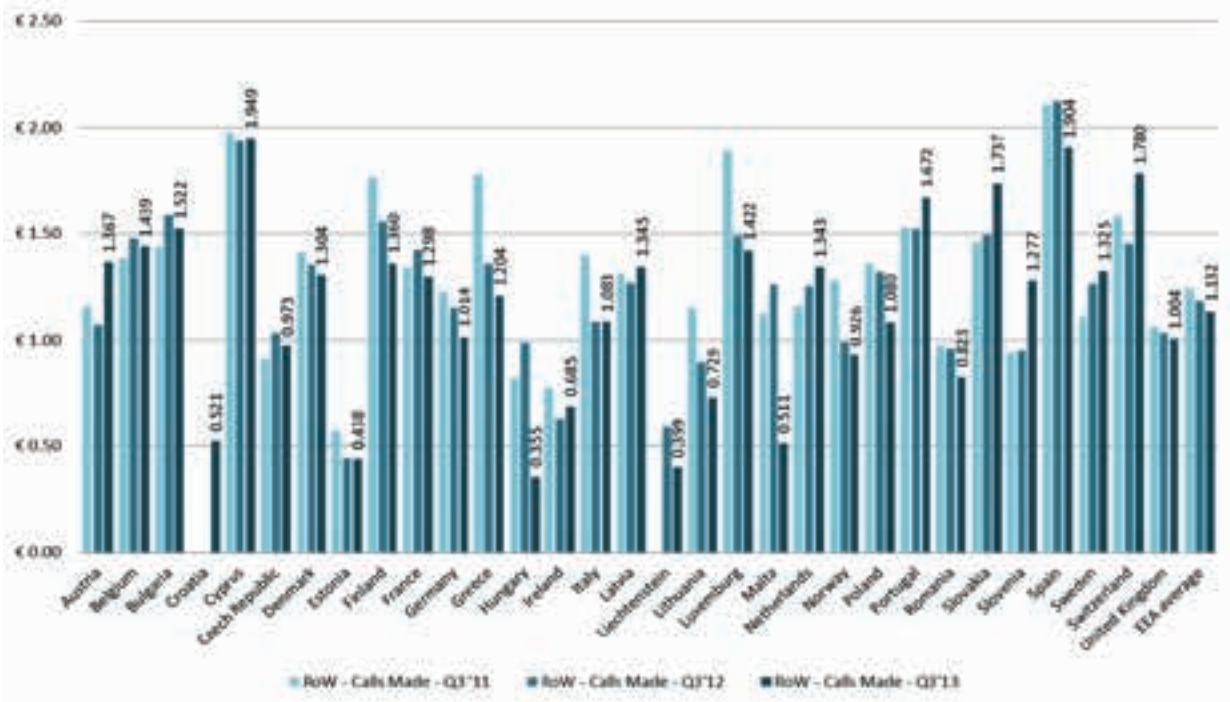
The figures below are extracted from the International Roaming BEREC Benchmark Data Report April 2013 – September 2013:

a) Retail prices: VOICE CALLS MADE

EEA average retail price per minute for intra-EEA roaming voice calls made: Eurotariff and alternative tariffs (EU only for Q2 2009 - Q1 2010)

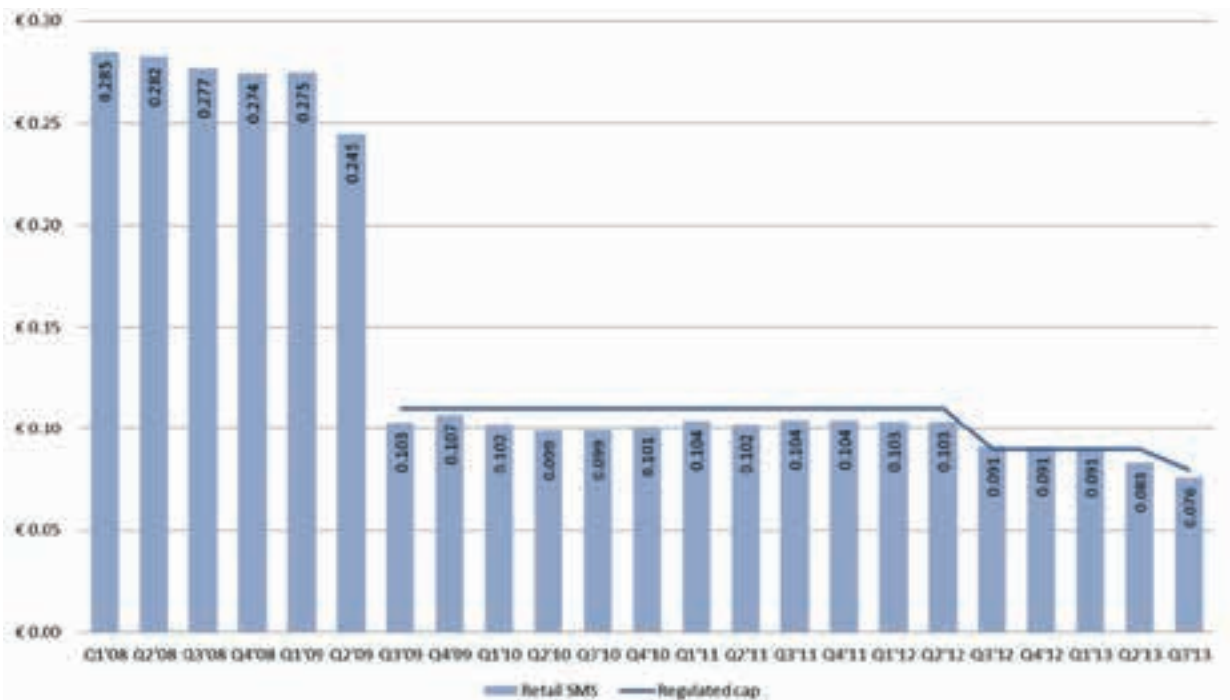


Average retail price per minute for roaming voice calls made by EEA customers outside EEA



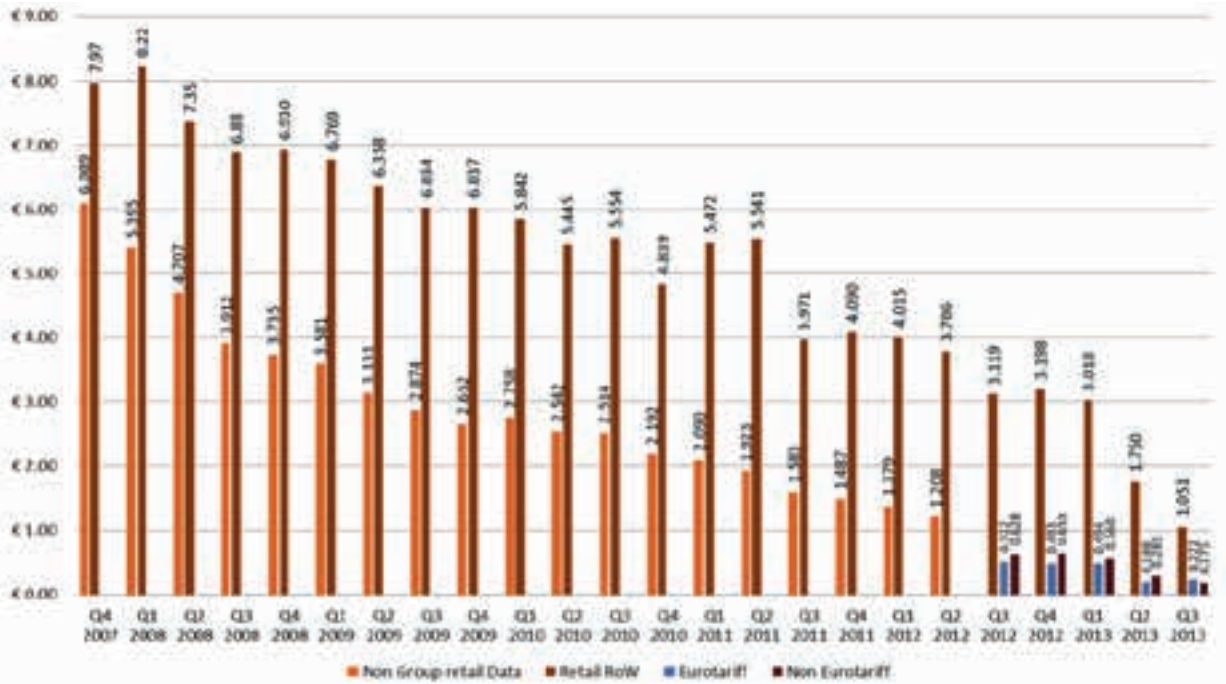
b) Retail prices: SMS

Average price per retail SMS (Euro + Non Euro SMS tariffs) (EU only for Q2 2009 - Q1 2010)



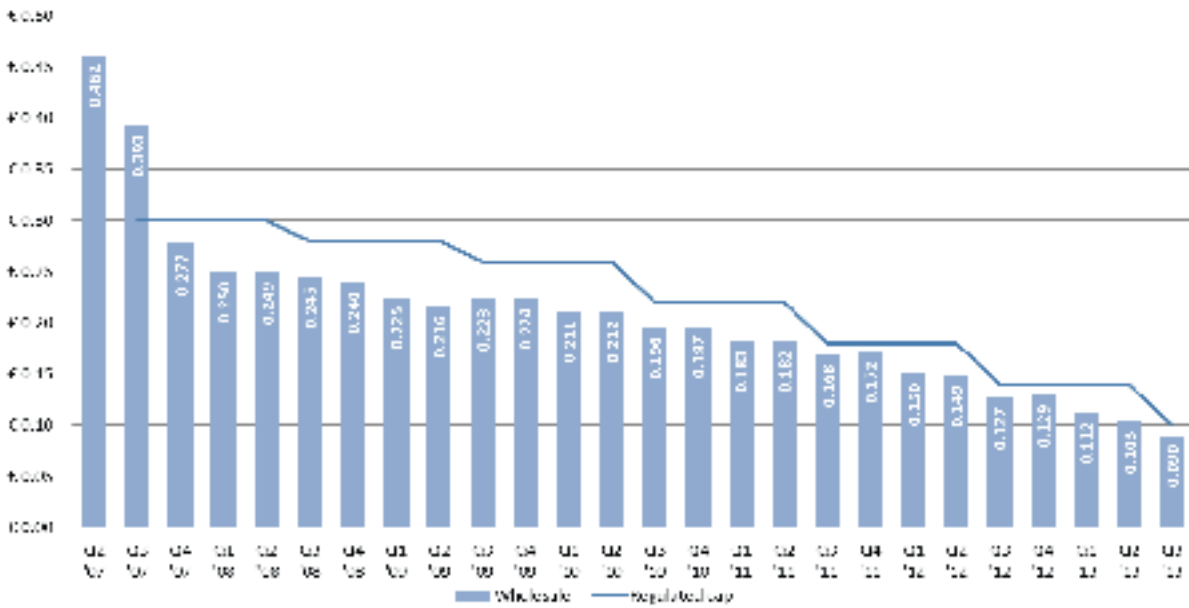
c) Retail prices: DATA

EEA average price per Mb for retail EU/EEA and RoW data (Eurotariff and Non Eurotariff: prepaid + postpaid)



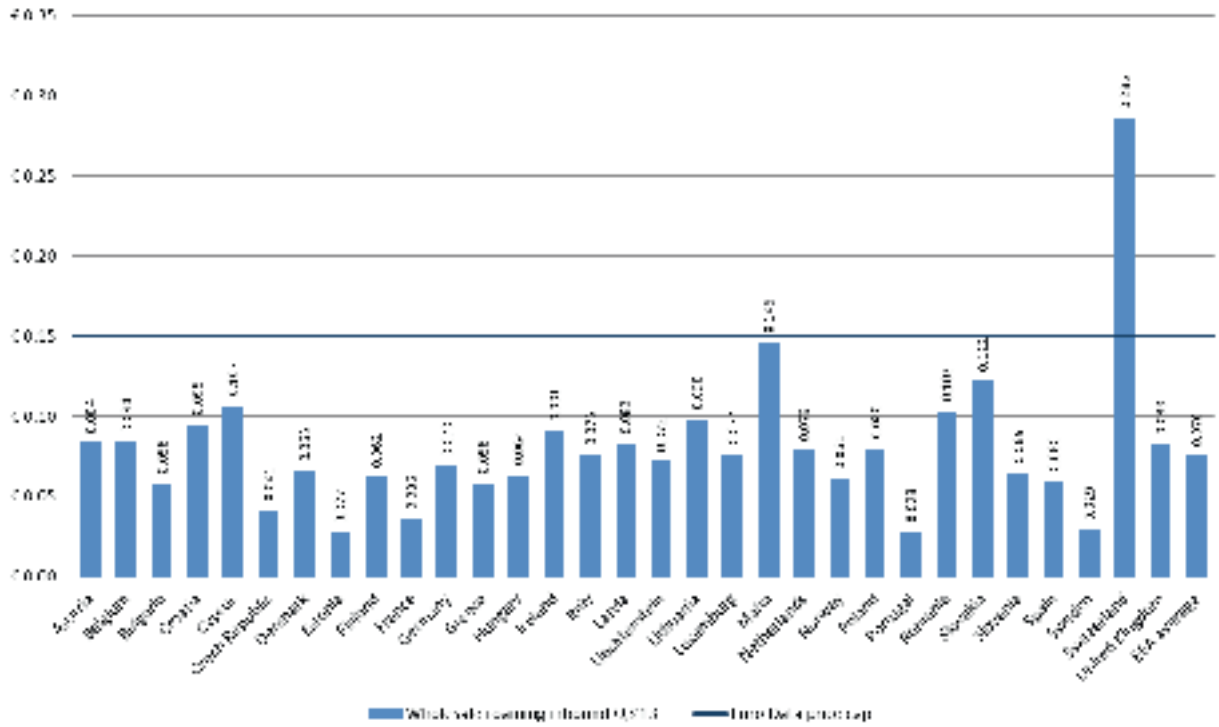
d) Wholesale prices: VOICE CALLS

EEA average price per minute for wholesale non-group roaming voice calls (EU only for Q2 2009 - Q1 2010)



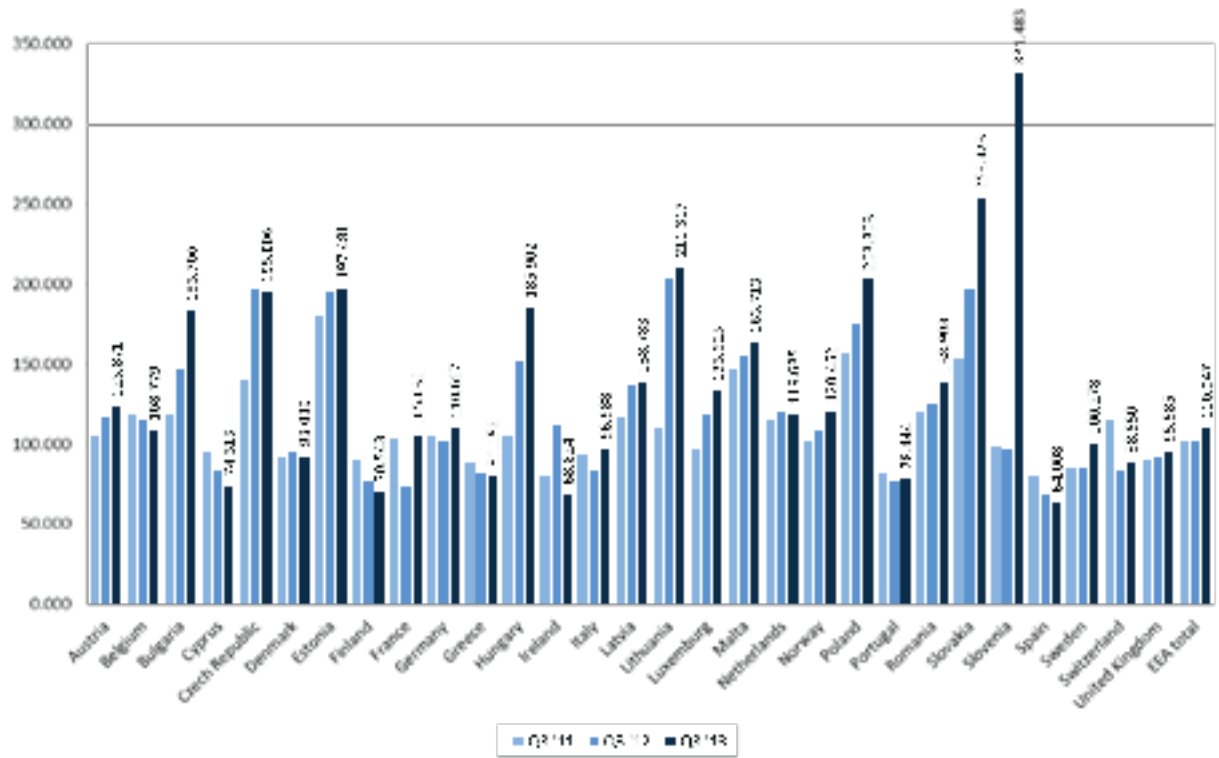
e) Wholesale prices: DATA

Average wholesale data price per Mb for intra-EEA: wholesale roaming inbound



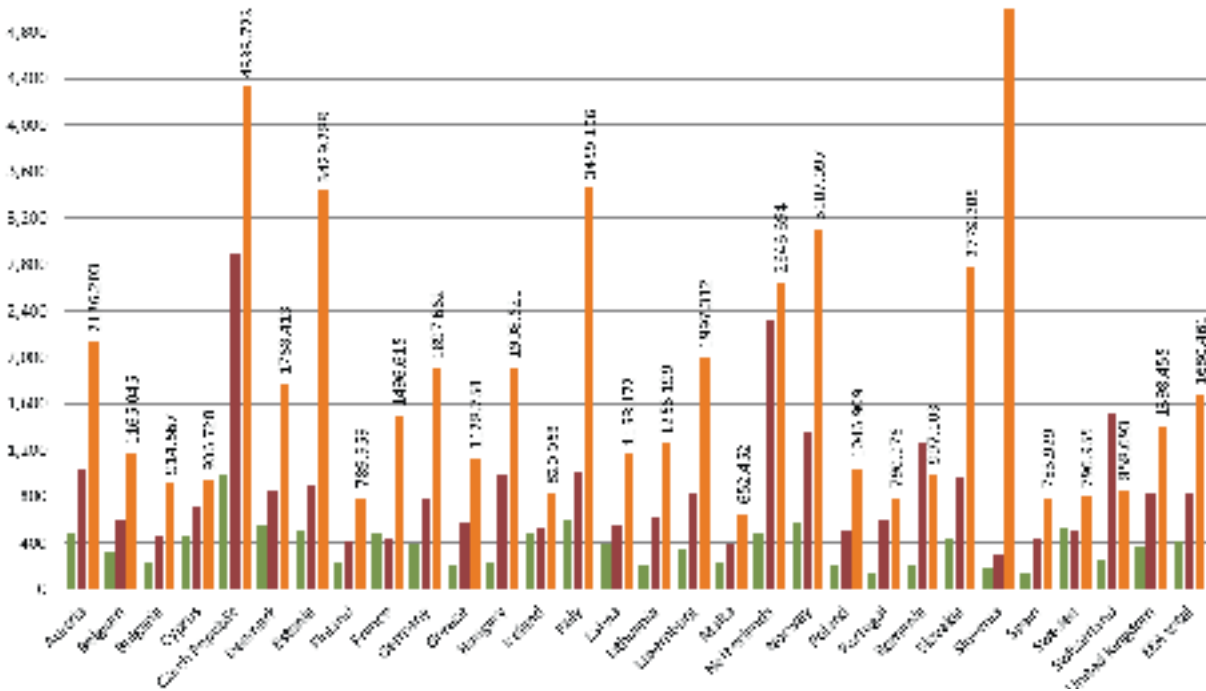
f) Volumes: VOICE CALLS MADE

Volumes of intra-EEA roaming calls made in Q3 2013 (Actual minutes, Q3 2008 = 100)



g) Volumes: DATA

Volumes of retail data in Q3 2013, prepaid + postpaid Index (Q3 2008 = 100)



7. Termination rate developments

BEREC constantly monitors domestic ⁽³⁸⁾ termination rates in Europe and provides an overview report twice a year on MTRs and SMS TRs, while FTR data are reported once a year.

Following NRA interventions in Market 3 ‘Call termination on individual public telephone networks provided at a fixed location’ and Market 7 ‘Voice call termination on individual mobile networks’ and the implementation of the Commission Recommendation on termination rates, the wholesale rates both for mobile and fixed interconnection have fallen substantially. On the contrary, in most EU countries, SMS services are not subject to a wholesale termination price regulation; however, some decrease of SMS termination rates is observed in the EU markets.

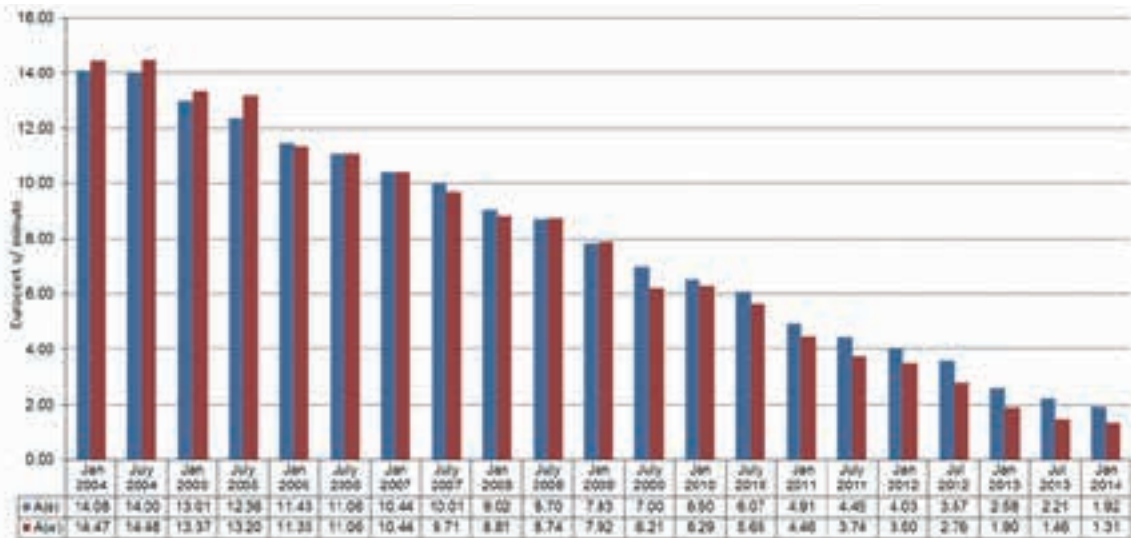
7.1 Mobile termination rates

MTRs have been regulated based on cost-oriented pricing in all countries of the EU(28) since the beginning of the decade. During the last two years NRAs have been implementing the Commission Recommendation on termination rates, which established the LRIC as the cost standard to be applied to the interconnection service for voice in mobile networks at the wholesale level.

As shown in the graph below, wholesale interconnection rates for mobile telephony services in Europe fell markedly between January 2004 and January 2013: the simple average A(s) fell from 14.08 to 1.92 Eurocents per minute, while the weighted average A(w) fell from 14.47 to 1.31 Eurocents per minute. ⁽³⁹⁾

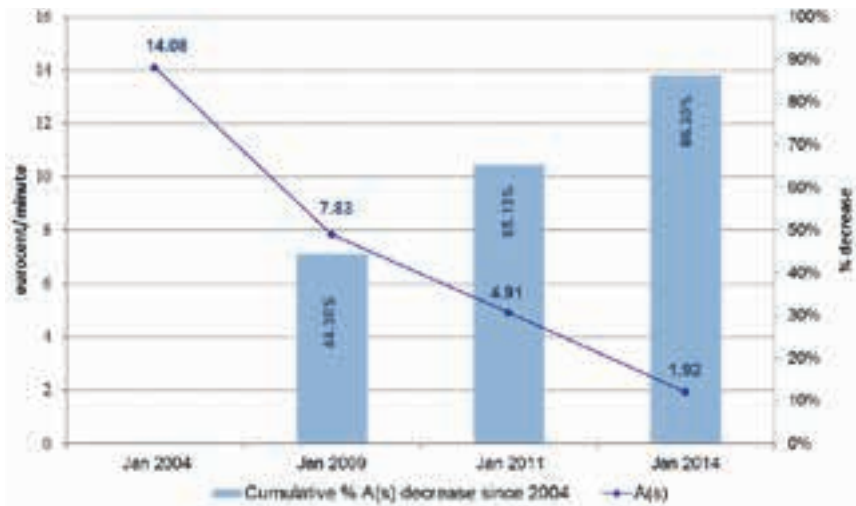
38 Referring to calls originated and terminated in the same EU country.

39 In the BEREC periodic MTRs benchmarks, both a simple average and a weighted average are reported. The latter is calculated by weighting each country’s average with the relative share of the country’s subscribers (over all the EU subscribers). In this regard, an average call duration of three minutes is assumed as a base for calculation, according to the standard formula = (fixed set-up charge + price per minute*3)/3.

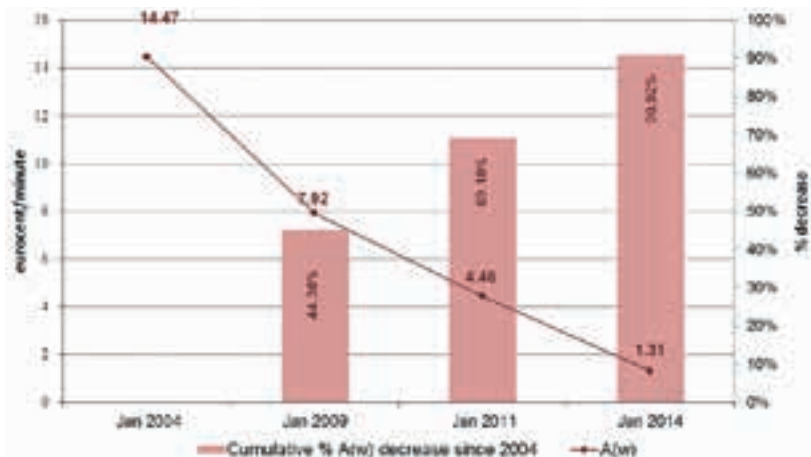


In particular, the following two figures below describe the declines for the simple average and the weighted average in cumulative terms from 2004: a) after 5 years, A(s) = -44.36% and A(w) = 45.24%; b) after 7 years: A(s) = -65.13% and A(w) = -69.18%; and c) after 10 years: A(s) = 86.33% and A(w) = -90.92%.

EU MTRs simple average cumulative decline

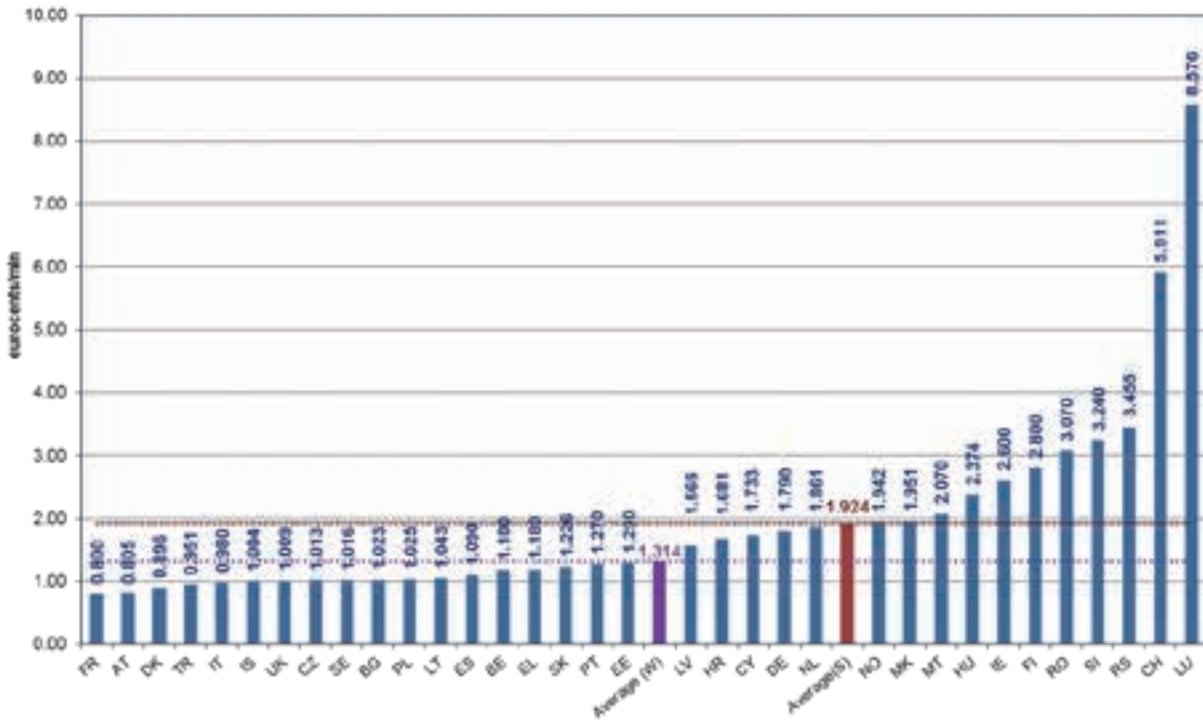


EU MTRs weighted average cumulative decline



For January 2014, individual Member States' average rates ⁽⁴⁰⁾, together with European simple and weighted averages, are shown in the figure below.

⁽⁴⁰⁾ Average MTR per country is obtained by weighting the average MTR of each operator by its market share, measured in terms of subscribers. For those countries which have not set an average tariff and which apply separate rates for the peak/off-peak period, an average price at each operator level was calculated, taking into account the traffic distribution between peak and off-peak periods. If this distribution was not made available, a 50/50 distribution was assumed.



(Source: BEREC termination rates benchmark snapshot (as of January 2014))

7.2 Fixed termination rates

Since the beginning of the liberalisation period, when incumbent operators held all the end customers of fixed network services, the termination service has been regulated not only in the price dimension but also in service characteristics and quality parameters. The regulation of voice termination in fixed networks has resulted from the beginning in a clear overall decline of FTR over the last decade, although of a smaller magnitude than MTR. In the last year, however, a significant reduction in this regulated price has taken place in the EU(28) countries thanks to the increasing implementation of the Commission Recommendation on termination rates, although it remains less advanced than for MTR.

Fixed interconnection services may be supplied at different levels of the incumbents' or any other fixed rival network. BEREC analysis is based on differentiation of network hierarchies and in particular on three different network layers for the relative distance of the interconnection level to the termination point. Although some countries have more layers, a three-layer model is usually offered: local transit (layer 1), single transit (layer 2) and double transit (layer 3). As of 2013, not all NRAs regulate all three layers, but at least one is most commonly found. Moreover, interconnection in fixed networks may be provided under two different regimes: 1) time-based regime (TBI), under which a variable price for each minute of interconnection and for each possible layer is set; and 2) capacity-based regime (CBI), under which a circuit of a specific capacity (usually of 2 Mbps) is provided to the alternative operator. Each circuit may be used for a specific amount of voice minutes, or narrowband IP traffic, depending on the expected demand and quality of service parameters.

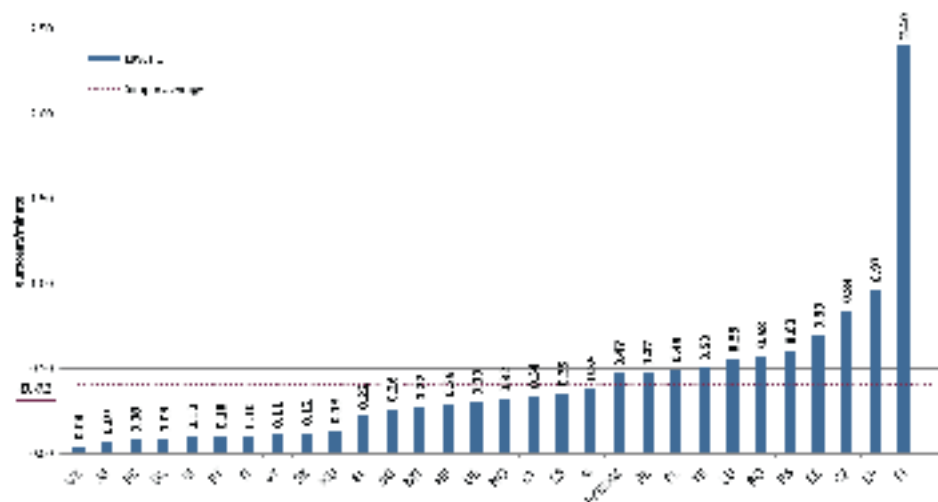
Compared to MTRs, the fall in FTRs is smaller, as the level of tariffs has been significantly lower and the state of implementation of the LRIC cost standard is less advanced than for MTR. As shown in the figure below, the simple average of wholesale interconnection rates for a fixed telephony service terminated in the network of European incumbent operators declined between January 2011 and January 2014: from 0.59 to 0.41 Eurocents per minute (layer 1); from 0.68 to 0.47 Eurocents per minute (layer 2); and from 0.82 to 0.64 Eurocents per minute (layer 3) ⁽⁴¹⁾.

⁽⁴¹⁾ An average call duration of three minutes is assumed according the standard formula = (fixed set-up charge + price per minute*3)/3. In case a capacity-based interconnection regime (CBI) has been implemented for FTRs, an overall average has been calculated.



Individual Member States' average FTRs for incumbent operators' layer 1 as of 1 January 2014 are shown in the table below ⁽⁴²⁾.

Layer 1 (Source: BEREC termination rates benchmark snapshot (as of January 2014))



7.3 SMS termination rates

A traditionally important service in terms of revenues generated is the messaging (or SMS/MMS) service. SMS, as well as a minute of voice that originates in one network and finishes in a different network, needs an interconnection, and thus a termination service, in order to reach the end user. In general, off-net wholesale SMS services have not been subject to price regulation in the majority of EU(28) countries; i.e., they have been freely set by commercial agreements among operators.

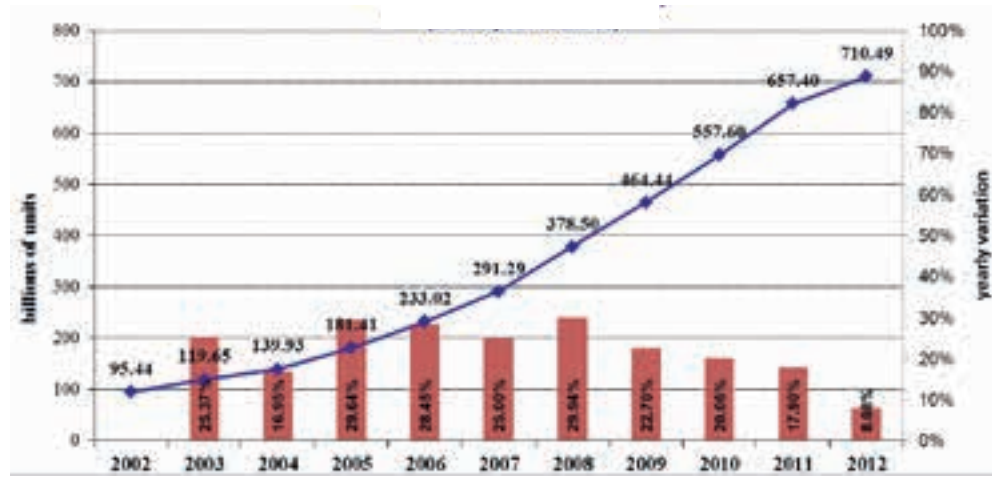
A trend encountered in most EU countries in the recent years is a slowing down of the SMS volume increase, in parallel with reductions in the price paid for each SMS sent.

In this regard, the graph below describes the long-term trends of the total volume of SMS sent at European level ⁽⁴³⁾.

⁽⁴²⁾ In Cyprus, the incumbent operator CYTA uses layer 1 interconnection for local and regional coverage. The rate reported in the figure represents the local termination rate. The regional rate is 0.55 eurocent/minute.

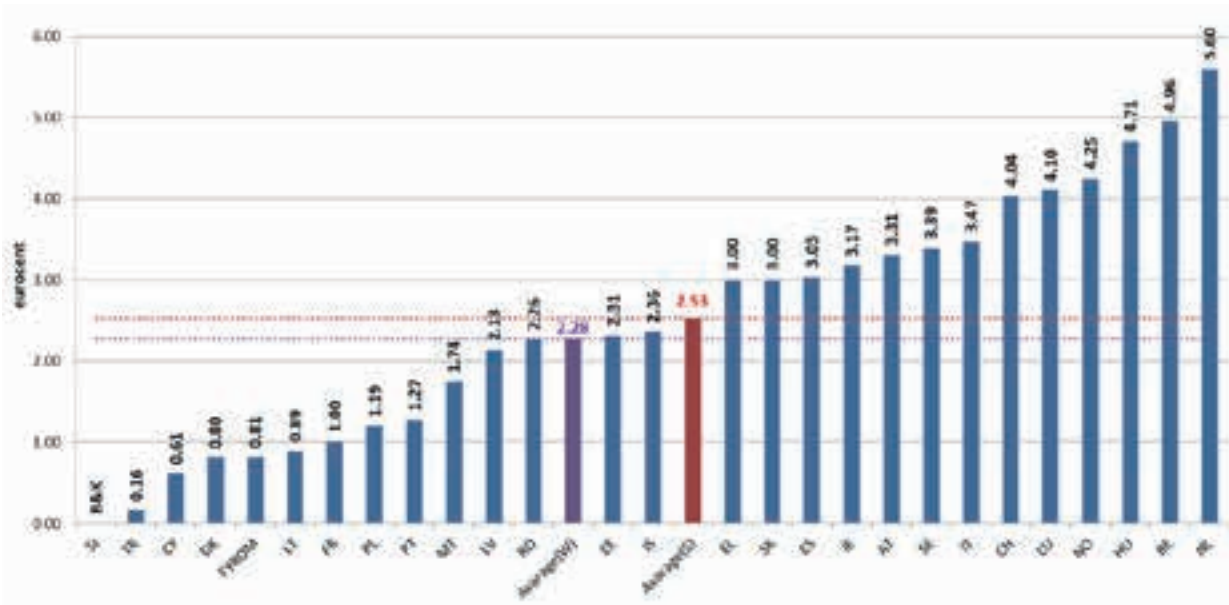
⁽⁴³⁾ The graph is based on the time series of the countries for which information was available for the entire period from 2002 to 2012; namely Austria, Belgium, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Lithuania, Malta, Norway, Poland, Portugal, Romania, Slovak Republic, Spain, Sweden, Switzerland and UK.

Total volume of SMS sent (25 European countries)



The emergence of OTT messaging services, usually at zero marginal unit prices, has impacted clearly on the traditional SMS services offered by the traditional operators as long as they had not switched to unlimited SMS bundles, which may have been hampered by high SMS TRs. The general trend, as reported by the BEREC report for those countries which report on the SMS TRs, is now of reductions in the wholesale prices of SMS.

From January 2013 to January 2014, for those countries which report on the SMS TRs, wholesale SMS termination rates declined respectively from 2.87 to 2.53 Eurocents per minute in terms of simple average, and from 2.73 to 2.28 Eurocents per minute in terms of weighted average. Individual Member States' average rates together with simple and weighted averages as of 1 January 2014 are shown in the table below ⁽⁴⁴⁾.



(Source: BEREC termination rates benchmark snapshot (as of January 2014))

8. Machine-to-machine communications

In 2013, BEREC also focused on a relatively new but challenging topic for the regulatory regime by taking up the project on 'machine-to-machine communications' ('M2M'). M2M covers technologies and services allowing information to be transferred in an automated way with little or no human interaction between devices and applications. These technologies as well as the neighbouring services, collectively designated as the Internet of Things (IoT), should enable many different applications, including smart grids, smart meters, connected cars, e-Health,

⁽⁴⁴⁾ B&K means that 'Bill & Keep' agreements are in place for traffic between all domestic operators: termination rates are reciprocally set to zero.

real-time telemetry, etc. The development of M2M communication services continued in 2013 presented a 20% increase comparing with 2012, Equipment manufacturers already started creating dedicated M2M departments, and network operators have been developing partnerships in order to offer end-to-end M2M capabilities.

From the regulators' perspective, assessing the desirable outcomes for the rapidly evolving ecosystem of M2M communications may pose specific challenges as well as stimulate the evaluation of risks and profits between different categories of stakeholders, at different moments in time. M2M introduces new capabilities for existing assets and new demands on traditional resources.

To provide a first picture of the current regulatory situation in Europe and considering the usual work methodology within BEREC, a set of questions was addressed to NRAs, for which 25 countries provided a full or partial reply. The survey has taken into consideration some of the results identified by the Commission's IoT expert group (2010–2012) as well as results from the 2012 public consultation on the IoT and related reports on this subject.

The responses to the questionnaire emphasise the absence of a formal definition and the multiplicity of informal definitions on M2M. Moreover, it has been detected that most European jurisdictions have not legally defined what constitutes M2M and neither have the European institutions. So far, M2M has been regulated in most European countries through the standard categories of electronic communication regulation, as it can generally be appreciated that each M2M product or service incorporates elements from the more traditional electronic communication markets. However, the exact definition of the markets affected by M2M, or of markets based on supplier propositions designed to answer these specific customer needs, may in some cases prove to be difficult due to the rapidly evolving nature of M2M activities.

The existing regulation affecting M2M services is related to the allocation of numbering resources, an area where the solutions include mobile, fixed (whether alternatively or cumulatively) and specific ranges.

Portability constitutes an open issue where further elaboration and research would be required. It appears that technical aspects to implement portability could condition its feasibility, and the most relevant challenge could be the requirement to physically change the SIM cards that are embedded into the equipment. It appears that control over SIM cards could be of importance for the development of competition in M2M and to enable market entry by smaller players. A pragmatic approach may prevail as to whether and to what extent portability should be guaranteed at the regulatory level.

Roaming may generate various issues. In some specific M2M cases, decoupling as defined by the Regulation may not be available for technical reasons (see BEREC guidelines). Furthermore, in the recent BEREC consultation on roaming guidelines, stakeholders argued that the typical M2M proposition differs significantly from the regulated roaming bundle (designed as a mix of voice, SMS and data), particularly in terms of cost structure.

During the workshop on M2M held in November 2013, BEREC received stakeholders' views on the intersection between M2M services with regulation and on the need for regulatory intervention. The workshop's presentations and the debates have shown that the gradual adoption of M2M products and services raise questions on various topics such as:

- the risk of overconsumption of scarce public resources such as radio spectrum, telephone numbers or IP addresses;
- the risk of long-term issues as a result of path dependence, in particular issues with regard to the adoption of technical standards;
- the risk of competitive bottlenecks at certain levels of the M2M value chain;
- the risk for the security of M2M communications; and
- the risk for data privacy.

On the basis of the preliminary results, BEREC will continue looking into M2M's dynamics and relevant regulatory perspectives. In fact, even though the preliminary survey allows drawing the conclusion that the current framework would not require an urgent regulatory intervention, a constant monitoring of the phenomenon, with a focus on the potential emergence of specific issues, is believed to be advisable.

9. Equivalent access and choice for disabled end-users: where does Europe stand?

Nowadays, 15% of the world's population lives with a disability. This represents about 1 billion people globally. Approximately 16% of the EU population aged between 16 and 64 years old may be considered disabled. However, considering the ageing trend of the EU population and that disability is more present in the upper stages of the age pyramid, it is expected that the percentage of EU citizens suffering from some kind of disability will further increase. Furthermore, the challenges faced by disabled citizens in terms of access to education, jobs, health and cultural goods are immense.

Information and communication technologies (ICTs) such as mobile phones, satellites or the internet, are a unique infrastructure that expands access to key public services. To extend the benefits of ICTs to all, ICTs have to be made accessible to people living with disabilities, so that these technologies constitute an opportunity and not a barrier.

The European Commission is looking carefully at the USA experience of more than 50 years of seriously addressing accessibility issues not only from a legislative approach, but also from a non-discrimination viewpoint and from a procurement aspect.

The Lisbon Strategy for Growth and Jobs clearly established that the adequate availability and usage of electronic communication services and terminal equipment are instrumental in the promotion of equal opportunities for the disabled. To ensure disabled people inclusion in all aspects of life, it is important to improve the situation regarding website accessibility, design for all, interoperability, availability and affordability of equipment, services and applications.

There are documents which aim to ensure the rights of people with disabilities to benefit from and take advantage of ICT-enabled applications in a non-discriminatory way:

- the international standard ISO/IEC 40500, 2012 [Web Content Accessibility Guidelines (WCAG) 2.0] covers a wide range of recommendations for making web content more accessible. Following these guidelines, the content will be accessible to a wider range of people with disabilities, including blindness and low vision, deafness and hearing loss, learning disabilities, cognitive limitations, limited movement, speech disabilities, photo-sensitivity and combinations of these. These guidelines can help in making web content more usable to users in general;
- article 9 of the UN Convention on the Rights of Persons with Disabilities promotes the use of ICTs to enable everyone to fully participate in society on an equal basis with others;
- the new Article 8B added to the International Telecommunication Regulations (ITRs) agreed during the WCIT-12 in Dubai states that 'Member States are encouraged to promote access for persons with disabilities to international telecommunication services taking into account relevant ITU-T Recommendations';
- article 23a(1) of the Directive 2004/38/EC of the European Parliament and of the Council of 29 April 2004 (Citizens' Right Directive) requires that:
 - member States enable the relevant national authorities to specify requirements in order that service providers ensure that disabled end-users have access to electronic communications services that are equivalent to those enjoyed by the majority of end-users, and to ensure that disabled end-users can benefit from the choice of undertakings and services as the majority of the end-users;
 - member States encourage the availability of terminal equipment offering services and functions necessary to enable the adoption and implementation of specific arrangements for disabled end-users;
 - where it has been decided not to specify requirements under Article 23a(1), Member States shall impose universal service obligations to ensure access to and affordability of publically available telephone services at a fixed location and directory services for disabled end-users.

Considering the requirements of the Citizens' Right Directive, but also attending to the different competencies of the NRAs with regard to disability and universal service issues, BEREC published in February 2011 its report on 'Electronic communications services: Ensuring equivalence in access and choice for disabled end-users', which attempted to (a) compile an inventory of measures that NRAs might consider in the framework of the evaluation of any action to be pursued under the terms of Article 23(a)1 and to (b) evaluate, at a high level, the costs and benefits associated with those actions.

To continue consistent actions in this respect, BEREC held the BEREC accessibility workshop on 15 October 2013 in Brussels. It was organised by the EU EWG having as a starting point for

discussion the measures which NRAs might consider when evaluating actions under the terms of Article 23a(1). The workshop provided an exchange of experiences and best practices among NRAs. In addition, several presentations from external stakeholders (the European Parliament, the Commission, multinational telecom groups and terminal manufacturers and representatives of consumer associations) described measures taken in this area independent of eventual requirements established by NRAs either as commercial decisions or as a result of other legislation. Key issues were statistics, praxeology, standardisation, assessable applications and training. Regulatory authorities frequently monitor the electronic communications markets to (a) evaluate whether universal service obligations and other types of obligations related to offers made available to disabled citizens are met and (b) assess whether equivalent access and choice are a reality for disabled consumers. Some NRAs may also have a role in commissioning research and increasing awareness with regard to disability issues. Overall, regulators are also engaged in listening actively to the disability and consumer associations and keeping track of the evolution of their needs, be it in a formal or less formal fashion. The BEREC report on ensuring equivalence in access and choice for disabled end-users may be considered, among other things, as a guide for NRAs action. The report is also a good basis for establishing an Accessibility Act, and the next steps were briefly explained during the workshop.

Furthermore, other means to address accessibility issues are also to be explored as well as the possibility of the biggest EU Research and Innovation programme, Horizon 2020, for research and development focused on disability issues.

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